

***Green Living***  
FOR  
**DUMMIES®**

**by Yvonne Jeffery, Liz Barclay,  
and Michael Grosvenor**



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## Green Living For Dummies®

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# About the Authors

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Yvonne's work has appeared in newspapers, magazines, and books around the world. Her credits include *National Geographic Traveler*, *American Profile*, *The Sunday Telegraph* (UK), and CanWest newspapers. She's also a weekly columnist for the *Calgary Herald* newspaper.

**Liz Barclay** has worked as an adviser, trainer, and manager with the Citizens Advice Bureau, a nonprofit organization in the United Kingdom that provides free, impartial advice to help individuals resolve legal, financial, consumer, and other problems. She still advises small businesses and sole proprietors on relationship management with staff and customers.

Liz is well connected within the media; she hosts *You and Yours*, a BBC radio program, and has worked on a wide range of business and finance programs for the BBC, both on TV and radio. Liz has written for the *News Of The World*, *The Express*, *Moneywise*, *Family Circle*, *Save Money*, and the *Mail On Sunday* personal finance magazine and has also written *UK Law and Your Rights For Dummies* and *Small Business Employment Law For Dummies*.

**Michael Grosvenor** is a leading urban planning professional and freelance writer on sustainability. Through his work and writing, Michael promotes the benefits of making sustainable lifestyle choices. Michael has particular expertise in transportation and advises the private sector and government on policies that promote increased public transportation, walking, and cycling facilities. Michael is a strong advocate for the important role that public transportation plays in cities and towns.

Michael is the director of his own consulting firm and holds Masters degrees in Urban Affairs and Applied Social Research and a Degree in Town Planning. He's also a member of the Planning Institute of Australia and provides advice to the Institute on integrated land use and transportation planning issues. Michael has lived and studied in New York City but currently enjoys an inner-city lifestyle in Sydney, Australia.

# Dedication

To my aunt and uncle, Wendy and Malcolm Jeffery — thank you so much for all your love and support.

— Yvonne

To my best friend and partner, Justine — thank you for your encouragement and support.

— Michael

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Finally, I'd like to thank all the people who are working so hard around the world in so many ways — large and small — to improve the future of the planet and its inhabitants. May each of us be counted among you in our own way.

**From Michael:** My desire to talk to the general public about sustainable living motivated me to write this book. I'm often preaching to the converted in my consulting work. The environmentalists, planners, architects, social scientists, engineers, and geographers I work with find ourselves saying the same things to each other, and we're often scribbling messages and ideas on whiteboards that no one else gets to see.

Writing a book for an audience interested in living sustainably has been very rewarding. Hence, I am extremely grateful to Lesley Beaumont at Wiley Publishing Australia for supporting my idea for this book in the first instance and then giving the go-ahead for its publication.

This book covers a lot of ground — way too much ground for one person to have the required expertise on every topic. I have been able to carry out the necessary research for this book thanks to the thousands of committed professionals out there who have tested, researched, and published their findings about the problems facing the planet. This book could not be written without their passion.

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## **Publisher's Acknowledgments**

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# Introduction

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**I**f you're interested in the environment, want to know a little more about why so many people are concerned about the future of the planet, or want to know what you can do to help, *Green Living For Dummies* is the book for you.

We don't pretend to know how to save the planet. Even if you put the world's leading environmental scientists, researchers, and politicians together in one room, you'd have a great deal of trouble getting them to agree on exactly what to do first and how to do it. However, almost everyone agrees on one thing: that we need to start taking action now in order to stop using the Earth's resources faster than the planet can replenish them.

Many people argue for the need to take seriously drastic action, and they're partly right. Industries need to stop polluting, governments need to support clean alternative energy, and communities at every level need to get onboard with waste reduction. But that doesn't mean that people should ignore the very real gains that every single individual can make toward the goal of a cleaner, greener world.

Just as you can't expect industries, governments, and communities to change overnight, you shouldn't expect to make instant changes yourself. But small steps, consistently taken, *will* make a difference. This book shows you how.

## About This Book

In general, *green living* is about leading the kind of lifestyle that does as little damage as possible to the planet and the living things that call it home. You can find all kinds of practical suggestions in this book for living green — from implementing practical ways to use your car less and take fewer flights to finding locally produced food to using natural cleaning products rather than those that contain a chemical cocktail.

Green living also means doing as little harm as possible to other people, to animals, and to the environment. It's a holistic way of thinking that involves making choices about what to buy so that you're as sure as you can be that animals don't suffer in order for you to have food, clothes, cosmetics, and medical treatment, and that people in far-flung parts of the world who produce the goods you buy are fairly paid and have decent working conditions and standards of living. This approach is often called *sustainable living* and *ethical shopping*, but for the purposes of this book, we put it all under the heading of green living.

Scientific understanding about how to be greener is constantly evolving. It's not unusual to see media reports one week that contradict similar reports from the week before. Because it's often impossible to give definitive answers about the greenest option in any particular situation, this book aims to make you think, spark your interest, and get you started down the road to a greener lifestyle so that you can make informed decisions. The idea is to do something rather than nothing. Start by making simple changes, and make bigger changes as and when you can afford to.

## Conventions Used in This Book

To help you navigate this book, we use a few style conventions:

- ✓ *Italic* is used for emphasis and to highlight new words or terms when they're defined for the first time — such as green terminology like *carbon neutral*.
- ✓ Web site addresses appear in a typeface called `monospace` that makes them easy to spot. Be aware that if an address wraps to a second line, you need to type it in as if there were no break — no hyphens are inserted.
- ✓ For emphasis and ease of reading, the key words and phrases in bulleted and numbered lists appear in **bold**.

## What You're Not to Read

Sidebar are shaded gray boxes containing information that, although interesting, may not be of interest or helpful to every reader. Feel free to skip them if you want to, but keep in mind that they contain some interesting information and problem-solving approaches. Same goes for text marked with a Technical Stuff icon: If you want just the information you need to live a greener life, you can safely skip all these passages. But keep in mind that even if they don't apply to you now, you may find them relevant in the future.

## Foolish Assumptions

In writing this book, we made a few assumptions about you, our reader. To make sure that we're all on the same page, we assume that any of the following statements may be true for you:

- ✓ You're not a scientist, but you'd like to know more about the environment and the impact that human beings are having on it. You also may want to know how that impact directly and indirectly affects you.

- ✔ You're interested in becoming part of the worldwide effort to relieve the strain on Earth's resources.
- ✔ You want some practical suggestions about making your own lifestyle greener, but you're not expecting to change the world overnight.
- ✔ You plan to use the book as a guide rather than a source of definitive answers.
- ✔ You plan to use the contacts and organizations provided in this book to find out more, to gather information that we didn't have room to include, and to keep yourself up-to-date with all the latest green thinking and initiatives in the future.

## *How This Book Is Organized*

*Green Living For Dummies* is organized into six parts. The chapters in each part cover different aspects of green living, from the challenges that the world is facing to what you can do to help — at home, at school, in the workplace, and on your travels.

### *Part I: Understanding the Planet's Challenges and Finding Solutions*

The first two chapters in this part cover the problems faced by inhabitants of the planet and why scientists think that human beings may be responsible for damaging not just the visible environment but also the invisible environment — the climate. It's now generally accepted in most of the world that the climate *is* changing, but even if you're not convinced, other issues are too important to ignore. These include the rate at which people are using the Earth's resources and the fact that many processes are contributing harmful chemicals and waste to the air, ground, and water. Chapter 3 explains that there's a lot of hope for the future, however, in processes that don't produce these harmful substances.

### *Part II: Living Greenly at Home*

Green living starts at home, and this part is all about what you can do at home to be greener. We focus on changes regarding the way your home is constructed as well as the ways you use it (Chapters 4 and 5), waste reduction (Chapter 6), your garden (Chapters 7 and 8), and even raising your kids (Chapter 9). The big bonus is that being green is often cheaper than not being green because you focus on using and buying less of most things (including

electricity and water) and reusing, repairing, and recycling as much as possible. All these actions have the pleasing side effect of saving you money. You'll find that there are lots of ways to green your home that do cost money, but even these are likely to pay for themselves in the long run. You don't have to make the big changes, however. Even the small ones will help.

## ***Part III: Spending and Investing Your Green (Money)***

Although green living is fundamentally about using and buying less of everything, this part of the book recognizes that you can't stop shopping for items such as food and clothing completely. You can, however, choose items that are greener than others. Chapter 10 tackles the issue of food: where it comes from, why local food is often better, and exactly what organic food is and why you should care. Chapter 11 does the same thing for clothing. Chapter 12 takes shopping one step further to look at green savings, investments, and charitable donations. These financial products are often described as ethical or sustainable because they're about investing your money in companies or organizations that support areas that are good for the environment and for people rather than those that aren't.

## ***Part IV: Thinking Greenly on the Road***

This part looks at greener ways to travel. In Chapter 13, we start with ways to reduce your use of one of the world's largest sources of carbon and other pollutants — your vehicle. Options include everything from walking to cycling to public transit, along with carpooling, car-sharing, and even online shopping. Chapter 14 lays out your options when you still need a vehicle but want it to be greener: You can choose from powering your vehicle with biodiesel fuel, buying a hybrid-electric car, or holding out for a hydrogen fuel cell vehicle. And for those who just need to get away, Chapter 15 looks at ways to make your travel more sustainable, especially given that planes contribute a huge amount of pollutants to the atmosphere. You discover eco-vacations and adventures and even ways to contribute to making communities around the world a little better for your visit.

## ***Part V: Creating a Green Society***

Green living starts at home, but it doesn't have to end there. You can be greener outside the home, too — at work, at school, and in the wider community. This part tells you how to spread the word. Just by behaving in a greener way, you may well inspire other people, but you also can ask for changes to be made. Chapter 16 offers ideas to help you implement green changes at work,

and Chapter 17 provides suggestions for getting the whole community involved in green initiatives, from schools to riverbanks. We provide plenty of suggestions for projects and ways to make them successful.

## Part VI: The Part of Tens

Every *For Dummies* book contains this part of key information and tips provided in handy lists of ten. The three chapters in this part each give you ten great ideas. Chapter 18 provides easy actions that make a difference right away, Chapter 19 takes it another step further and covers slightly more time-consuming options that give you a bigger green impact, and Chapter 20 offers hands-on projects to reuse and recycle items around your home. Finally, check out the Appendix for a listing of green products, services, and information resources that will have you scanning the Internet for hours.

## Icons Used in This Book

A quick flip through this book will reveal some small pictures in the margins. These icons highlight noteworthy text (except for the Technical Stuff), particularly suggestions and reminders about useful information for the new, greener you. Here's a primer on the meaning of each icon:



This icon is a target to aim for! It offers special information that could provide some handy assistance.



You may have read it already or heard it before, but the information highlighted by this icon is worth keeping in mind for future use.



This icon highlights actions that you can take now or plan to do in the future to make you an especially greener person.



This information explains technical phrases or procedures in a reader-friendly way. You can skip these details or store them away in your mind — the choice is yours.



With this icon, you find information that explains how things have happened — or how they could happen in the future.

## *Where to Go from Here*

This book is about practical suggestions that you can adopt to make your lifestyle greener. The first two chapters give some background about what many scientists think the problems are, how they're caused, what impacts they're having on the planet, and what's likely to happen in the long term if human beings don't change their behavior. The rest of the book is about what you can do to change your lifestyle and, in turn, the world around you.

Consider it a book to dip into for ideas when you have the time. You don't need to read it from cover to cover. Even if you just read and follow the Cheat Sheet at the beginning of the book, you'll be a greener person in no time. If you want to start recycling, though, Chapter 6 is helpful; if you're a keen gardener, you may want to start with Chapters 7 and 8; if food is your passion, consider going straight to Chapter 10; and if you're booking your summer vacation, make Chapter 15 your first stop.

We've tried to make this book as easy to read as possible and to give you lots of sources for more information and ideas. We hope you enjoy the book, get a little bit greener, spread the word, and perhaps follow up on a few of the leads. They'll be especially helpful going forward because newer, greener products, techniques, and technologies are constantly being developed, and more research is underway to find solutions to the challenges that the world is facing. Stay tuned, and stay informed.

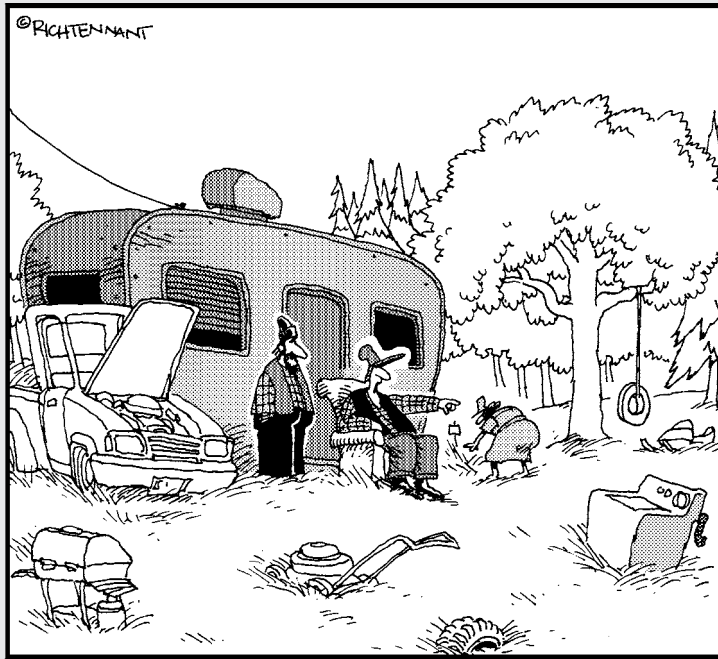


# Part I

# Understanding the Planet's Challenges and Finding Solutions

The 5<sup>th</sup> Wave

By Rich Tennant



"Of course, when we landscape the place we'll get rid of that old washing machine and replace it with one that's indigenous to these parts."

## *In this part . . .*

**I**f you want to keep the planet in good condition so that future generations can enjoy all the benefits of clean air, plenty of green space, and good health, there's no better time than right now to open your eyes to what's happening to the environment, why it's happening, and what you can do to change it.

The chapters in this part provide insight into all these issues, and they also show you what researchers are working on for the future, namely the cleaner energy that comes from renewable, sustainable sources. For an overview of the whole green living kit and caboodle, start here.

## Chapter 1

# Being Greener for the Good of People and the Planet

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### *In This Chapter*

- ▶ Exploring choices and the benefits of change
  - ▶ Making small changes every day for big, green gains
- 

**W**hat, exactly, does *green* or *sustainable living* mean? Different people use different definitions, but it all comes down to one fundamental concept: The Earth's resources shouldn't be depleted faster than they can be replenished. From that concept comes everything else, including caring for the environment, animals and other living things, your health, your local community, and communities around the world.

When you start to look at all the different kinds of resources — from fossil fuels to forests, agricultural land to wildlife, and the ocean's depths to the air that you breathe — it's easy to see how everything is interconnected and how the actions that you take today can affect the future. This chapter looks at the impact your lifestyle has on the Earth's resources and then summarizes positive steps that you can take to protect and preserve those resources — starting today.

## *Understanding the Impact of Your Choices*

Think about the concept of sustainable living as being a lot like your family budget. If you spend more than you make each month and neglect your bills as a result, the bill collectors start calling, and if you keep going down the same path, you end up owing so much that you can't possibly pay it back. On the other hand, if you're careful with your monthly expenses (maybe even saving a little), you're able to live within your means and keep everyone happy, especially you.

The planet's no different. Right now, its resources are being depleted far faster than they can be replenished. The call of the bill collectors is getting louder all the time, with the clear implication that bankruptcy's down the road if something doesn't change. Fossil fuels such as oil are becoming more difficult and more expensive to bring out of the ground, and their reserves are dwindling. Burning fossil fuels to provide energy for homes, vehicles, and industries emits carbon dioxide and other greenhouse gases along with pollutants that affect the health of the planet and its people.

Other resources are in trouble too, including water. In some parts of the United States, drought conditions are becoming more common and more widespread. Debates continue about where to find sources of water: to pipe it in from other areas, to drill into underground aquifers, or even to build desalination plants to take the salt out of seawater. One possible effect of global warming is the further reduction of groundwater sources. Decreasing the demand that people place on water sources is essential in order to continue having enough water to go around.

Thankfully, it's not too late to turn the situation around — to make the changes that the planet and its people need for a safe, healthy, prosperous, and compassionate future. Changes need to happen quickly, however: According to the United Nations, some parts of the world are nearing the tipping point, after which the damage will be irreparable.



A useful way to understand your impact on the environment is to measure your *ecological footprint*, which is the land needed to support your consumption of goods and resources. Think of it as a way of describing the amount of land required to farm your food, mine your energy sources, transport your goods and services, and hold your waste. You make decisions every day that have an impact on the planet: choosing between the car and local rapid transit, for example, or selecting local or organic fresh food instead of packaged, processed food that has been transported long distances. Think about the impact that each individual decision has, and weigh the pros and cons of your everyday actions.

Carbon emissions are another measure of your ecological footprint. We have more about how carbon and other gases contribute to climate change in Chapter 2; for now, it's enough to know that carbon is released when many substances — particularly fossil fuels such as oil, gas, and coal — are burned by vehicles and planes; by the manufacturing processes of many consumer goods; and by the heating, cooling, and electricity for your home.

The Earth Day Network, a network of environmental organizations and projects, estimates that there are 4.5 biologically productive acres worldwide per person. The average American's ecological footprint, however, is 24 acres, which means that a lot of people are using more resources than the planet can afford.

You can measure your own ecological footprint simply by visiting the Earth Day Network Web site at [www.earthday.net](http://www.earthday.net) and entering some information about your lifestyle. You're asked questions about

- ✔ The size and type of your home
- ✔ How often you eat meat and processed foods
- ✔ How many miles you drive or take public transportation each week
- ✔ How energy efficient your home and vehicle are
- ✔ How much waste you generate

If you're only just starting a greener lifestyle, reducing your ecological footprint may seem a little daunting. You can reduce it significantly, though, and it won't take long. Use the questions from the Earth Day Network to think about where you'd like to start reducing your impact.

## *Recognizing the Rewards of a Sustainable Lifestyle*

As you begin to make your life greener, you'll see benefits well beyond the immediate green ones such as reducing carbon emissions, reducing waste, and supporting the local economy. You'll discover that being green can improve your life in all kinds of areas.

Here are just a few of the major benefits of a sustainable lifestyle:

- ✔ **Saving money:** Consuming less of any commodity — from electricity to water to clothes — means that you pay less, too. You'll discover lower utility bills and a budget with breathing room when you take actions such as buying quality items that last a long time and even growing some of your own food.
- ✔ **Encouraging profits:** When you support green and ethical businesses such as stores and financial institutions, you help them to stay profitable enough to continue acting in environmentally and socially responsible ways. You also send a message to less responsible companies that they need to clean up their acts.
- ✔ **Boosting health:** Following the tips in this book about walking and cycling instead of driving and about reducing the amount of chemicals in your food, your home, and your garden can leave you with an improved cardiovascular and immune system, stronger muscles, and cleaner lungs.

- ✔ **Leaving a legacy:** The opportunity to protect what's vital about the planet for future generations is perhaps the most important benefit of all. If you consume only what you need, reduce your trash, live more naturally, and invest carefully, you do a great deal to leave a planet that will benefit people and wildlife for centuries to come.

## *Changing What You Can as You Can*

Although you can't change the world and save the planet single-handedly overnight, you can make a difference — and you can start right away with whatever budget and time you have available. Buying a hybrid-electric vehicle in order to reduce fossil fuel consumption and emissions is an excellent strategy, but few people can afford to go out and buy a new car tomorrow (not to mention the implications of getting rid of your old one before its time). You have tons of options that are both easy and affordable, however.

The best strategy is to take change one step at a time and implement small changes when and as you can. Also assess where you're starting from (calculating your ecological footprint is one way to measure this; see the earlier section "Understanding the Impact of Your Choices") and figure out what you can do to counter your effect through carbon offsetting if you can't yet make the changes you want to make.

## *Adopting the four primary green strategies*

Here are four green living strategies (which you'll encounter throughout this book) that you can implement in a variety of ways to contribute to the solutions that the planet needs:

- ✔ **Reduce consumption.** Anything that you do to decrease the amount of the Earth's resources that you use — from choosing goods with less packaging to turning down your home's thermostat a few degrees in the winter — helps you to lead a more sustainable life.
- ✔ **Choose carefully.** Assessing where certain products and services come from by thinking about their entire life cycles from manufacture to disposal helps you to make the greenest choices possible. You not only protect the environment but also protect the people involved in the manufacturing process.

- ✓ **Opt for renewable resources.** Replacing your use of nonrenewable resources (such as energy based on fossil fuels) with renewable resources (such as solar or wind energy) is a very powerful green action — and it may be easier than you think.
- ✓ **Repair when needed.** There are plenty of ways that you can help to fix the damage that's already been done to the environment, from supporting tree-planting projects to helping out with community programs at home and around the world.

## *Taking those first small steps*

Making small changes as and when you can puts you firmly on the road to living a much greener lifestyle. Trying to jump into it all at once can be counterproductive, in fact, because the subject area is immense and is growing all the time. Instead, decide what your priorities are: Think about where it would be easiest for you to begin. Start there, and work up to the bigger or more difficult issues.



Your priorities may not be the same as other people's, but that's okay: They're yours, and you're entitled to them. Be prepared to adjust them as new information becomes available, however. Research is ongoing in most areas of green living, so arguments will change. In the meantime, take one small step every time you're ready to, and keep aspiring to be greener.

You can find quick and easy green actions listed on the Cheat Sheet at the front of this book and also in Chapter 18. We chose them specifically because they make you significantly greener with minimal effort. Examples include replacing your light bulbs as they burn out with compact fluorescent models and replacing your cleaning supplies as they run out with environmentally friendly ones.

Another tip that's super-easy to implement is to buy items with less packaging. Consider, for example, what would happen if you bought toilet paper in double rolls, which contain twice as much toilet paper in a roll than regular-size rolls. That cuts down the number of cardboard tubes inside the rolls by half, and it also decreases the amount of plastic that's used to wrap the packages! If you recycle the cardboard tubes that remain, even better. And if you slit the plastic wrap open only at the top of the package, you can reuse the wrap, perhaps as a trash bag. See how easy that was?



As you read through this book, jot down a list of actions that you could see yourself taking fairly easily. When you have a list, it's easier to prioritize the tasks so that you don't feel you need to tackle them all at once.

## Turning Green Choices into Habits around Your Home

Reducing, reusing, repairing, and recycling are the four most important actions when it comes to adopting a greener lifestyle because they all contribute to conserving the Earth's resources. Tips throughout this book help you reduce your consumption of everything from packaged goods to energy.

Your home is one of the best places to start making green living changes because you have the control to make the choices that are best for you. Chapter 4 looks at the green issues that you can consider when you're moving into a new home or building or renovating one, and Chapter 5 addresses the habits that you can adopt for a greener lifestyle within the home.

Along with energy efficiency, water conservation is a major issue, and it's where you can really make a difference. Between the source and your faucet, water has to be pumped at various stages, and that takes energy, as does the process of treating the water. If you conserve water, you do double-duty by conserving both water and energy, and that helps to reduce the amount of carbon emissions pumped into the atmosphere.

Most of the water used in homes — whether it's for flushing, washing, cleaning, or drinking — is processed to the point of being high-quality drinking water. Although systems do exist to divert *greywater* (water that's been used in sinks, for example, for hand or dishwashing) to toilets for flushing, they're not yet a common feature of home building and renovations. However, you can make a difference by preventing as much good-quality water as possible from running down the drain into the sewers from where it has to be reprocessed back into drinking-quality water.



When it comes to waste, reduce what you buy as much as possible — including choosing the least amount of packaging possible — as this will naturally reduce the waste you generate. Then assess your waste to see what can be reused or recycled — what's waste to you may be useful to your friends and neighbors or to a nonprofit group (see Chapter 6).

Of course, your home extends to your yard, as well. Chapters 7 and 8 describe what a green yard looks like (Hint: it doesn't have to have grass to be green!) and provide tips on taking your yard off chemicals and growing your own organic food with the help of composting.





When you introduce green living at home, everyone can be involved. Children learn from adults and then pass the word on to their friends, who pass it on to their parents. Give everyone an age-appropriate role to play by putting them in charge of some aspect of your greener household. You can find more about raising green children in Chapter 9.

## *Making Your Greenbacks Even Greener*

When it comes to spending and saving money, your dollars can go a long way toward greening your lifestyle. Start with the necessities of life — choosing what you eat and what you wear — and assess how you can do both in ways that are both socially and environmentally responsible. Then expand these issues to the banking arena, looking at where you can park your money and how you can invest your savings to help you as well as your community and the planet.

### *Shopping greenly and ethically*

Shopping is a great opportunity to make your lifestyle more sustainable. Choose the greenest options available to you, such as food produced using as few chemicals as possible, grown locally in season, and transported over as short a distance as possible to reduce the amount of fuel used. Other green options include clothes made from organically produced materials, goods made from recycled materials rather than resources that have to be mined from the earth, secondhand or vintage goods, and those made from biodegradable materials.

Ethical issues, including how the people and animals involved in the production processes were treated, are also important to consider. Ask stores whether the workers, producers, suppliers, and farmers involved in the production chain are paid fairly, have good working conditions, and can sustain their production (meaning that they have enough left after feeding themselves and their families to maintain their premises or buy new equipment and seeds). Avoiding goods produced using child labor or in sweatshop working conditions also may be a priority for you. Animal welfare is a growing concern as well; consider choosing meat and dairy products that come from animals raised in humane conditions rather than intensively farmed, overcrowded pens and cages.



Support your local community socially and economically by buying your food, gifts, crafts, home items, and clothes from local producers and businesses. If that's not possible, look for Fairtrade-certified products that assure you that growers and producers were treated fairly.

You can find out more about both green and ethical issues when it comes to shopping for food and clothing in Chapters 10 and 11.

## *Saving, investing, and donating wisely*

When it comes to saving or investing your money, you can make it work for both you and the environment by choosing where you bank. An increasing number of financial institutions offer savings accounts or entire suites of investment services that support green, sustainable, and socially responsible programs, often in your own community. Even better, some financial institutions offer these accounts but also conduct their day-to-day operations in a socially and environmentally responsible way.

The kinds of financial programs that these institutions offer may include using the money in savings and investment accounts to leverage low-interest loans to help local businesses improve their energy efficiency or to build alternative energy infrastructure such as solar or wind power. Programs also may help nonprofit organizations set up work or self-employment training programs or affordable housing initiatives.

When it comes to long-term investments such as mutual funds or the stock market, you can go green there too by opting for an ethical or green fund that invests in companies that meet various environmental or social criteria or by investing directly in the companies themselves. Some green-minded investment accounts ask you to accept a lower interest rate on your savings in exchange for these positive effects, but for others, you have the opportunity for just as much of a return as you would get if your money were in conventional accounts or investments.

Of course, you also can put your money where it provides an investment for charitable organizations instead of yourself. There's a vast array of causes out there that you can support, so it pays to do your research before you part with your money in order to make sure that it will be used wisely.

You can find more information about socially responsible investments and charitable donations in Chapter 12.

## *Venturing Out into the World*

The greenest thing you can possibly do when it comes to traveling and transportation is simply not to go — vacation locally instead of halfway around the world, for example, or work from home instead of commuting. That's not always possible, practical, or even desirable, however, so this section looks at ways to get on the road while minimizing your impact on the environment, particularly your greenhouse gas emissions. From using public transportation for your commute to opting for greener vehicles and ecologically friendly holidays, it's all here.

### *Getting around*

Transportation, particularly passenger vehicles and planes, emit a tremendous amount of carbon and other pollutants into the atmosphere, where they contribute to climate change and a range of health problems (see Chapter 2). Although researchers have found ways to improve fuel efficiency, power vehicles with organically based fuels instead of petroleum-based fuels, and use different technology to power the vehicle, much of this work is still at an early stage of adoption.

As a consumer, you can make a difference by reducing the amount that you fly or drive. Vacation locally, for example, or work from home one day a week if possible. When you have to travel, choose more-sustainable methods of transportation, including local bus, rapid transit, and train services. These methods of transportation still emit pollutants, but because they carry more people at one time, their emissions per person are much lower than if the passengers were all in their own cars.

Chapter 13 provides practical information about how to start decreasing your car use and boost other modes of transportation, including cycling and walking. Chapter 14 offers a look at the exciting technology that's available (or on its way) to power vehicles differently, including the pros and cons of some alternative fuels.

### *Traveling mindfully*

Before you book your next vacation, consider where you want to go in the world and why, and think about whether you can achieve the same effect closer to home (to cut down on your greenhouse gas emissions) or in a more ecologically friendly way (like by taking the train instead of flying).

There are still good, valid reasons to travel widely, though — including that it can broaden your horizons and facilitate better understanding between cultures. So consider taking fewer long-distance vacations and making them last longer in order to get the best possible investment from the greenhouse gas emissions that your travel is responsible for. Consider the location to which you're traveling, too; keep in mind that you'll be a guest in that country, and try to follow the people's standards for dress and behavior to avoid giving offense.

To take your vacation deeper into environmental or social responsibility, consider an ecotourism trip that provides insight into the local ecosystem (including fauna and flora) or a volunteer vacation in which you spend part or much of your time on a project that helps either the local people or the environment.

You can help to compensate for the greenhouse gas emissions that your travel produces by considering ways to become *carbon neutral* — this means that you reduce your carbon emissions as much as possible and balance the remaining carbon emissions by offsetting them with processes that consume carbon. *Carbon offsetting* refers to paying for or participating in programs that reduce the carbon in the atmosphere. Many of those programs involve planting trees; others, however, fund research into alternative or cleaner conventional technologies. Planting trees or other vegetation is the most common carbon offsetting measure; when plants grow, they take in carbon dioxide, removing it from the atmosphere.

It's essential to reduce the amount of carbon emissions that you produce, but it's not always easy. You may not be able to control whether your local power plant runs on coal or solar energy, for example (although you can certainly advocate for solar energy and make your home as energy efficient as possible). That's why carbon offsetting has become so popular recently.

Carbon offsetting isn't the silver bullet answer to the problem of carbon emissions because it often doesn't address the underlying problem. Tree planting, for example, only deals with the existing carbon; it doesn't reduce the production of it, which is where the real emphasis needs to be. However, purchasing offsets helps if you're careful about the programs you support, and we tell you how to do so in Chapter 15.

## *Building a Green Society*

You can have a powerful effect on the people and systems around you by encouraging a greener society. Some of this influence simply comes from leading by example (perhaps by taking your lunch to work in reusable instead of disposable containers), but you also can go further by advocating for positive, constructive changes at work, in your local community, and even around the world.

## *Being environmentally sound at work*

All the measures you put in place at home — energy-efficient appliances and equipment, water-saving and energy conservation devices and strategies, recycling and reusing programs — can translate very effectively to the workplace. Many employers already take action to improve their environmental and social responsibilities. You can encourage this wherever it's happening and ask for change where it's not. Chapter 16 offers strategies to help you.



Many businesses that don't embrace green practices simply for their environmental benefits will go green if it saves them money. If you explain how the company can reduce energy, paper, and transportation expenses by employing green tips and techniques, you may achieve the goal you're aiming for.

## *Setting up community projects that work*

Look around your community and you're likely to find plenty of ways to get involved with improving both environmental and social concerns. From cleaning up riverbanks to redesigning neighborhoods, the list of projects is virtually endless. If there's something missing, though, seize the opportunity to gather support in the community and set up a project to fill the gap. Find ideas for projects, along with advice about setting them up for success, in Chapter 17.

## *Your First Step toward Contributing: Evaluating Your Shade of Green*

Take this fun little quiz to find out how green you already are and what you can do to green up your life.

1. When the supermarket clerk asks “paper or plastic?” you
  - A. Go for plastic.
  - B. Go for paper.
  - C. Say “neither” because you brought your own bags.
2. When you start your car on chilly winter days, you
  - A. Idle for ten minutes to let the engine warm up.
  - B. Idle for less than a minute to let the engine warm up.
  - C. Do neither because you're taking the bus.

3. When you use your dishwasher, you
  - A. Run a cycle when you need the items that are dirty.
  - B. Run full loads through all the cycles, including “dry.”
  - C. Run only full loads and use the “air dry” setting.
4. When you just have to get away from your everyday life, you
  - A. Hop on a plane for a tropical getaway.
  - B. Jump in the car and drive to the closest national park.
  - C. Volunteer for a local community home-building project.
5. For your waste reduction efforts, you
  - A. Recycle air when you breathe.
  - B. Recycle newspapers weekly.
  - C. Recycle everything possible and compost organics.

How did you do?

**Mostly As?** Yikes! Your shade of green is verging on olive, as in drab. The good news? There's plenty that you can do right away to boost the green factor. Check out Chapter 18 for fast and easy tips that you can follow right now.

**Mostly Bs?** You're like a lime-colored spring leaf, budding out with plenty of promise, but it's up to you to turn that promise into green reality. Go to Chapter 19, where you find strategies to deepen your shade of green.

**Mostly Cs?** Consider yourself an emerald gem — and keep shining! Dip into this book wherever your fancy takes you, whether it's remodeling your home (Chapter 4) or considering a greener vehicle (Chapter 14).

## Chapter 2

# Understanding the Environment's Challenges

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### *In This Chapter*

- ▶ Recognizing how humans are changing the planet
  - ▶ Explaining the science behind global warming
  - ▶ Realizing that the challenges extend beyond climate change
  - ▶ Fixing the problem — globally speaking
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**I**t's difficult to open up a newspaper or listen to the evening news these days without hearing about retreating glaciers, shrinking Arctic ice, and increasingly devastating natural disasters. In recent years, mounting scientific evidence has shown that the world's climate is warming and that the world's growing population and industrialization is contributing to the change.

The underlying issues that frame all this public concern, though, aren't always so clear. And in a society where warnings and alerts are a regular occurrence, it's easy for many folks to dismiss the alarm as overdramatized political propaganda. Unfortunately, the effects of climate change, along with equally important environmental issues such as pollution and ecological damage, *are* real and *do* affect the way humans live in the here and now — not to mention the toll that they promise to take on future generations. The good news is that people and governments throughout the world are beginning to focus not just on the problems but on solutions that everyone can play a part in.

In this chapter, we reduce the mountain of environmental concerns to an easily scalable hill, putting the biggest concerns into context so you can see what they are, how they directly (and indirectly) affect your life, and how you can help reverse the trend and change the future.

## *Investigating Human Impact: Two Concerns, One Combined Effect*

Climate change is a huge issue in the world today, but it accounts for only part of all the damage being done to the environment — damage that will dramatically change the way that the earth is able to provide for the needs of its residents in the future. We're not saying that the world will end if its inhabitants don't act to solve the environment's problems, but issues such as the availability of clean air, food, and water sources do have a strong impact on the health and well-being of everyone on the planet.

In fact, we'd argue that climate change (which we focus on later in this chapter) isn't actually the problem — in reality, it's a symptom, or product, of two far more important problems:

- ✓ The amount of the earth's natural resources that humans consume in order to live, especially in advancing economies
- ✓ The waste that spills over into the earth's land and atmosphere as a result of that consumption



The issue now facing the environment is that when you put those two problems together over an extended period of time, they have a domino effect: They contribute to issues such as the earth's climate change (also known as *global warming*) and regional food and water shortages, which in turn have their own environmental impacts. The equation is simple: The planet is struggling to support its population because people are consuming resources faster than the earth can provide them and are damaging the earth more quickly than it can regenerate itself.

Fortunately, though, humanity — and each individual — is capable of moving the earth to a healthier place for all by taking small steps every day. We preview the can-do info later in this chapter, but we begin by showing you why these two concerns have drawn so much attention across communities as well as governments worldwide.

### *Overconsumption: Mother Nature and the law of supply and demand*

It's natural for human beings to aspire to more technologically advanced, convenient lifestyles — the payoff for lots of hard work. Unfortunately, the laws of Mother Nature say that all things come at a cost; in the case of material goods, that cost is in the form of the earth's resources. These include not



only the resources used to produce fossil fuels and, therefore, energy, but also resources such as water and the land that produces food.

### ***Looking at overconsumption around the globe***

According to the Global Footprint Network ([www.footprintnetwork.org](http://www.footprintnetwork.org)), the world's population now requires 1.3 planets to support itself. Considering that the earth's inhabitants have only one planet to work with, this excessive demand indicates a serious problem with the amount that people are consuming annually. For example

- ✔ The Network reports that approximately 75 percent of oceanic fisheries — including cod — have been heavily overfished to the point where governments have had to restrict catch quotas in an attempt to give the fish populations time to recover.
- ✔ The Network also reports that agricultural practices in the United States are removing topsoil — the richest, most productive part of the soil — more than 18 times faster than it can be replenished.
- ✔ Water is another key resource that's stretched to its limit in many areas of the world — in fact, some politicians and scientists believe that future conflicts between countries may be based on competition for water rather than competition for energy (see the section “Decreased food and water supply” later in this chapter).

The U.S. in particular shoulders a significant amount of the world's overconsumption of its resources. In 2006, the Center for Environment and Population (CEP) ([www.cepnet.org](http://www.cepnet.org)) reported the following figures:

- ✔ The U.S. has approximately 5 percent of the world's population and uses 25 percent of the world's natural resources.
- ✔ The U.S. uses three times as much water per person than the world average.
- ✔ The U.S. uses almost 25 percent of the world's energy.
- ✔ The U.S. is the world's largest single emitter of carbon dioxide from fossil fuels, with almost 25 percent of all global emissions. (Carbon dioxide is one of the major greenhouse gases linked to climate change.)

Sure, these numbers are startling, and they show a real need for action in the U.S. Be very careful, though, about assuming that the advancing economies are solely to blame. Although the developing world may not consume as much per capita as industrialized economies, the local environmental effects from garbage and unlegislated greenhouse gas emissions are just as much of an issue — such as when the rain releases the odor of human waste from the earth (not kidding). Yes, the Western world has a huge responsibility in terms of leading the way to finding and implementing solutions, but it isn't the only source of the problem.

## Ecological Debt Day: Not your average holiday!

The Global Footprint Network has created a calculation that helps to illustrate very clearly the problem with overconsumption: They call it the world's Ecological Debt Day. This is the day each year on which people start to live beyond the planet's means — and it's getting earlier every year. In 1987, for example, it occurred on December 19. In 2007, it occurred on October 6. That means that between January 1 and

October 6, 2007, the human population used up all the resources that the earth could replenish within one year. In effect, it also means that from October 6 to December 31, 2007, we were “borrowing” resources from the future. Just like in a household budget, if people continue to borrow from the future without replenishing the savings, eventually the population will run out of resources completely.

### *A bird's-eye view of nonrenewable fuel usage*

The vast majority of the energy that people use to heat and power homes and businesses, fuel vehicles, and manufacture home furnishings and all other material goods comes from nonrenewable sources called *fossil fuels*, which are energy-rich organic substances traced back to the remains of organisms that lived 300 to 400 million years ago. Often found under the sea bed, fossil fuels include oil, coal, and natural gas, and they consist primarily of carbon and hydrogen. Today, these substances are extracted from the earth's crust and are mostly refined into suitable fuel products such as gas, propane, heating oil, and kerosene.

Uranium, the other nonrenewable energy source, is used in nuclear power plants that can produce very few emissions — but those plants have their own environmental issues in terms of radioactive waste.

All the nonrenewable fuels can be considered “dirty” because of their potential for environmental damage and because they'll eventually run out (at differing rates).



Fossil fuels currently provide 85 percent of the energy needs of the United States. They're also responsible for the lion's share of greenhouse gas emissions such as carbon dioxide, sulfur dioxide, and nitrogen oxides, and they contribute to particles that can cause acid rain.



According to the U.S. Department of Energy (DOE), every year the world is using some 31 billion barrels of oil, 6.5 billion short tons of coal, and 106 trillion cubic feet of natural gas — and those figures are increasing annually.

These statistics show that the developed world, including the U.S. and other high-income countries such as Canada and the United Kingdom, is using more than its fair share of the world's resources, with the developing world catching up quickly (you can find more info on the comparison in the preceding section).

That's why it's so important to reconsider just what's being consumed as well as how much, from individuals right through to the top levels of government.

### *Looking closely at each nonrenewable energy source*

Nonrenewable fuels have helped power the growth of modern society, especially by providing the ability to industrialize and to transport people and materials from one place to another. However, fossil fuels — including oil, coal, and natural gas — and uranium don't exist in infinite quantities and can't be easily replenished. It took a long time to create them, and humans are using them up far faster than the earth can produce them.

✔ **Oil:** Oil is overwhelmingly the fuel of choice in vehicles right now, and many scientists agree that there may be only 40 to 50 years' worth of oil left if it continues to be used at current, increasing, rates. Scientists are divided on the issue, but even some oil companies agree with them. That's not the only supply-related issue, however — there's also the problem of accessing the oil.

In the U.S., oil contributes more than 40 percent of all the energy that the nation uses. More than a simple energy source, however, oil and other petroleum-based products are also sources of political power and controversy. A major task of the U.S. Department of Energy's Office of Fossil Energy is making sure that oil supplies aren't disrupted because they're so crucial to the continued smooth running of the country. For that reason, oil is stockpiled in key locations in the U.S. in case crucial supplies are cut off. However, many oil supplies that are relatively easy and inexpensive to get at are running out, leaving oil companies and the government to try to figure out how to remove the rest without bumping the price of oil up so high that it devastates the economy.

✔ **Coal:** More than half of America's electricity-generating plants burn coal, which has traditionally earned a very dirty reputation. When burned, coal not only produces carbon dioxide but also sulfur and nitrogen byproducts that can cause smog and acid rain. The process of mining coal also costs the environment, whether it's underground or on the surface, and poses considerable risk to the health and safety of miners.

Although coal is a nonrenewable resource, reserves in the U.S. likely can handle the nation's energy needs for the next 200 to 300 years, which provides enough time to figure out how to replace it. What's more important in the short term is figuring out how to burn coal without producing environmentally harmful gases.

According to the DOE, the U.S. has one quarter of the world's coal reserves, and that one quarter contains more energy than that of the entire world's recoverable oil reserves. Coal is a huge source of potential energy for the nation, which is why it's so important to find and implement ways to burn it more cleanly.





- ✔ **Uranium:** Nearly 20 percent of the total electricity generated in the U.S. comes from nuclear energy, making it second only to coal as an energy source for producing power. Nuclear energy works by harnessing the energy released when a uranium atom splits apart; fossil fuels aren't burned, so there's no greenhouse gas emissions. The process of uranium enrichment, however, which is required to turn the heavy metal into usable fuel, does release carbon dioxide. In addition, the question lingers of what to do with the spent uranium, which is radioactive and highly carcinogenic.

Nuclear waste currently is sealed and stored, and there are plans to construct a large underground facility to which waste can be transported and then stored indefinitely. Research is also underway to find ways to use the energy that may be left in the used fuel, but there's no doubt that the question of nuclear waste and the small but real risk of some kind of accident or even sabotage at a nuclear reactor means that nuclear energy isn't a green solution.

In an ultimate act of recycling, the Megatons to Megawatts program processes weapons-grade uranium from Soviet warheads into uranium that can be used by nuclear plants in the U.S.

- ✔ **Natural gas:** According to the DOE, approximately 22 percent of the nation's energy consumption comes from natural gas, and more than half of the nation's homes use natural gas as their main heating fuel. When natural gas burns, it releases far fewer greenhouse gas emissions than coal does. Natural gas is also considered a cleaner-burning fuel than oil, which is one of the reasons why 900 of the next 1,000 power plants built in the U.S. will run on natural gas.

Although natural gas is cleaner burning than coal and oil, it still releases carbon dioxide when it burns. Gas still has its issues, among them the release of its main ingredient (the greenhouse gas methane) during production, storage, and transportation, and the potential for natural gas to explode when high concentrations come into contact with a spark.

## *Pollution: Poisoning the world from the outside in*

One of the great examples of how humanity directly impacts the planet (and indirectly affects itself) is waste, whether it comes from a factory smokestack or is consigned to a landfill or incinerator, because of its potential to pollute the atmosphere, the land, and the water. It may be "out of sight, out of mind," but waste and its associated pollution still have an impact on the environment.

The burning of fossil fuels is perhaps the greatest contributor to pollution, yet it's currently the primary means for generating and transporting energy. Electrical energy, for example, is one of the most popular forms of energy supplied around the world. The cheapest and most reliable way of providing electricity to cities and towns involves power generation plants that burn fossil fuels such as coal. The energy required for transporting the coal to the plant comes from refining oil — also a fossil fuel.

Ultimately, the burning of fossil fuels causes much of the greenhouse gas problem that contributes to climate change. We discuss greenhouse gas at length in the next section, but essentially, it's tied to the burning of fossil fuels. When fossil fuels are burned, sulfur, nitrogen, and carbon combine with oxygen to form compounds known as *oxides*. These, in turn, form gases that contribute to numerous environmental problems, including climate change (see the section “Seeing How the Earth Reacts to Trauma: Climate Change”), particle pollution (see the section “In the air”), and acid rain. (Acid rain occurs when fossil fuel-burning produces sulfur dioxide and nitrogen oxides, which then create a mild acidic solution that falls in rain or as dry particles; in these forms, it has been linked to damaging effects on waterways and forests.)

Although many waste materials, products, and packaging can find space in landfill sites or incinerators, their components have to be dealt with to avoid emitting potentially toxic chemicals back into the land and the air. True, new landfills are carefully sealed so that their contents don't leak, and incinerators use much cleaner technology than they once did. But all this requires energy, which is exactly what the people of the world should consume less of.

In developing countries, the waste issue is focused more on a lack of infrastructure and facilities, meaning that garbage may be dumped in any spare piece of land or in landfill sites that fail to protect the environment, or it may be burned without consideration for either nearby residents or the environment. This pollution compounds health and sanitation issues because it risks contaminating the ground, local water sources, and the air.



The U.S. produces the largest amount of waste per person in the world at 5 pounds of garbage daily. According to the Center for Environment and Population's U.S. National Report on Population and the Environment, that's up from less than 3 pounds daily in 1960, and it's five times the average per person in developing countries!

## Addressing concerns about coal

In the 1970s, acid rain moved front and center as an environmental issue. The good news is that since then both government and industry have invested billions of dollars in cleaning up coal. Several techniques are now used to remove harmful substances from coal and its emissions, including the following:

- ✔ **Washing coal:** When done before burning, washing the coal removes some of the sulfur content.
- ✔ **Smokestack scrubbers:** These technologies remove much of the sulfur and nitrogen oxides from the gases produced by burning coal.
- ✔ **Low-NO<sub>x</sub> burners:** This technology burns the coal in stages in fuel-rich environments in order to avoid producing nitrogen oxides in the first place.
- ✔ **Fluidized bed boilers:** These boilers burn coal in the presence of limestone to capture sulfur and at a cooler temperature to avoid forming nitrogen oxides.

A new technique known as *gasifying* coal, or turning it into a gas rather than burning it, is proving successful in removing substances such as sulfur and nitrogen. An electricity-generating plant that uses this technology can use the carbon monoxide and hydrogen that result instead to create various spin-off products while emitting almost no pollution into the atmosphere. Coal-fired electricity-generating plants near Tampa, Florida, and West Terre Haute, Indiana, employ this gasification technology.

## Seeing How the Earth Reacts to Trauma: Climate Change

Scientists know that changes in the concentrations of various gases in the atmosphere have the power to change the planet's climate — and that those concentrations are currently increasing. According to the United Nations Intergovernmental Panel on Climate Change (IPCC), the amounts of carbon dioxide, methane, and nitrous oxide in the earth's atmosphere have increased significantly since the preindustrial days of 1750. When scientists compared present atmospheric gas concentrations to even older records by examining ancient ice, they found that carbon dioxide levels in 2005 far exceeded the natural range of the gas over the last 650,000 years. Even more important, the rate at which carbon dioxide is increasing was larger over the past decade than it was over the past 45 years.

The increased carbon dioxide comes from fossil fuel use and land-use change (when native forests, for example, are turned into agricultural land), whereas the increased methane and nitrous oxide come from agricultural practices. The result of these increases is a contribution to *global warming*, which

essentially means that gases trap warmth in the earth's atmosphere instead of letting the atmosphere release it. Global warming, in turn, throws the earth's balanced, highly sensitive ecosystem off-kilter.



Climate change has been a hot topic of debate scientifically and politically for some time. The discussion isn't so much centered on whether climate is changing — science shows that it is — but on the extent to which human activities are causing it, whether it will cause problems in the future, and what, if anything, can be done to stop and even reverse those changes.

## *Understanding how global warming works*

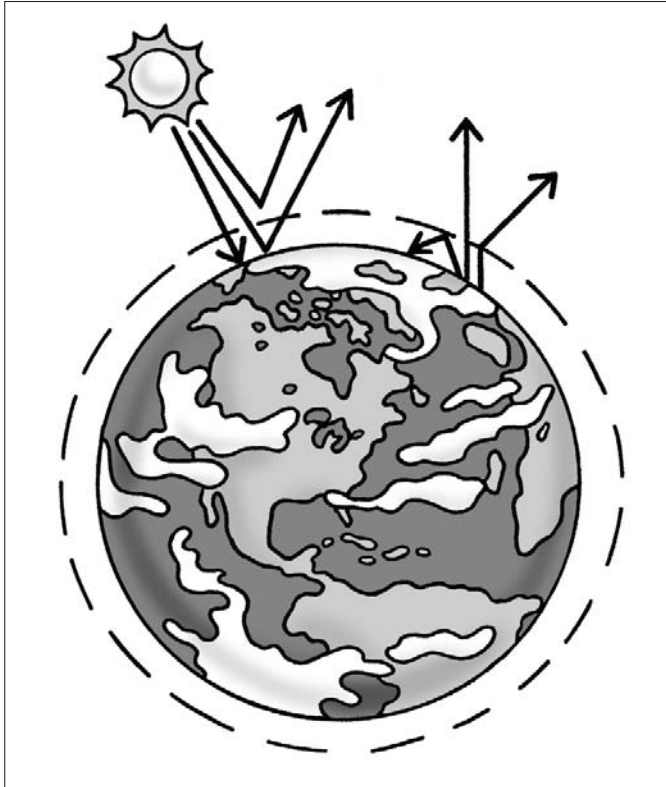
When the sun's rays hit the earth, some of their energy (about 30 percent) is reflected back into space by surfaces such as clouds, ice, and snow cover. The rest stays around, warming the oceans and continents, which eventually release the heat back out into the atmosphere and from there into space. With global warming, however, there's a roadblock in the atmosphere in the form of gases such as carbon dioxide, methane, and nitrous oxide, which absorb some of the heat and reflect it back toward the earth instead of letting it get through to space. The more gases in the atmosphere, the more heat is retained on earth. Figure 2-1 shows the process involved in global warming.



What happens with global warming is very similar to what happens in a greenhouse, in which the sun's rays heat the interior while the glass walls and roof prevent that heat from fully escaping. That's why global warming is also known as the *greenhouse effect* and the gases involved are called *greenhouse gases*.



Global warming isn't just about raising the temperature of the land and the sea and making the days and nights warmer. It's about what happens when those temperatures rise. For example, rising sea temperatures release more water vapor into the air above the ocean. When hurricanes form, they pick up this increased vapor, which creates a more intense storm. In some northern areas, rising temperatures actually may cause a cooling effect because melting snow and ice cool the sea water that currently offers a moderating effect on those areas. Global warming also means that arid areas can expect to be drier for longer periods each year and that other areas may become drier.



**Figure 2-1:**  
Global warming in action: The sun's energy is trapped in the earth's atmosphere.

## *Recognizing how global warming has already affected the world*

In 2007, the UN's IPCC adopted a report based on an expert review of scientific evidence from around the world. The authors came up with four conclusions, all related:

- ✓ That both air temperature and sea levels have increased over the past century at a higher rate than historically seen
- ✓ That the warmth of the last half-century is unusual in the context of the past 1,300 years (at least)
- ✓ That it's very likely that increased greenhouse gases have caused this change
- ✓ That it's virtually certain that the warming will continue unless something is done to stop it





## Two hundred years of increasing prosperity and pollution

The following timeline shows the progress of world pollution:

- ✓ **1800–1860 — Manufacture by machine:** New engineering techniques lead to the advent of more-modern machinery and factories. Steam power and railways increase the size of urban areas.
- ✓ **1830–1900 — Growth of the industrial town:** Cities grow remarkably due to increases in manufacturing and related employment opportunities. Housing and social problems evolve, as do the first serious environmental problems.
- ✓ **1870–1914 — Second Industrial Revolution:** The advent of electricity and medicine creates a new wave of industry.
- ✓ **1914–1930 — World War I:** The war drains global resources, but the era of mass production helps the world recuperate.
- ✓ **1930–1968 — Modernism:** World War II and its advancements in weaponry are followed by nuclear power, space exploration, and a better understanding of DNA and the structure of life. The postwar period is characterized by rapid urban expansion, and consumption increases.
- ✓ **1960–2000 — The age of ambivalence:** The impact of unchecked consumption leads to the birth of the environmental movement. The advent of computers enhances the amount and distribution of information.

You probably know from watching the news or reading the newspaper that countries around the world are facing serious problems due in part to climate change. Here are the primary effects of global warming that have led to the environmental and economic instability:

- ✓ **Drought conditions:** The amount of land affected by drought worldwide has doubled in the last 30 years. The two primary causes of drought are as follows:
  - **Dried-up water sources:** It's no secret that starvation is a part of everyday life in many countries across the continent of Africa. Many inland lakes and rivers that provide much of the fish there are almost dried up. In the U.S., both Arizona and California continually experience significant water shortages.
  - **Dramatically reduced rainfall (in some areas):** Reduced rainfall makes the land drier than normal, which opens the door to brushfires that may start small and quickly grow out of control. In Australia and the South Pacific, nearly every year serious brushfire threats are issued around several of the major cities and towns due to a drop in rainfall. California and Oregon also continue to see an increase in

brushfires. Drier conditions also are affecting the Amazon rainforest, which is home to diverse species of frogs, mammals, and an enormous range of plant life that we're beginning to realize can contribute to the number of medicines at our disposal; it's in trouble because of urban and agricultural encroachment as well as dry weather caused by global warming.

- ✓ **Increased flooding:** Large proportions of low-lying land in Bangladesh and India are becoming more susceptible to flooding due to rising sea levels, the increasing intensity of rainfall, and the lowering of the water table due to over-irrigation. In Bangladesh, major floods force millions of people out of their homes each year. The following causes of increased flooding affect other countries as well:
  - **Rising sea levels:** Rising sea levels threaten to submerge many Pacific islands. It's possible that the islands Kiribati, Tuvalu, and the atolls that form the Marshall Islands may join the queue of those that are already disappearing, such as Tebua, Tarawa, and Abanuea.
  - **Unusually heavy rainfall:** Some floods in Europe have been caused by unusually heavy rainfall; an example is the flood that swept through Prague in 2002.
  - **Rapid melting of snow:** Annual flooding is now the norm in many parts of Europe due in part to the rapid melting of snow in Alpine regions when the warmer temperatures arrive.

## Stats about global warming

Statistics from the IPCC's Summary for Policymakers of its Working Group I Fourth Assessment Report (2007) show the extent of the problem that is global warming. Here are the most striking statistics:

- ✓ The average global surface temperature increased by approximately 1.33 degrees Fahrenheit (0.76 degrees Celsius) between 1905 and 2005.
- ✓ The warming trend over the last 50 years is nearly twice that for the last 100 years.
- ✓ Eleven of the last 12 years rank among the 12 warmest years since 1850.
- ✓ Mountain glaciers and snow cover have declined on average in both the northern and the southern hemispheres, contributing to a rise in sea level.
- ✓ The average global sea level rose at an average rate of 0.07 inches (1.8 millimeters) per year between 1961 and 2003. The total 20th-century rise in sea level is estimated to be 0.56 feet (0.17 meters).

In addition, the U.S. Environmental Protection Agency reports that the sea level along the mid-Atlantic and Gulf coasts rose 5 to 6 inches more than the global average in the last century because the coastal lands there are subsiding.

## *Predicting the effect of continued climate change*

Based on a scenario in which greenhouse gases continue to accumulate in the atmosphere, the IPCC predicts that global temperatures will rise 0.36 degrees Fahrenheit (0.2 degrees Celsius) per decade from now through 2020. That rise will result in more of the same effects the world has been experiencing for the past century (see the preceding section for details). In the coming years, you can expect that local, national, and international governments will have to deal with consequences such as these:

- ✓ Flooding problems, due to a continued decrease in the earth's snow and ice cover (including the ever-thinning ice cover in the subarctic and the arctic regions of northern Canada), unusually heavy rainstorms, and a resulting increase in global sea levels. These changes also mean that coastal erosion will increase, which means the further loss of coastal land, and that economies that rely on agriculture, for example, could be devastated.
- ✓ Inclement weather and changing weather patterns, including extreme events such as storms, floods, and fires.
- ✓ More droughts and drier conditions, which will likely lead to
  - Large forest fires fueled by dry conditions threatening more urban areas such as the ones in October 2007 in San Diego, California
  - Water shortages requiring mandatory conservation measures in drier areas (which are already in place in areas of California)
  - Water becoming an increasingly valuable commodity, with governments looking at shipping or transporting it from wetter regions to drier regions and at alternative technology such as desalination plants to remove the salt from seawater (which can cost more and consume more energy than processing other sources of water)
  - Regional food shortages because of a lack of water, with resulting famines when agricultural crops can no longer be grown
- ✓ Bleaching of corals — considered the oases of the tropical seas, where much of the diversity of sea life can be found — as a result of increasing pollution and rising sea temperatures.
- ✓ Movement of insects into new areas (which is already happening in the case of the mountain pine beetle, currently making its way east from the west coast into the interior of northern North America, devastating pine forests as it goes, because it's no longer cold enough during the winter to kill it off).

The plants and wildlife in those new areas may not have developed a natural protection against the insects, allowing them to do vast swaths of damage or to introduce insect-borne diseases into new areas.

- ✓ Infectious disease epidemics created in tropical areas as a result of polluted waters and increased insects.

It may be argued that not all the changes produced by global warming will be negative. For example, a warming effect may be welcomed in some northern climates where winters can be long and cold. However, even just a bit of warmer weather comes with major upheavals: For example, engineers are already dealing with permafrost layers that are melting in Alaska, damaging infrastructure such as airport runways, roads, and buildings. This infrastructure needs to be repaired at significant cost. Similarly, warmer temperatures may change the agricultural basis of large geographic areas; while this change could be positive in that it would allow new crops to be grown, it may cause conflict when growers want to turn areas that used to be forest into farmland, potentially upsetting the ecological balance.

## How Urbanization and Neglect of Nature Directly Affect You

In the past three decades, the world's population living in urban areas has gone from one-third to just over half. This trend is evident in the U.S., where 80 percent of the population lives in metropolitan areas. The major reason for the trend is people seeking big cities where global investment is taking place.



*Hypercities* — those with populations of more than 20 million people — are growing in number around the world. Currently there are at least five: New York (U.S.), Tokyo (Japan), Seoul (South Korea), São Paulo (Brazil), and Mexico City (Mexico). Other cities on their way to supersize status are Beijing (China), Cairo (Egypt), Jakarta (Indonesia), Mumbai (India), and Delhi (India).

Clearly, the earth can take only so much. It can't replenish its resources at the same rate that people are currently consuming them, and its rate of replenishment may well decrease further as climate change continues to affect both the land and the oceans. Add to that a growing urbanization of the world's population as a result of economic growth, and you have a situation in which land, water, and wildlife are all at risk.

## *Decreased distance = Increased disease and infection*

Growing world populations heading toward large urban areas means that more and more people are living in close quarters and close to sources of pollution such as factories and large concentrations of vehicles and even infection from each other. The UN Population Division reports that in the past 30 years, the urban population has increased significantly: In 1975, one in three persons lived in urban areas; by 2007, it was more than one in two.

The distances viruses are able to travel nowadays is problematic as well. In the past, viruses spread more slowly and outbreaks were isolated because people traveled very little outside their own small communities. Today, viruses spread at the speed of air travel. One unsuspecting disease carrier flying from Thailand to the U.S. can spread a virus freely among a huge urban population and thus to millions of commuters and visitors who can spread it around the U.S. and the rest of the world within days and weeks. For several years, world health experts have worried about the possibility of a flu *pandemic*, an outbreak that they predict could kill hundreds of millions of people around the world.

Viruses don't just affect people. National and international movement of livestock and other agricultural products and even migration patterns of wild animals can spread viruses through animals, birds, insects, and other wildlife, causing damage to natural ecosystems and environments. Examples of this include outbreaks of diseases such as those caused by E.coli bacteria that contaminate vegetable crops that are stocked by grocery stores throughout North America.

## *Decreased food and water supply*

Large populations put pressure on water and energy supplies as well as on agricultural resources. In 2007, the U.S. Department of Agriculture (USDA) predicted that grain supplies for the coming year would be at a 53-day equivalent (meaning that if no additional supplies arrived, there would be enough in storage to last 53 days). In comparison, the supply in 1999–2000 was enough to last 115 days. Researchers report that the decrease is due to the fact that we're consistently not producing as much grain as we're consuming.

People need to find ways to reduce their water consumption while increasing their food production, but in an environmentally sustainable way. Simply throwing more fertilizer, genetic modifications, or chemicals at crops isn't a long-term, green solution. Instead, people need to understand where the problems are coming from — including land clearing, water consumption practices, and breaking links in the food chain — so that they can find solutions.

### *Clearing the land*

One major concern in modern-day society is that the amount of land available in the world for growing crops and supporting animal herds for food (such as cattle and sheep) is insufficient to support the food needs of the world's population. The causes are urbanization and land clearing for economic development (added to the fact that large areas of the world aren't suitable for agriculture). In the U.S., for example, almost 3,000 acres of farmland are replaced daily with development, and more than one-third of the nation's wetlands have been replaced by urban development or agriculture. People also are claiming more land individually: According to CEP, each American occupies about 20 percent more developed land (which includes houses, schools, shopping, and roads) than they did 20 years ago.

Clearing the land has a number of negative effects on ecosystems, among them the following:

- ✔ When you replace forests or wetlands, for example, with agriculture or development, soil erosion takes place. Clouds of dirt can even be seen blowing in the wind over farmland in drier areas as topsoil disappears, leaving the resulting land with fewer nutrients.
- ✔ Stripping the land removes tracts of forest and other vegetation that would otherwise use and store the carbon dioxide in the atmosphere, thus reducing the earth's ability to deal with greenhouse gases.
- ✔ Food and other essential products have to be transported into towns and cities to support people who no longer produce their own food and clothing. As a result, energy consumption for transportation increases.
- ✔ Mass production farming methods are required to produce the food needed for growing populations. This scenario leads to the breakdown of the family farm, which is being replaced by large corporate farming entities that can afford the technology and research needed for mass production.
- ✔ The amount of waste that has to be disposed of in urban areas grows as the population does, in part because as people become separated from the land that supports them, their concern about reducing waste through such techniques as composting decreases.

### *Draining the fountains of H<sub>2</sub>O*

Water supplies are dwindling because of rapid population growth in the developing world and because of the way people consume water in many developed areas. It's essential for people to reduce the amount of water that they use every day in order to ensure that there's enough of this resource to support not only the people living on the planet but all its ecosystems, too. After all, those ecosystems are at the heart of the world's agricultural production.



The Worldwatch Institute reports that China has 22 percent of the world's population but just 8 percent of the world's fresh water.

According to the UN Development Program, lack of water and sanitation in developing countries is to blame for almost 2 million child deaths each year and produces health problems for almost half of all people in those countries. It reports that 1.1 billion people around the world don't have access to water, and 2.6 billion don't have access to sanitation. It also reports that the majority of the world's 830 million malnourished people are small farmers, herders, and farm laborers who face increasing water insecurity due to climate change. With parts of sub-Saharan Africa already dealing with losing a quarter of crops to drought, the lack of water in specific areas has the potential to destabilize developing countries.

### *Removing links in the food chain*

Studies show that people depend on approximately 10 million other species on earth to support the food production process. Many of those species, which exist within the food chain to produce, protect, or enhance food production, are in danger of disappearing because of the impact that human behavior has on the ecosystems in which they live. For example, urban development can reduce wildlife abilities to migrate to seasonal feeding grounds, and pesticide spraying for agricultural crops can run off into waterways, introducing chemicals into the water that kill or harm fish.

Even when not directly involved in food production, wildlife — from insects to large mammals such as elephants — plays a role in the health and regeneration of its environment. Bees, for example, pollinate flowers, and elephants redistribute plant seeds through their fecal matter and create watering holes for other animals as well as themselves by digging for water. Removing even one species can have a negative effect on the entire ecosystem. For example, when predators such as wolves are removed from the ecosystem, the populations of deer, their usual prey, increase well beyond the numbers that the local vegetation can support, which in turn leads to the deer starving or trying to move into new areas in search of food.

Some 6,700 known plant and animal species are considered at risk of extinction within the U.S. Worldwide, the figure is more than 16,000 plants and animals that are under threat.



The World Wildlife Fund tracks trends in more than 3,600 populations of vertebrate species (animals that have a spine, whether they're on land or in lakes and oceans) on an ongoing basis. The organization discovered that populations declined by one-third between 1970 and 2003.

## *Ingesting dangerous chemicals*

The burning of fossil fuels for a variety of energy, transport, and industrial needs affects not only the global climate but also your health. Many toxic chemicals are emitted into the environment, whether into the air, ground, waterways, and even through the food you eat.

### *In the air*

People living close to industrial sites in countries with little or no environmental regulation for emissions and pollution of air, land, and water are at risk for health problems including asthma and other respiratory diseases.

Even in countries like the U.S, where environmental regulation is taken more seriously, the sheer volume of traffic in urban areas puts people at risk for diseases caused or made worse by air pollution.

You may not see it, but some of the pollution floating around in the air is a major health hazard. Some of the dangers include:



- ✓ **Ozone:** Good ozone is the layer that exists between 6.2 and 31 miles above the earth's surface and protects you from the sun's ultraviolet rays. Bad ozone is formed when pollutants emitted by vehicles, factories, and refineries react chemically in the presence of sunlight. Ozone can bring on respiratory infections and increase the incidence of asthma.
- ✓ **Particle pollution:** Most fine-particle pollutants are visible only through a microscope, but together they form the smog you see on windless days. Particle pollutants are emitted directly (from vehicle exhausts and manufacturing plants, for example) or are formed in the atmosphere when other pollutants react with them. They can cause major respiratory difficulties and have even been linked to lung and heart illnesses.
- ✓ **Carbon monoxide:** Carbon monoxide (CO) is an odorless, colorless gas that's difficult to detect. It forms when the carbon in fuels doesn't completely burn. Vehicles contribute a high proportion of CO to the atmosphere; industry and brushfires also contribute to CO emissions. Carbon monoxide in the body restricts blood flow, affects those with cardiovascular problems, and can even be fatal when it builds up in enclosed spaces (such as homes and garages due to faulty furnaces or venting).
- ✓ **Sulfur dioxide:** Sulfur dioxide is also colorless, but its rotten-egg smell makes it easy to identify. It's a reactive gas that's produced when coal and oil are burned in places like power plants and industrial boilers. The smell is the main reason that people stay away from industrial areas using these fuels. But besides being offensive to the nose, it's offensive to the lungs and heart.





The next time you watch the local news on TV, pay attention to the weather report's *air-quality index*. This index measures the extent of major gases and particles delivered into the air on a given day, and it provides an indication of the potential for health issues for those who are vulnerable to respiratory conditions.



A recent study at Northwestern University sheds some light on how air pollution can cause not just respiratory ailments but also cardiovascular events such as heart attacks and strokes. The study found that the pollution particles triggered the formation of blood clots in mice, and blood clots can cause both heart attacks and strokes, depending on whether they form or move within the body to the heart or the brain.

### *In foods*

The need to feed the world's growing population and the demand for inexpensive food has led to mass food production. Intensive farming methods have developed to meet demand and to get food onto plates quickly. These methods include:

- ✓ **Chemical additives, antibiotics, and artificial hormones** used to make animals and birds grow more quickly and to prevent disease in herds and flocks
- ✓ **Chemical pesticides and fertilizers** used to raise the quantities of crops that can be produced per acre of land while sending environmentally harmful runoff into waterways

The long-term health effects of these farming methods aren't always clear immediately, but they are cause for concern. For example, antibiotics in the food chain can cause people to become resistant to them, which causes problems when the antibiotics are essential to the treatment of a medical condition. The BSE (Bovine Spongiform Encephalopathy) outbreak, which led to the deaths of more than 150 people in the United Kingdom in the 1990s and 2000s, was a direct result of particular bone meal products added to the food given to beef cattle to keep the costs of beef production down. (Chapter 10 looks at the food you eat and how to buy the greenest food available. If you're feeling ambitious, Chapter 8 tells you how to grow your own food.)

### *In products*

The biggest users of chemicals that are potentially harmful to human health are industries that manufacture medicines, plastics, textiles, detergents, paints, and pesticides. Two problems are inherent with the chemicals found in these products:

- ✓ The products bring people into daily contact with potentially harmful substances.
- ✓ The processes used to create the products create waste that's potentially harmful.

When the manufacture of these chemical-containing products (see the list of potentially harmful chemicals later in this section) began decades ago, the toxic mess produced was invariably released into nearby waterways, emitted into the air, or simply dumped on the ground. Environmental regulations in many industrialized countries are now in place to prevent some of this, but more and more people are at risk from contaminated air, land, and water in areas where environmental regulations haven't kept up with industry. And even in the U.S., regulations allow the emission of certain amounts of chemicals as long as they're kept within specific limits. Toxic chemical leaks from industrial sites do still happen in the U.S. as well, despite enforcement of environmental regulations. For example, in October 2007, the leak of 500 gallons of hydrochloric acid at a metal plating plant in Melvindale, Michigan, caused the evacuation of approximately 3,000 local residents. In parts of the world where factories routinely get rid of their waste into the nearest stretch of water and where local people are dependent on that water for everyday use, the dangers are huge. And in many parts of the world, untreated human effluent also finds its way into the nearest stretch of water, where it routinely causes disease. This contamination leaves people at risk of toxic poisoning.

Some of the major potentially harmful substances that may be introduced into the environment include:

- ✔ **Brominated flame retardants:** These are used in plastics for computer casings, white goods, car interiors, carpets, and polyurethane foams in furniture and bedding. They can end up in the dust of homes and offices and are linked with cancer and reproductive problems.
- ✔ **Dioxins:** A byproduct of PVC (polyvinyl chloride, made into anything from window frames and plastic), industrial bleaching, and incineration, dioxins can lead to diseases of the immune system, reproductive and developmental disorders, and cancer.
- ✔ **Lead and mercury:** Toxic heavy metals that don't break down in the environment and aren't destroyed at any temperature include lead and mercury (which is also used in people's dental fillings). Lead is the most prevalent industrial toxin released into the environment and therefore causes the most environmentally related health problems. It's released into the atmosphere through gas and paint. Low levels of lead and mercury can cause mental illness, learning disabilities, and stunted growth in children.
- ✔ **Organochlorine pesticides:** These types of pesticide include DDT, dieldrin, heptachlor, chlordane, and mirex, all of which are used in farming and gardening and can end up in soils, the water table, rivers, and streams. Most have been banned in many countries including the U.S. because they can cause cancer and are toxic to the immune system; however, these substances can linger in the ground. Near a former DDT manufacturing site in Montrose, California, that shut down its DDT activities in 1982, EPA soil testing has shown elevated DDT levels in soil five feet below the ground surface (although not in the soils between ground surface and the five-foot level).

- ✓ **Perfluorochemicals:** These are acids used in the manufacture of everyday items such as clothing, stain-resistant materials, and cosmetics. They're linked to cancer and liver damage.
- ✓ **Phthalates:** One of the most omnipresent groups of chemicals and used mainly as softeners in polyvinyl chloride (PVC), as well as in cosmetics and perfumes, these chemicals disrupt hormones.



Reducing your use of products that contain these substances reduces the need for them and thus the production of them in the first place.

## *Looking Forward: Thinking Globally, Acting Locally*

Is it possible to stop and then reverse the damage that's being done to the planet? Considering where the world currently stands in terms of resource depletion and greenhouse gas emissions, it's tempting to think that the situation can't possibly be improved. However, the World Wildlife Fund (WWF) has taken a clear look at where things are and where they're going, and they believe that, in fact, the world has more than enough sustainable energy and technology to supply a projected doubling in global demand for energy between now and 2050 while dropping carbon dioxide emissions by 60 to 80 percent. The WWF believes that this supply will come from six key solutions: improving energy efficiency, stopping forest loss, accelerating the development of low-emissions technologies, developing flexible fuels, replacing high-carbon coal with low-carbon natural gas, and equipping fossil fuel plants with carbon capture and storage technology.

Huge gains in environmental progress have been made before: for example, the protection of threatened wildlife species such as the peregrine falcon and the bald eagle. However, the citizens of the world need to act quickly according to the WWF — in the next five years, in fact! And bringing about change and repair will take a combined effort from individuals, businesses, and governments. It may not be possible to reverse every effect, but it's still possible for people to make a difference.

## *The macro perspective: Necessary changes at the governmental level*

This section lays out what the WWF's Climate Solutions report, released in 2007, says needs to be done in order to meet the world's increasing demand for energy without further damaging the world's climate. The world can prevent carbon dioxide from being released into the atmosphere by taking the following actions:

- ✓ **Improve energy efficiency.** Reducing the amount of energy people use is an essential part of reducing greenhouse gas emissions — solutions can range from sealing energy leaks in homes to driving more fuel-efficient vehicles.
- ✓ **Stop forest loss.** Nurturing carbon dioxide-storing plants such as trees is a major way to reduce the effect of carbon emissions. The trees take carbon dioxide out of the atmosphere as part of the photosynthesis process, and they hold that carbon dioxide until they're burned.
- ✓ **Accelerate the development of low-emissions technologies.** Practical (as in, available and reasonably priced) *alternative energy sources* such as wind, hydro (water), biomass (fuel from natural material such as crops and agricultural waste), and solar power are considered renewable (there's more on these in Chapter 3). Humans can't use up the wind and the sun, for example, in the same way they can use up fossil fuels. Alternative energy sources also have the benefit of producing little to no greenhouse gas emissions. At the same time, technologies need to be researched and implemented to reduce emissions from existing energy sources.
- ✓ **Develop flexible fuels.** Flexible fuels such as hydrogen fuel cell technology would allow the effective and efficient storage of energy from intermittent sources such as the sun and wind so that the energy could be used as and when needed.
- ✓ **Replace high-carbon coal with low-carbon gas.** Although natural gas gives off carbon dioxide emissions when it's burned, the emissions are much lower than those given off by coal. Switching power plants, for example, from coal-burning to gas-burning can significantly reduce emissions.
- ✓ **Equip fossil fuel plants with carbon capture and storage technology.** Carbon capture technology takes the carbon that results from burning fossil fuels and stores it where it can't be released into the atmosphere (underground, for example). Although it doesn't exactly reduce emissions, carbon capture technology does prevent emissions from reaching the atmosphere.

Although not necessarily addressing the WWF report specifically, the U.S. is addressing many of these issues by providing information and support to homeowners wishing to increase energy efficiency; fueling many new power plants with natural gas rather than coal; and funding research into alternative energy sources, carbon capture, and flexible fuels. However, the WWF report indicates that people need to move much more quickly on all these areas in order to slow climate change.



The town of Gussing, Austria, is an excellent example of the impact of environmental change. Gussing has cut its carbon emissions by more than 90 percent in the last 15 or so years! How did they manage that? The town council had trouble paying its electrical bill, so it decided that all public buildings in Gussing would run on renewable energy instead of fossil fuels. Today, energy sources there include the sun, cooking oil, and biofuels such as sawdust and corn; the town generates enough power to sell some back to the national grid!

Most industrialized countries are now focusing on reducing or eliminating waste by educating residents and businesses about how to decrease the amount of waste they're responsible for, how to reuse as much as possible, how to recycle what can't be reused, and how to turn household and garden waste into compost. You can find tips on implementing these changes in your own life in Chapter 6.

## The U.S. and the Kyoto Protocol

In 1990, the IPCC reported that a 60 percent reduction in harmful emissions into the earth's atmosphere was needed to redress serious damage that had been done to the planet.

In 1998 in Kyoto, Japan, 141 world leaders agreed that from 2008 to 2012, industrialized countries would work to reduce their own greenhouse gas emissions to 5.2 percent below their levels in 1990 (but they didn't really say how). At the time of this writing, the U.S. hasn't ratified the Kyoto Protocol agreement. One of the reasons given is that India and China, con-

sidered developing nations, are exempted from the agreement's targets.

The statistics suggest that not having the U.S. onboard reduces the global effectiveness of the Kyoto Protocol, but it may not be the deal-breaker that it was originally thought to be. Politicians and politics change rapidly, and as climate change becomes an increasingly important issue, more international meetings are taking place to reassess greenhouse gas reduction targets and move forward. In the future, the Kyoto Protocol may be seen as the agreement that started the ball rolling.

## *The micro perspective: How one person can effect big change*

Living a green life at a very local level really does help to change the world on a global level because every positive change that you make has a ripple effect. Reducing your energy consumption, for example, means that less fossil fuels need to be burned, which means that fewer greenhouse gases end up in the atmosphere, which in turn creates less global warming and protects more of the environment. Sure, the effect seems minimal when you consider the grandiosity of the environmental problems, but as history shows, individuals can create great waves of change — you just have to be consistent and persistent. You can make plenty of changes to your own lifestyle right away, thus taking care of your own personal responsibility and making an immediate difference to your home and community. We tell you about all the things you can do — small and large, cheap and not-so-cheap — throughout this book.

You also can help people around you adopt a similar green approach by participating in community and even international initiatives such as

- ✔ Volunteering for a community action group that has similar interests to you, such as a cyclists' lobby group or a group representing local conservation efforts
- ✔ Writing letters about topics such as waste reduction (see Chapter 6), greening the local municipality's vehicle fleet (see Chapter 14), and alternative energy sources (see Chapter 3) to the editors of newspapers, magazines, and Web sites, and to your local, state, and federal politicians
- ✔ Getting involved with an international lobby, policy, or research organization that supports green living
- ✔ Joining a political party that represents your views and through which you think you can have an influence



Getting more people involved in actively promoting greener living makes it more likely that the politicians responsible for policy-making will take environmental issues more seriously. It's important to make your case tactfully and based on science rather than rhetoric, however; otherwise, you'll do more to turn people off green living than on.

Many of the tips in this book are simple ones that you can start immediately without making huge changes to your lifestyle. When you take action, you help turn the tide and provide hope that the planet can sustain its future generations — your grandchildren and great-grandchildren.

## Chapter 3

# The World's Source of Hope: Renewable Energy Sources

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### *In This Chapter*

- ▶ Finding renewable energy options in water, sun, and wind
  - ▶ Tapping into geothermal energy
  - ▶ Exploring the energy in biomass and hydrogen
- 

**R**enewable forms of energy either naturally replenish themselves — like the sun's rays, the wind, the temperature in the earth's crust, and the flow of rivers and tides — or are quickly replenished (relatively speaking) — like crops and trees used as fuel.

As we discuss in Chapter 2, nonrenewable energy sources are problematic for several reasons: Fossil fuels such as oil, coal, and natural gas contribute to emissions of greenhouse gases and other pollutants and will eventually run out because the earth can't replenish them as quickly as people use them; in addition, uranium (used to fuel nuclear power plants) creates waste that's extremely hazardous to the environment and human health. Renewable energy sources alleviate those concerns because they won't run out and don't emit the harmful substances that nonrenewable energy sources do.

Renewable energy has been around for a very long time — pretty much since the discovery of fire (fire burns wood, or biomass, to create energy in the form of heat). Other forms of renewable power also have been used historically in the form of windmills and waterwheels (which eventually turned into hydroelectric forms of power). Much more recently, however, the technology involved in using these forms of energy has allowed for practical applications on a larger scale.

In this chapter, we focus on the concepts behind renewable energy sources for utilities such as electricity-generating power plants and how they work as well as how they're being implemented and being considered for implementation at the nationwide and even worldwide levels. (We explain how you can adapt your home for greener energy use in Chapters 4 and 5.)

## *A Primer on Sizing Up Fuel Sources*

Assessing energy sources isn't as simple as saying "nonrenewable is bad and renewable is good." Most sources have their pros and cons, which means that, once again, a green issue isn't a black-and-white choice. If you're considering purchasing energy from renewable sources or supporting the governments and politicians that want to introduce them, it's important to understand how each type works and its pros and cons. Here are some issues you should mull over:

- ✓ **Cost:** It doesn't matter how beneficial an energy source is for the environment if it costs so much extra that it's no longer affordable. However, if the additional cost for environmentally friendly energy is only a small amount and you can afford it, it's worth paying. Supporting government initiatives that fund alternative energy research and technology development is one way to help bring costs down.
- ✓ **Practicality:** Some alternative energy sources, such as hydrogen fuel cells, aren't yet at the point where they're practical for everyday use. In other cases, an energy source may not be available in your area because of climate limitations (solar and wind power aren't practical in all geographic areas, for example).
- ✓ **Environmental impact:** It's important to go beyond the issue of greenhouse gas emissions to assess all the environmental issues involved in energy sources. Hydro power, for example, is green in terms of greenhouse gas emissions but can create other problems in terms of the flooding needed for reservoirs and the challenges that dams pose for fish.
- ✓ **Life cycle issues:** Energy sources need to be assessed on a cost, practicality, and environmental viewpoint from their initial construction through their energy-producing life to their eventual decommissioning and dismantling. Nuclear power, for example, is considered relatively clean in terms of greenhouse gas emissions, but mining for its fuel — uranium — and dealing with its radioactive waste is expensive, energy intensive, and potentially harmful to the environment.

## *Harnessing the Energy of Flowing Water*

Hydroelectric power installations already produce approximately 10 percent of America's electricity by harnessing the energy contained in flowing water. Hydroelectric power is considered a renewable energy source because the water isn't consumed during the process and because water is part of a constantly regenerating natural cycle.



Hydroelectric power installations essentially work when flowing water runs through a *turbine*. There are different types of turbines, including the common propeller type, which has blades that spin around under the force of the water. No matter how the turbine is shaped, the spinning motion that it creates in turn spins the rotor of an electricity generator, creating a magnetic field that induces an electric current. In some cases, the turbine is simply placed in a free-flowing stream of water; in others, the water is dammed in a reservoir to provide a consistent and available water source.

Hydro power can be adapted for everything from large-scale utilities that provide power to cities to small-scale single-home systems.

The advantage to hydro power is that it doesn't produce greenhouse gases. It certainly has an effect on the environment, however. The reservoirs created by dam-type hydroelectric plants destroy a significant amount of natural space, displacing vegetation, wildlife, and even people. The power plants themselves create major difficulties for migratory fish, which can get sucked into the turbines or find their paths blocked. Fish ladders, elevators, and even trucking systems have mitigated these problems but still add obstacles and stress to the paths of fish.

Hydroelectric plants also can alter the gas composition of water that flows through them and can trap organisms in the still water of the reservoir, again affecting the health of the wildlife that uses the river.



Difficulties surrounding water availability (in some cases, competing needs for water for agricultural, industrial, or household use are an issue) and environmental impacts are part of the reason that hydro power is expected to decrease from 10 to 6 percent of the nation's electricity generation by the year 2020.



A test project currently underway in New York's East River uses the daily tidal flows to drive turbines. If the test works out well, the project could be expanded from an initial demonstration of six turbines to as many as 300, generating enough energy to power almost 8,000 New York homes. This test project is the world's first hydropower technology of its kind that's connected to the local electrical grid.

## *Capturing and Diverting Sunbeams*

Solar energy is definitely one of the greenest forms of renewable energy. It has no emissions, and the only real environmental concern is the amount of space that solar collectors take up. However, newer, improved technologies are decreasing the need for space and making the components much more efficient.

Very little — less than 1 percent — of the nation's energy is currently produced by solar sources; however, the potential for solar applications is huge (and growing). Although solar panels work on a small scale to provide either heat or power for individual buildings, they also can be grouped together to provide heat or power to much larger areas, such as neighborhoods and small cities (the largest arrays currently provide electricity to tens of thousands of homes). This is called *concentrating solar power*, or CSP. Facilities with multiple solar collectors use several different methods to capture the sun's energy:



- ✓ **Photovoltaic (PV) panels:** The PV panels produce electricity directly from the sun's rays: When the sun's light hits the semiconductors within the panel, the light's energy frees up electrons, which flow out of the PV panel as electrical current and can feed the area's electrical grid.

The U.S. Department of Energy (DOE) is working on making the price of photovoltaic power competitive with traditional electricity sources within the next decade.

- ✓ **Solar thermal panels:** Solar panels capture the sun's energy as heat and transfer the heat via piped fluid into an inground holding system (a geothermal application) until it's needed by the community (see Figure 3-1). In smaller communities, the heat is distributed through pipes to buildings throughout the community to provide warmth. In other applications, the heat drives a central steam generator to create electricity.

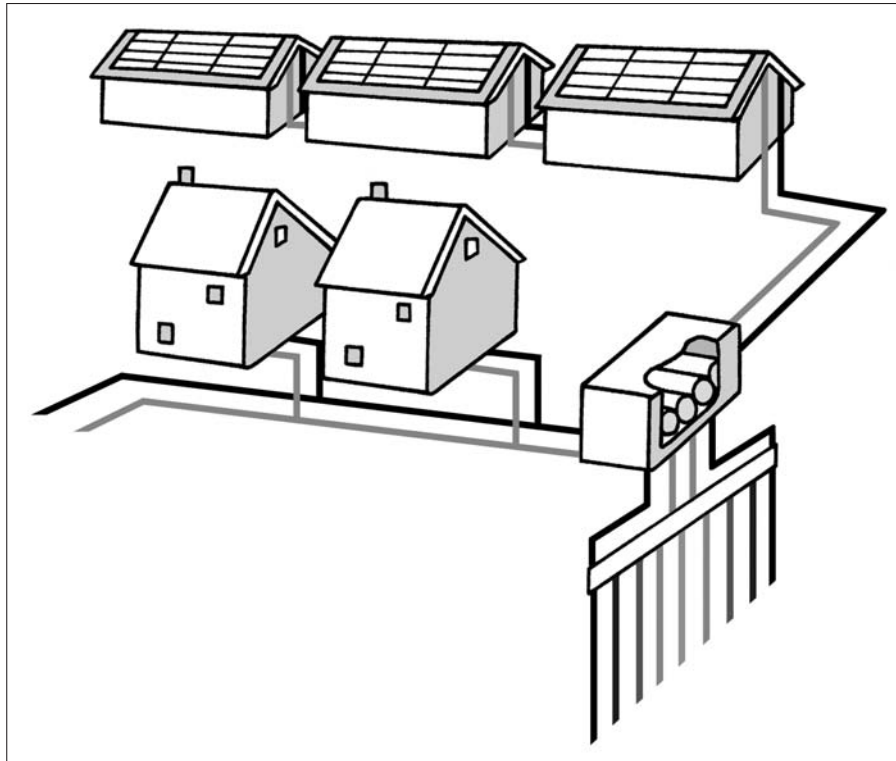
The solar thermal facility installed in Kramer Junction, California, was the world's largest when it was commissioned in 1986. Still in operation today, it uses rows of mirrors to concentrate the sun's heat onto pipes that move the heat to a steam generator to produce electricity.



- ✓ **Solar dishes:** This technology collects and concentrates the sun's rays in a parabolic dish, turning them into heat and transferring it to a power generator.

## Going with the Wind

Traditionally, wind power has been used in very small installations, such as powering wells on farms. However, this is changing. In 2006, enough wind-driven electricity was generated in America to power almost 3 million households — and the potential exists for much more wind power development. It currently provides approximately 1 percent of the nation's energy, but that figure is expected to rise in coming years. In 2005, the U.S. installed more new wind energy capacity than any other country in the world.



**Figure 3-1:**  
A solar-  
thermal-  
geothermal  
heating  
system for a  
neighbor-  
hood.

You may not think of wind as a form of solar energy, but in fact it is: Wind is formed when the sun heats the earth's surface, which then radiates heat into the air. As the air warms, it rises, creating a different pressure at ground level than higher up, and as air rushes between these pressure areas, it creates wind. Because this is happening on a global scale, wind persists even after the sun has gone down for the evening. Wind energy is also renewable and produces no greenhouse gas emissions.

Large-scale wind power developments generally group tall, free-standing turbines in a windy area, positioned so that their blades catch the wind and turn, thus generating energy for the area's power grid. These *wind farms* can be awe-inspiring to see, but they generate controversy along with energy. Critics cite noise, visual impact, and their effect on airborne wildlife such as birds and bats as reasons not to build them; however, the industry is addressing the noise and environmental concerns by way of technological developments that have reduced turbine noise and by locating the turbines where their impact on wildlife is reduced.



To put bird deaths due to wind turbines in perspective, the National Wind Coordinating Committee reports that 1 out of every 5,000 to 10,000 bird deaths in the U.S. each year is due to collisions with wind turbines. It also reports that although that figure may seem small, all efforts to reduce fatalities are important.

Pairing different renewable technologies can help balance out their supply issues, and wind power is ideal for this scenario because it's intermittent. For example, the wind often blows at night or during stormy weather, generating electricity when the sun's not available to power solar energy options. When it's a beautiful, windless day, the sun may well be able to pick up the slack.

## *Digging Deep for Geothermal Energy*

Geothermal energy takes advantage of the fact that the deeper you go into the earth's crust, the warmer things get. (It works out to about 50 to 87 degrees Fahrenheit of difference in temperature for every mile.) In small-scale operations, especially those for individual houses or buildings, pipes are installed as few as ten feet into the earth (or inserted into a water source such as a pond) to capture the heat and transfer it to a heat pump system inside the building. In large-scale community geothermal installations, the drilling is often deeper, into geothermal reservoirs up to two miles below the ground surface, where the heat of underground water may be up to 700 degrees. Hot water or steam is then piped up to the surface to generate electricity (usually by turning turbines), with the cooled water often pumped back down to the source to replenish it.

Currently, geothermal energy produces less than 1 percent of America's energy. However, the EPA reports that for temperature control (for heating and cooling buildings), it's the most energy efficient, environmentally clean and cost-effective method.



Using geothermal heat to warm greenhouse operations can be an energy-efficient and green way to extend the growing season and make local produce available for longer because the energy doesn't have to be converted to different forms: It comes as heat and is used as heat, as opposed to requiring electricity to power an appliance to produce heat.

One drawback to a geothermal reservoir system is that a community needs to be close to the reservoir in order to take advantage of the heat's energy. Systems that run on shallower systems using heat pump technology can be more flexible. Geothermal energy is already in use in many parts of the country, including Boise, Idaho, where it was first used in 1893. These older sites

tended to rely very much on geography providing easy access to the heat; today, the advancement of technology such as heat pumps allows much wider application of geothermal energy.

Even though energy is required to power the pumps that move the water from one place to another (depending on the source of this energy, it may emit greenhouse gases), geothermal sources of energy still use much less energy than other energy sources, and they don't produce greenhouse gases. One drawback, however, is that some water sources contain hydrogen sulfur that can be harmful to workers at geothermal plants; however, systems have been developed to filter that out.

## Creating Energy with Biomass

*Biomass* refers to any organic material. It can be trees, wood chips, pulp sludge from wood-processing facilities, agricultural crops, animal manure, and even organic waste. Although biomass releases carbon when it burns or is processed, it's considered renewable because new organic material can be planted to replace it, and that new organic material consumes carbon as it grows. The process ends up being *carbon neutral* — meaning that it consumes as much carbon as it produces — as long as you plant enough to offset what you burn or process. Biomass currently produces approximately 3 percent of America's energy.

Biomass can be utilized in many different ways; here are some of the more common examples:

- ✓ It's generally burned to produce heat, steam, and electricity for communities.
- ✓ Other processes can turn biomass into gas, synthetic fuel oil, methane, ethanol, biodiesel, or methanol, which then can be used to power vehicles and other machinery, including generators.
- ✓ Biomass products may be used to create products that are usually made from petroleum products, including clothing and plastics.



Biomass already provides approximately 3 percent of America's energy, and it has the potential to provide much more. If it consists of waste, it has the added benefit of turning trash into energy; if it consists of agricultural crops, it can benefit farmers economically. Experts caution, however, that growing crops specifically for biomass applications could end up competing with space needed for food crops, so sources of agricultural biomass need to be carefully considered and balanced. Using waste products is the greenest form of biomass production.

## Looking at the Future: Hydrogen as a Harbor of Renewable Energy

The potential of hydrogen as an alternative energy source, not just for vehicles but also to generate electricity, is still very much at the research stage, but a lot of government and industry effort is going into moving from research into development and implementation.

Essentially, hydrogen can be produced from almost any other form of energy, including fossil fuels and renewable energy such as solar, wind, and hydro power. The secret to hydrogen's success is that it's not an energy source in itself but rather can store the energy from those other sources. In effect, it becomes a fuel that can be stored in tanks, for example. A *fuel cell* somewhat like a battery converts the energy stored in the hydrogen to electricity by using an *electrolyte*, which separates the hydrogen's protons and electrons to create a stream of electrons (electricity). The fuel cell's electrochemical process creates water and heat rather than greenhouse gases as byproducts. (Even when fossil fuels are used to produce the hydrogen, far fewer of them are used than if they were being used to generate electricity themselves.)

Fuel cells are very small and produce very small amounts of electricity, so cells are stacked together to create practical applications. The size of the stacks is one design issue, as is the cost of the components.



The U.S. DOE Hydrogen Program says that a conventional combustion-powered power plant generates electricity at efficiencies of 33 to 35 percent. Hydrogen fuel cells can be two to three times more efficient.

It will likely be some years yet before hydrogen makes it off the testing grounds and into everyday life due to the current cost of the technology — but it could be part of your future, so keep your eyes open.

# Part II

# Living Greenly at Home

The 5<sup>th</sup> Wave By Rich Tennant



“For the last time – pregnant vegetarians  
do not give birth to Cabbage Patch Dolls!”

## *In this part . . .*

**T**he best place to start living a greener lifestyle is close to home. The chapters in this part focus on greening every aspect of life at home, from the house you buy or build to the way in which you use it. This part also looks at your yard (whether it's a tiny patch of balcony or a wide expanse of lawn) to help you garden and even grow your own food in a more sustainable way.

The keys to being greener are to reduce what you buy, reuse what you have (or give it to someone who can), repair instead of buying new, and cut down on the amount of waste you produce by recycling and composting. With that in mind, this part also shares ways to reduce your waste. And because every member of the family can play their part, we cover encouraging your children to embrace a green life.



## Chapter 4

# Green Building and Remodeling

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### *In This Chapter*

- ▶ Looking at environmentally friendly locations
  - ▶ Brushing up on possible home toxins
  - ▶ Making your home energy efficient
  - ▶ Using green home and building materials
  - ▶ Funding your green home project
- 

**W**hen dreaming of a home, you have some major decisions to make: Apartment or single family home? Urban living or rural idyll? Bungalow or two-story? With residential homes consuming 22 percent of the nation's energy and 74 percent of its water, your choices about where to live and what to live in play a big part in the impact you have on the planet.

Building an energy-efficient home is definitely a green way to go, but you can go further — as far as product availability and your budget allow, in fact. A green home is one that takes a holistic approach to sustainable living: Energy efficiency is important, but so are using green building materials, water conservation, and waste reduction.

The fact of the matter is that turning your home green doesn't just reduce your energy bills: It also can make your home healthier and more comfortable by reducing drafts, temperature fluctuations, and toxic materials, and it can vastly reduce your ecological footprint. This chapter explores why your home is so important environmentally and what makes a home planet-friendly. It also tells you how to make your existing home greener or build a green house by identifying potential environmental hazards, conserving precious resources like water and energy, and even taking steps to generate energy of your own.

For full coverage of the topic of green homes, check out *Green Building & Remodeling For Dummies* by Eric Corey Freed (Wiley).

## Setting Up Residence in a Green Location

Where you live has a big influence on how green you're likely to be in the years to come. If you live within walking distance of work, schools, shopping, and other amenities, for example, you automatically reduce the amount that you need to drive — but closed-in, urban locations may not be practical for everyone. In this section, we look at the effects of proximity to amenities and offer suggestions to make every location greener. And because it's not just location but also community that matters, we provide suggestions for questions to ask about how green the community is before you decide to move there.

### *Accounting for proximity*

You're more likely to lead a green lifestyle if you live near facilities and services such as stores, schools, medical clinics, public transportation stops, and leisure facilities, and one of the best opportunities to find that close proximity is in urban, downtown areas. But that raises a bit of a problem. In 2007, for the first time — ever — more than half of the planet's population lived in urban (as in, city) rather than rural (as in, country) areas. This arrangement has had a dramatic supply versus demand effect: Many of the most desirable urban locations, which often include those in trendy, well-serviced areas, have become quite expensive to live in and to buy or rent homes in. Not everyone can afford to (or, in fact, wants to) live in these urban, often inner-city, areas. If you're looking for a greener lifestyle, the question then is whether the suburbs, small towns, or rural areas offer you the potential for sustainability. As with so many green living issues, it depends — a little on the location and a lot on what you do with it.

#### *Urban living: The greenest option*

The most sustainable housing locations are those close to — preferably within walking distance of — the following:

- ✓ **Transportation:** Proximity to good transport networks, such as bus stops, light rail systems, and railway stations, reduces your need to travel by vehicle. New development located close to public transport is called *transit-oriented development*. The inner-city areas of big cities and regional towns, where there's a concentration of stores and jobs, are most accessible for public transport systems and are beginning to actively promote walking and cycling.

A sustainable urban area has safe, well-lit, and good-quality walking and cycling paths and low levels of vehicle traffic.



- ✓ **Essential services:** The ability to walk or cycle to schools, churches, public open spaces, community services, daycare facilities, libraries, and stores makes life easier and greener for everyone, especially children who don't have to rely on you to drive them everywhere.

When children are young, they want to be wherever you are, but as your children's social lives become more important to them, you may have to make endless journeys to and from parties, after-school activities, sports events, youth clubs, friends' homes, and the nearest bus or train stations. The farther you are from these, the more you have to use public transport or, if that isn't accessible and convenient, your vehicle. When choosing the greenest possible location for your home, consider the needs of your children as well as yourself.

- ✓ **Cultural and recreational facilities:** Easy access to open space, parks, sports facilities, and recreation areas keeps you in tune with Mother Nature's greenery, and nearby concert halls and theatres feed your artistic soul.
- ✓ **The center of the local community:** You can tell that you're in a vibrant sustainable community when many people of all ages and cultures walk the streets; all the stores and services are open; the streets and sidewalks are clean; and there's a good mix of housing styles and types, which implies a good socio-economic mix as well.

Keep in mind that as you get closer to these amenities, especially public transportation, the available homes get smaller. It takes a lot of people living in a relatively small geographic area to justify the cost of providing expensive options such as a light rail system. Smaller homes allow as many people as possible access to the public transportation network or to walk or cycle to nearby stores and services.



Many community planners recognize the importance of providing as many people as possible with accessible yet affordable housing choices across urban areas. Many cities and towns now encourage developers to provide housing around established centers close to public transportation. This is a direct result of an increasing number of people willing to trade space for a location near good public transport links or within walking or cycling distance of work.

### *Greening suburban life*

If you decide that the suburbs are right for your family, look for the greenest, most sustainable suburb possible. Recent designs are moving toward *new urbanism*, which incorporates mixed housing types (condominium complexes, smaller starter homes, and larger homes, for example), higher housing densities, walking paths, community parks, local shopping centers, and strong community associations. Many newer suburbs also have improved their management of natural vegetation and water runoff. The variety of housing types available in suburbs means that the size of house you choose is up to you: If you don't need the extra rooms, don't buy them.

## The problems with suburbia

As suburban areas have grown larger, often consuming smaller communities as they go, they've created environmental challenges. Following are a sampling of the problems created by larger populations in suburban living:

- ✔ **Less vegetation and agricultural land:** As urban boundaries extend, green land such as forests or farm fields is paved over to provide more housing. (Farmers often gain more of a return on investment by selling their land to developers than continuing to farm it.) During heavy rains and storms, the water runs off into storm sewers or floods low-lying areas (often creating erosion as it does so) because it can no longer seep naturally away into the earth as it once did.
- ✔ **Increased demand for gas and oil:** Many suburbs designed several decades ago featured double-car garages as house fronts, few sidewalks, and little in the way of local stores: These characteristics practically force you into your vehicle for getting to work, recreation, and shopping, thus increasing energy-related vehicle costs and greenhouse gas emissions.
- ✔ **Urban design issues:** Migration to suburbs has caused the "donut" effect, in which downtowns become ghost towns at night when office workers head home to the suburbs. Many cities have begun actively renewing their downtown areas, encouraging the building or renewal of high-rise living accommodations. As people increasingly choose to live downtown, stores and services stay open later, increasing the amenities available to residents, so it's a win-win situation. However, many cities are still struggling with downtown areas that have become rundown and crime-ridden because of a lack of legitimate night-time users.
- ✔ **Increased pressure on utilities:** The desire for large houses in suburban areas with all the amenities, such as large entertainment systems, air conditioning, swimming pools, and lots of fully furnished rooms, increases water and power consumption.

### *Opting for a more rustic style: Small towns and countryside*

If the suburbs and urban areas don't work for you, you may be more suited to life in a small town or in the country. The biggest issue to address in both cases is likely to be distance: the distance to work if it's not nearby, to schools if the area isn't well-served by schools for children of all ages, and to shopping. Distance from places you need to go can become a major problem when one family member takes the family car to work or elsewhere for the day, leaving those at home stranded with no other realistic options for transportation.

You may be able to rely on school bus systems to get the kids to school and carpools to help with the daily commute to work (see Chapter 13 for more on carpools). Working from home (called *telecommuting*; see Chapter 16) or running your own home-based business also can facilitate the green lifestyle you're looking for. Plus, living away from cities and suburbs may mean that you have enough yard in which to grow at least some of your own vegetables and fruit (see Chapter 8), and if you live in the country, you may be able to green

your home using alternative energy sources such as wind and geothermal energy (see the later section “Designing — or Redesigning — Your Home for Energy Efficiency”).

When considering living in a location that’s not close to amenities, think about the impact you’ll make on the environment. Factor in access to water, electricity, gas, telephone, and postal services; the wear and tear your activities cause to roads; and the environmental cost of keeping all that infrastructure in good repair. Many people dream of living in the middle of nowhere away from the rat race, but that kind of lifestyle still has an environmental impact. You may choose to offset some of the impact by investing in carbon offsets (discussed in Chapter 15), opting to buy green power, or making other parts of your lifestyle as green as possible.



Having items delivered to your home can be better in terms of carbon emissions than driving out to get everything yourself. One van delivering to 30 houses using the most efficient route between them can produce fewer emissions than 30 vehicles driving from their respective homes to the store.

## *Factoring in the community*

Getting the location right is all well and good, but if your local community doesn’t offer recycling or doesn’t encourage sustainable development, then those missing factors can outweigh many of the advantages your chosen location offers in terms of a greener lifestyle.



When you think that you’ve found a green housing location, investigate the policies of your local town or county government. Check its Web site to see what it says about the following:

- ✓ **Environmental initiatives:** It’s a good sign if the community shows active interest in environmental issues such as water efficiency, pollution, energy efficiency, transportation, air quality, greenhouse gas emissions, waste management, recycling, and noise.
- ✓ **Community services:** What’s the range of community facilities available in the area? The community or government Web site should list the location and number of childcare centers, community activity venues, and services for elderly and disabled residents and youth. Most sustainable residential areas have many of these services located near homes or public transportation links.

- ✓ **Development:** One of the key functions of all community governments is to work on strategies and plans that will guide future development. So have a look at your community's plans for the years ahead. If there's an emphasis on economic growth and more development with little reference to environmental protection, the place may not be as green as you thought. Governments and city councils supporting sustainable principles are more likely to talk about the environment, accessibility, vitality, and social fabric, with any growth and development promoted within that context.

## *Familiarizing Yourself with LEED Standards for Building Design*

LEED stands for Leadership in Energy and Environmental Design, and it's a program run by the United States Green Building Council. The council has created a national standard for green buildings — those that don't focus just on energy efficiency but also on sustainable site development, water savings, materials selection, and indoor environmental quality. LEED for Homes launched in 2007 to apply these benchmarks to residential homes.

You can expect a LEED home to include these features:

- ✓ Energy Star (energy efficient) appliances and windows
- ✓ Excellent insulation and air leak sealing
- ✓ Drought-resistant plants in the landscaping
- ✓ Environmentally friendly building products
- ✓ Alternative energy sources such as solar panels for power or heating

LEED for Homes is strictly voluntary. It's up to an individual builder to decide to join the program (which includes paying a small registration fee) and to build homes in accordance with the program's rating system, which assigns points to a number of mandatory and optional green building measures. Homes that qualify based on independent third-party certifications then meet bronze, silver, gold, and platinum rating levels. A platinum rating is assigned to a home that has the greenest characteristics possible. As someone looking to buy an existing home, you don't join the LEED program yourself but rather look for a builder who has. If you're building your own home (and perhaps serving as the general contractor), you can consider joining the LEED program for the ongoing advice and assistance it offers and the potentially higher resale value that you earn because of the LEED rating.

In general, homes that earn a place on the LEED scale use less energy, water, and natural resources than other homes; they create less waste and are healthier and more comfortable to live in, too. You can expect lower utility bills, lower greenhouse gas emissions, and less risk of toxins such as mold growing in the house. The LEED program notes that the net cost of owning a LEED-rated home is comparable to that of a conventional one. You can expect construction costs to be higher, but energy and other savings over the life of the home should even it out in the long run. You also may qualify for tax breaks depending on the kinds of green building measures used (see the later section “Financing Green Home Construction or Improvements”).



Even if you don't build a home that can be LEED rated, the program offers great ideas for green homes. For more information or to find a LEED builder near you, go to [www.usgbc.org](http://www.usgbc.org), and click LEED, then LEED Rating Systems, and then Homes.

## *Identifying and Avoiding Home Health Hazards*

Before you plan a renovation of your existing home or the purchase of a new one, you need to know what could be hiding inside an average home and how it could affect your family's health. Identifying the potential risk means that you can manage it effectively, protecting both your family and the investment you're about to make in your home. This is a critical part of green living: It's no good incorporating green building measures into your construction or renovation process if you don't address an existing environmental hazard that could affect your health.

### *Getting the lead out*

If you plan to remodel an existing home, there's a reasonable chance that it contains lead paint if it was built before 1978, when lead was finally banned from paint in the United States. Ingesting lead has been linked to brain and nervous system damage in children. Kids are most likely to be exposed if the paint is flaking, if they chew painted surfaces such as windowsills (you know what children are like!), or if they drink water that travels through lead pipes.

You can buy lead testing kits for both paint and water, and you can also ask your doctor to run blood tests on family members to ensure that lead levels aren't elevated. If you find any reason for concern, talk to a contractor who deals specifically with lead about your options: In some cases, it's best to seal lead paint and paint over it rather than try to remove it (which creates lead-containing dust). But you definitely need expert advice on this one.

## *Reducing volatile organic compounds*

You can't see volatile organic compounds (VOCs), but you can smell them: They're part of that scent that comes with many new materials, including synthetic carpets and furniture made of particleboard as well as many other household products, including cleansers, air fresheners, paints, solvents, and wood preservatives. VOCs are chemicals that these materials give off, or *offgas*, particularly when they're newly made, which is why they're such a big issue when you're building or renovating. VOCs are quite a cocktail and can include benzene, formaldehyde, and toluene among other chemicals. According to the Environmental Protection Agency (EPA), VOCs can cause eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment. Some are known to cause cancer in animals; some are suspected or known to cause cancer in humans.



VOCs are so widespread that it's difficult to completely eliminate them; however, the best strategy to reduce them in your household is to choose, whenever possible, natural products that don't contain VOCs, such as wool carpets or solid wood furniture that hasn't been treated with chemical-based preservatives. If you can't go natural, leave items outside in the sun or in the garage for as long as possible — from a few hours to a couple of days — to let the worst of the off-gassing take place before the item ever enters your home. VOC concentration and offgassing tends to be at a maximum when the item is new.

## *Avoiding asbestos*

Asbestos is a really good insulating material, which is why it was used in many building materials, including ceiling tiles, roof shingles, resilient flooring, and pipe insulation. It's not used anymore, of course, because it's now known that asbestos fibers can cause serious lung irritation, with prolonged exposure causing major damage and disease.

In most cases around the house, asbestos is only a problem if the material is deteriorating; otherwise, the fibers usually have no way of getting into your lungs. You can't tell just by looking at a building material such as vinyl flooring or insulation that it contains asbestos; however, if the building material dates back before the 1970s, it's likely to contain asbestos. Insulation made between 1930 and 1950, for example, may contain asbestos. If you suspect that your home contains asbestos materials because of its age, bring in an expert to advise you before you start ripping up or removing any materials. Asbestos needs to be handled extremely carefully by a certified, qualified asbestos removal expert because the act of ripping or tearing it releases its damaging fibers.



Many experts recommend not disturbing asbestos-containing material if it can be safely left in place. For example, it may be safer (and much less expensive) to lay a new floor over an asbestos-containing floor that's still in good shape. Tearing up the old floor will release asbestos fibers — laying a new one over it won't.

## *Banishing molds and mildew*

Moisture's a tricky thing in that it can work silently away in a poorly ventilated corner or even wick its way up inside a wall, creating the ideal conditions for mold and mildew to grow. Many molds aren't dangerous (although, of course, they should all be cleaned up); however, some molds can cause major health problems, particularly breathing difficulties.

The best defense against mold and mildew is to ensure that your home is well ventilated. Condensation buildup on windows and other surfaces indicates that your home may not be exchanging its indoor air with the outdoor air often enough. If you're renovating to make your home more energy efficient, assess ventilation, seal ventilation leaks, and install more airtight doors and windows if sealing leaks doesn't solve the problem.



To clean up mold and mildew, use a bleach solution of one part bleach to four parts water. Protect yourself with gloves, old clothing, safety glasses, and a mask for your mouth and nose. You don't want to breathe in either the bleach fumes or any mold spores that you may dislodge when you scrub with the bleach solution. (Bleach is admittedly a harsh product to use, but it's the most effective solution to get rid of mold and mildew. More natural solutions may only reduce the mold; you need to completely get rid of it — otherwise it will return.) Materials that soak up water, such as drywall, carpet, and ceiling tiles, are virtually impossible to rid of mold: You're better off to remove them, place them in plastic garbage bags, and throw them out.

## *Detecting radon*

Radon gas is a very natural product, but it's unfortunately not one that you want in your home. Produced when uranium in the earth decays, radon can seep up into homes through cracks in the foundation, dirt basements, and even well water. Radon is colorless, odorless, and radioactive; that last one can cause health problems such as lung cancer if you breathe radon for prolonged periods.

Radon gas is a very localized issue; it's not unusual for houses in the same area to be affected differently, so it's impossible to predict where problems will occur. To check your home for radon, purchase a home test kit from a hardware store or other retail outlet. Follow the instructions in the kit as to the amount of time you leave the test sample in your home and where to send it to the lab for results. You also can talk to a contractor who deals with radon gas identification (your state EPA office will have a list of them; check [www.epa.gov/iaq/wherewelive.html](http://www.epa.gov/iaq/wherewelive.html) for contact information). If radon is present, the most effective solution is to seal the basement properly and vent the radon so that the gas can no longer enter your home — this needs to be done by a radon-qualified contractor (again, contact your EPA office to find one).

## *Designing — or Redesigning — Your Home for Energy Efficiency*

Vehicles usually get blamed for generating the most harmful emissions, but the reality is that the average home can emit more than twice the carbon dioxide in a year that the average vehicle parked outside it emits. If you're building a new home or renovating your existing home, it's the ideal time to boost your energy efficiency. You can do this in a number of ways, including using the sun's rays to warm the home, insulating the home properly, and incorporating energy-efficient components such as doors, windows, and appliances into your renovation or construction.



The Department of Energy (DOE) reports that Americans spend \$110 billion on home energy bills every year — that's almost \$1,300 for every house.

### *Assessing a home's energy efficiency*

The easiest way to determine whether a new home is energy efficient is to find out if it's an Energy Star Home. This is one that meets EPA standards for energy efficiency on such features as insulation, windows, construction, ventilation, heating and cooling systems, and Energy Star-rated lighting and appliances. You can expect an Energy Star Home to be at least 15 percent more energy efficient than other homes. When looking at new homes, you also may see references to the newest form of energy-efficient housing, described as *Zero Energy*. Over the course of a year (four seasons), these homes generate as much energy as they consume, usually through the use of solar, wind, and geothermal energy.

To determine the best way to improve your existing home's energy efficiency, you need to know where you're starting from. You can use a rough estimate or a detailed professional energy audit (the latter is sometimes required in order to qualify for government grants or tax incentives, so it can be worth the investment); both tell you how much energy your home uses and provide ideas about measures to take to improve the rating.

✔ **Rough estimate:** The Home Energy Saver ([hes.lbl.gov/hes](http://hes.lbl.gov/hes)) is an online tool that's part of the government's Energy Star program. Enter your zip code and some information about your home, and it comes back to you with customized energy use calculations and totals as well as energy-saving upgrade recommendations. (You also can use this online calculator to estimate how a house that you're planning to build would measure up in terms of energy use.)

✔ **Professional energy audit:** Find out *exactly* how much energy your existing home uses by hiring a qualified professional energy auditor. An energy audit is a very detailed examination of your home, how you and your family use it, and your utility bill history. You can expect the auditor to take a look at every room in the house and carry out a blower door test to identify where your home is leaking air (and therefore energy) and a thermographic (or infrared video or still camera) test to identify where your home is losing heat.



To find a professional energy auditor, talk to a representative at your local utility company or your state or local energy office. You also can check the Internet or phone book listings under “energy” or “energy audit.” Make sure that you obtain references from the auditor that you're considering hiring, and — as always when hiring any kind of home contractor — check with your local Better Business Bureau to find out if any complaints have been made against the company and whether those complaints have been resolved satisfactorily.

Your auditor will let you know not only how your house measures up in terms of energy efficiency but also what you can do to make it better.

Armed with the advice that you get either from a rough estimate or a professional energy audit, you can select the measures that will make the most difference and fit within your budget.

## *Warming up to the idea of alternative energy sources*

The ultimate in green construction and renovation is to generate your own power and heat from renewable or alternative energy sources. (Chapters 1 and 2 explain why these energy sources are so important for the future of the planet.) The method you choose — solar, wind, hydro, biomass, or geothermal — depend on your site, climate, and local building codes or zoning regulations. It also depends on whether you want your home to be totally *off-grid* (independent from local utilities) or not: In many cases, off-grid homes use a combination of alternative energy sources.

Alternative energy systems cost more to install upfront than conventional energy systems, and they can take decades to pay back that cost by producing free or almost free energy. The initial cost remains a huge roadblock for many people, but the good news is that, as demand increases for these systems, more research is being done into better and less expensive technology. Prices for alternative energy systems are already coming down, and experts predict that in coming years, assuming that prices of oil, gas, and electricity continue to rise, alternative energy sources will become even more economical. You may even be able to get some financial assistance for installing green energy alternatives (see the later section, “Financing Green Construction or Improvements,” for advice on that topic).

The most easily adapted alternative energy sources in urban areas are solar power, especially for your water heating needs, and biomass. In rural areas, your options are generally wider because you have more land on which to place the infrastructure, and you likely have fewer building restrictions. You can find more information about all these technologies at [www.eere.energy.gov](http://www.eere.energy.gov) and later in this chapter.



Always consult your local government’s planning commission for more information before you go forward with plans for residential alternative energy sources, often called *small scale energy generation*. You need to get planning and building permission, which may involve giving your neighbors a chance to object. Understanding the process involved is crucial to a successful project.

Even if you’re not able to generate all the power and heat your household needs using alternative energy, the more you use, the less fossil fuels you burn and the fewer greenhouse gas emissions you’re responsible for.

## *Upgrading to a green heating and cooling system*

Because heating and cooling your house (depending on your geographical location and the season) can require a lot of energy and thus produce significant amounts of greenhouse gases, it makes sense to do all that you can to take advantage of the Earth's natural heating and cooling effects, from the sun to the ground. This section covers passive solar, solar thermal, biomass, and geothermal energy options; you also can check out Chapter 5 for quick and easy tips (ones that don't require big renovations) to make your home more energy efficient.

### *Passive solar energy*

If you're building a new home — and to a certain degree if you're renovating your existing home — you can give it a head start on energy efficiency by taking advantage of passive solar energy. At its most basic application, that simply means using the power of the sun to heat your home by letting the sun's rays shine through your windows.

When making plans to build, first design your home so that it sits on the lot with its longest side facing south or southwest. This placement gives your home the greatest possible exposure to the sun's warmth. Depending on your lot size and local building code regulations, you may need to come up with a compromise, but choosing a lot that will suit this placement definitely helps. When your house is ideally positioned, you can proceed with the following plans:

- ✔ Consider putting glass doors and even a glass sunroom on south-facing walls to significantly increase the temperature of the whole house on sunny days.
- ✔ Design your window placement so that the windows on the south-facing exposure are generously sized, and limit the windows on the north-facing exposure.
- ✔ Ensure that windows allow for cross-ventilation within the home by placing some of them on walls that the prevailing breezes will hit and then by providing an unobstructed airflow within the home to windows on the opposite side of the house.
- ✔ Design your interior layout so that the living areas are on the south-facing side and foyers, hallways, bathrooms, and dining rooms are on the north-facing side.

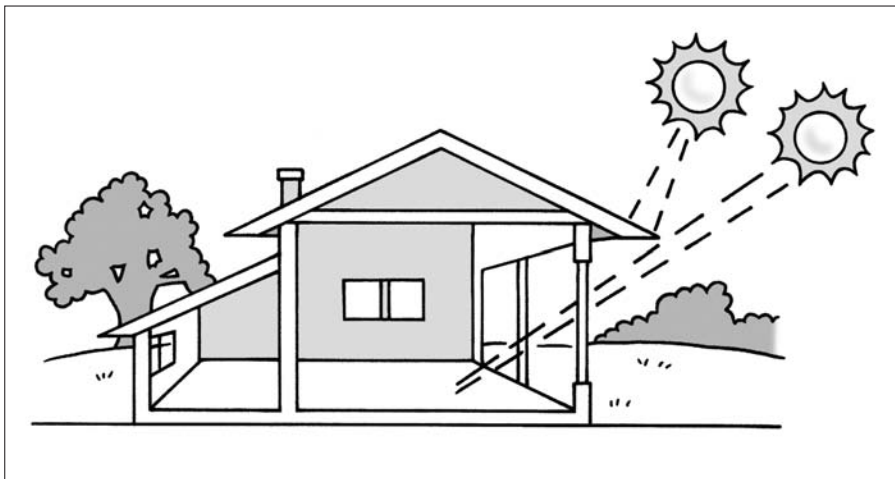
Passive solar energy isn't so much about generating power as trapping the power of the sun, allowing you to rely less on other energy sources. You can boost the way your home stores the passive solar energy by using dark-colored floorings that absorb the sun's heat more than they reflect it. Dark floorings such as dark tile then emit the heat back into the space even after the sun has set.



Use design factors such as the home's roofline angle and profile or awnings or shutters to shield windows and doors to keep the indoor temperatures down during the summer. Take a look at Figure 4-1: This house takes advantage of passive solar energy (keeping the house cooler) but allows the winter sun (which is at a lower angle on the horizon) to shine in and warm living areas. In winter, you may need to close heavy curtains at night to stop heat escaping and making your home too cold. Planting deciduous trees also can help regulate the temperature inside the home because their leaves shade windows during the summer without blocking winter sunlight.

### ***Solar thermal panels***

*Solar thermal panels*, which can be installed on rooftops or near your house depending on how much room you have, convert the sun's rays into heat, which is transferred into your home through pipes often using a water-glycol mixture. The heat is transferred into a storage tank in your home, and the mixture returns to the solar thermal panel to be heated again (see Figure 4-2). The heat in the storage tank can be transferred to water, producing hot water whenever you need it. It also can be transferred to radiant heating systems (such as under flooring) or forced-air heating systems to heat the house. The energy produced by solar thermal panels is also known as *active solar energy*.



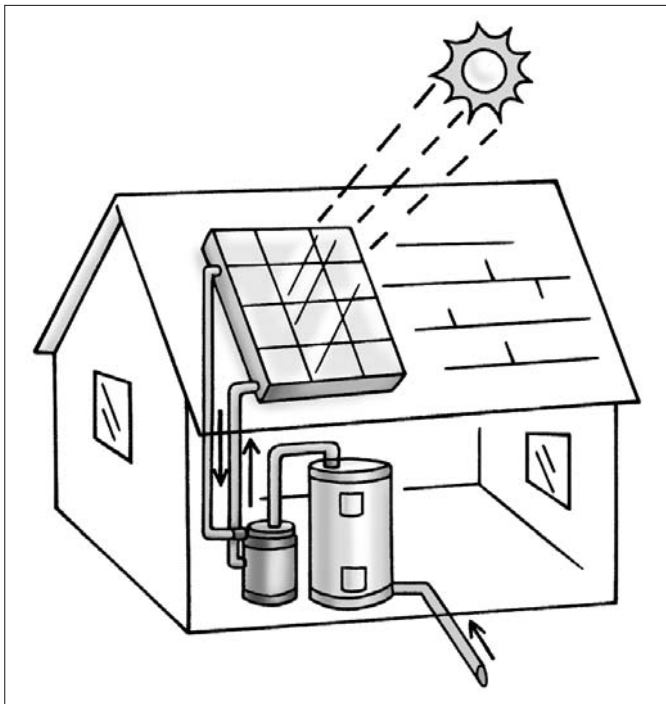
**Figure 4-1:**  
A passive  
solar house  
design.

The amount of hot water you get from a solar thermal system depends on the size of the panels and how much sun is around. It also depends on the climate, the model of heater, how much hot water you need, and the size of your hot water tank. Not surprisingly, the more panels you install, the more water you can heat in this way. Harnessing active solar energy is very practical for sunny climates: If you visit the Mediterranean region, for example, you'll see solar thermal panels on many rooftops. You can use the system for all your heat and hot water needs if it's large enough, or you can back the system up with a gas- or oil-fired water heater.

### *Burning biomass*

*Biomass* is renewable organic material that can be burned to produce energy. It's all around you in fast-growing trees like willow and poplar and in organic byproducts such as wood chips, the straw left after harvesting crops, manure, and litter from poultry farms. If you think about it, your ancestors burned biomass to heat water and do their cooking, and many people in the developing world still do this. The most common forms for biomass use in your home are logs, wood chips, or pellets that you use to fuel a wood-burning or biomass-burning stove.

**Figure 4-2:**  
A solar thermal system transfers heat from solar panels into storage tanks inside the home, feeding it to your hot water tank or heating system as needed.



This kind of biomass meets the renewable standard because as you burn one lot, another lot is being grown. The beauty of biomass is that when burned, the carbon dioxide released is equal to the amount of carbon dioxide the plants took out of the atmosphere while growing. Then the new plants that are growing absorb the carbon dioxide released by the burning process, making biomass the ultimate in renewable power sources if the source of the fuel is managed sustainably. Of course, if you're burning byproducts such as wood chips, it's an even greener process because you're using a product that would otherwise be considered waste.



The stove in which you burn biomass needs to be EPA-approved. The approval certifies that the stove produces 90 percent less particulates and emissions than non-EPA stoves. Approved stoves also give you longer burn times and are safer.

### ***Geothermal systems***

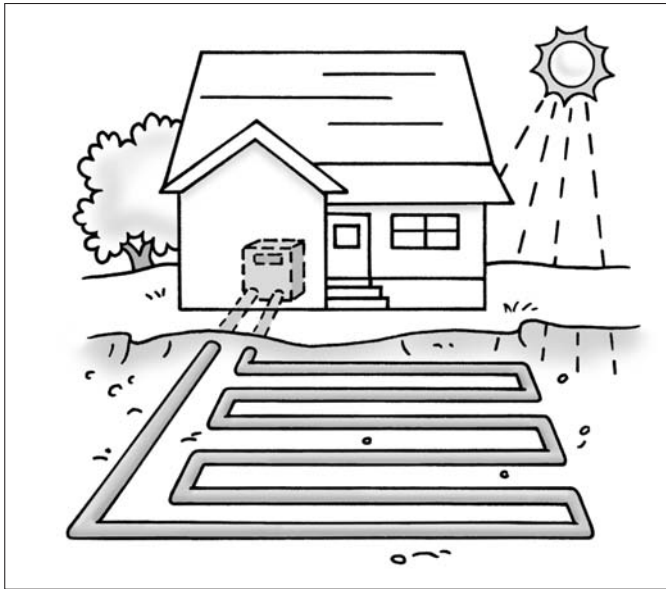
*Geothermal systems* — often referred to as *ground-source heat pumps* — work by transferring the heat that naturally occurs within the ground to your house (see Figure 4-3). It works because the ground maintains a relatively constant temperature year-round. You can use one of several different approaches to capture the heat; they are as follows:

- ✓ Pipes can be run horizontally in the ground over a fairly large distance. This is a *closed-loop system* because the liquid in the pipes continues to make the loop over and over again.
- ✓ Pipes can be run vertically into the ground, covering a similar distance to a horizontal layout but with a smaller surface footprint. This is a closed-loop system.
- ✓ Pipes can be run into a body of water such as a pond. This is an *open-loop system* because it actually takes water from the pond and then returns it to the pond.

In all types of geothermal systems, the heat from the ground is transferred into storage tanks in your home, where it's used for domestic hot water or for radiant or even forced-air heating systems. In some cases, the heat is boosted through reverse refrigeration technology (the compressor system in a fridge works by cooling the air flowing through it; this uses the reverse in order to heat it). Geothermal systems also can deliver effective air conditioning during hot weather as well as heat during cold weather.



**Figure 4-3:**  
A closed-loop geothermal system uses pipes buried underground to take heat from the ground and transfer it into your home.



## *Producing your own electrical energy*

It's not just heating and cooling systems that can go green with alternative energy sources: You can actually generate your own power, too, using technology such as photovoltaic (solar) panels, wind turbines, or even water-driven systems. In this section, we discuss the most common alternative energy sources and how easy it is to install them. It's usually most economical to design them into a house that you're building or to incorporate them into a major renovation that you may be planning. Of course, you also need to be living in an area that gets either enough sunlight, wind, or water to make them feasible.

### *Photovoltaic panels*

*Photovoltaic panels* convert the sun's rays (specifically, its flow of electrons) into general purpose electrical energy that's run through an inverter inside the house so that it can be used by lighting and appliances in your home. Photovoltaic solar power is also known as *direct solar energy*. Because the sun and your panels may be generating more energy than your home needs at any one time, solar power systems give you a couple of options for the excess electricity. For example, you can install a battery "bank" to store the energy until you need it, such as on a cloudy day when your system isn't producing enough power for your needs. (The number of batteries you install depends on how much power you want to have as backup.) If your local power utility

provides this as an option, you also can install an electrical metering system that feeds your extra power into the regional power grid — you'll see this on your utility bill as a credit.

The photovoltaic panels, which look like large sheets of dark glass, are generally placed on a south-facing exposure either on frames near the house or on the house itself (attached to the wall or roof, for example). Especially in urban areas, the system you're able to install may be limited by the orientation of your home and the size of your lot; in some cases, it may not be practical at all because you may not be able to angle the panels to maximize the sunlight they receive. It's often easier to install these systems in rural areas where, if you don't want to or can't put the panels on the roof or walls, you can install them nearby instead. The size of your system (that is, the number of panels) depends on how much of your home's electricity you want to generate.

This is an exciting time for solar power: New methods incorporate the photovoltaic technology right into building components such as windows, roofing, and even paint, so you can expect photovoltaic technology to become even more widely available and practical for all house locations in the next five to ten years. In addition, small photovoltaic panels are increasingly being used in items such as outdoor lighting, burglar alarms, and cellphone chargers, so even if it's not practical to install a large house-wide system, you may be able to use the technology in single applications instead.

### *Capturing the wind*

Wind turbines produce energy when the wind catches the turbine's blades and rotates the axis on which the blades turn. The rotation runs through a generator, which produces electricity that you can then use in your home. The number of turbines that you install depends on the amount of electricity that you want to generate, local building regulations that may limit the use of wind turbines, your geographical location (especially local wind conditions), and your house or lot design. Turbines come in two basic types:

- ✔ **Horizontal axis:** The blades' axle runs at a right angle to the tower on which it's mounted, which means that the axle is horizontal. In a residential setting, this kind of turbine is a much smaller version of the towers you see in large wind farm developments, and the tower's usually mounted a short distance from your home.
- ✔ **Vertical axis:** The axle runs vertically instead of horizontally. For homes, these small turbines look like whirligig roof vents or eggbeaters and usually are mounted on the roof.

Some people argue that wind turbines are noisy and a blight on the landscape. You can forestall neighbors' complaints by choosing one of the very small and quiet, possibly roof-mounted (vertical axis) models that are now coming onto the market. Other people want to see more turbines built as quickly as possible to reduce the dependence on fossil fuels and imported gas. While the debate goes on, you can install your own: Expect it to generate a portion of your energy needs rather than all, especially if you're in an urban area where you may be limited as to the type, size, and number of turbines that you can install.

As with solar photovoltaic systems (see the preceding section), you can install batteries to store excess wind power for use later (perhaps when the wind isn't blowing so strongly) and electrical metering systems that feed any excess power back into the regional power grid to provide you with a credit on your bill. Wind systems also can be combined with solar systems to serve as back-ups for each other; this arrangement is especially useful in rural locations where you have the space to install the technology and where it may not be practical (or you may not want) to be connected to the regional power grid.

### *Extracting energy from flowing water*

*Micro-hydro systems* are generally restricted to rural areas where water flow through property allows you to pipe water via gravity to a turbine. The rotation of the turbine generates electricity, which can be stored in batteries or used immediately. Micro-hydro systems are one of the least popular forms of alternative energy, not because they don't work (they're a smaller form of large hydro dam projects, after all) but because they're so site-specific.

## **Buying and selling green electricity**

If you can't produce your own energy from wind or solar power, it's still possible to be a green energy consumer. Buy electricity produced from renewable wind, solar, and hydro power sources. Most electrical utilities now have green energy options that you can purchase.

If you install your own green power electricity generator and produce more power than you

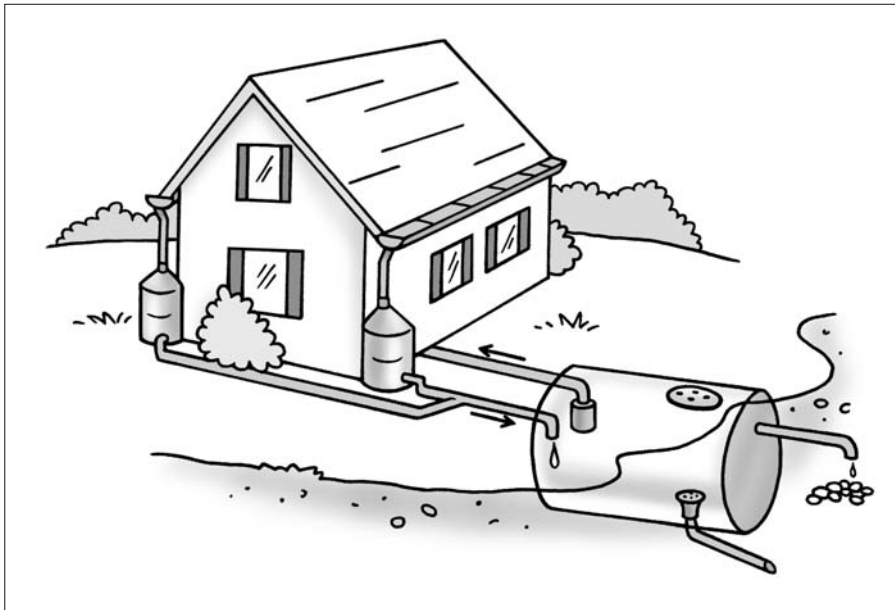
can use or store, you may be able to connect to the regional electricity grid and sell your surplus electricity to the grid. The equipment needed for this arrangement increases your start-up costs, but it can help create efficiencies and savings over the long term. Talk to your local electricity provider to find out how best to achieve this in your area.

## Conserving Water by Design

Rainwater and greywater systems can go a long way to reducing your consumption of municipal or well water. *Greywater* is water that you've already used for washing, laundry, or showering. Think about how you use water in your home: Toilet flushing, for example, doesn't require highly treated municipal water. Using rainwater or greywater as appropriate for a variety of household functions (from toilet flushing and laundry to watering landscaping) conserves not only water but also the energy used to process it.

Rainwater harvesting systems range from simple rain barrels that collect rainwater from gutter systems to more complex systems that collect rainwater, store it in an underground cistern, and return it to the house for use in toilets and laundry (see Figure 4-4). Rainwater cisterns can be constructed of plastic or concrete and usually are buried to keep them from taking up too much room in your yard and to take advantage of gravity to feed the water into them. If you're using a cistern system and returning collected rainwater to the house for use in toilets and laundry, you may need a purification or filtration system.

If you're simply using the rainwater for landscaping, there's no reason to purify it: Install a tap at the bottom of a rain barrel, and you have an accessible source of water for plants. You also can install a pump in the barrel to feed a soaker or sprinkler hose. Rain barrels are widely available from hardware stores, municipal environmental programs, other retail outlets, and on the Internet.



**Figure 4-4:**  
Rainwater  
cisterns  
store  
collected  
water  
under-  
ground.

If you're implementing a greywater system (see Figure 4-5), you definitely need a purification or filtration system: These more complex options require a professional to design the system so that it's both safe and long-lasting.

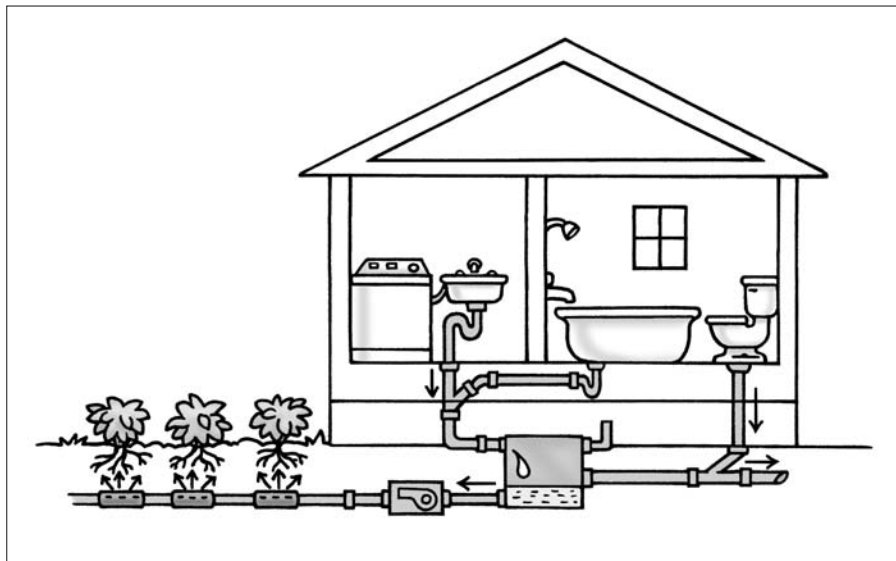


Many areas regulate or even prohibit the use of rainwater or greywater systems, so it's essential to check with your state or county government before planning anything more complex than a rain barrel at the end of your downspout.

You can find more information about rainwater and greywater systems on the state of Florida's Web site: [www.dep.state.fl.us/water/reuse/index.htm](http://www.dep.state.fl.us/water/reuse/index.htm).



If you're seriously green and your local building code allows it, you can install a composting or incinerating toilet in your home. These either break down waste into compost using organic processes or burn it into a small amount of ash. Once huge and rather ugly, modern systems are considerably smaller and less unattractive. When properly maintained, they don't cause odors or health risks. To find systems and contractors appropriate for your area, enter "composting toilet" or "incinerating toilet" into an Internet search engine and see where the companies operate.



**Figure 4-5:**  
This greywater system uses wash water to irrigate outdoor plants.

## Choosing Green Materials

Using green materials in building or renovating your home helps to protect the environment while also avoiding products that may be harmful to the occupants of your home. As long as they've been grown and manufactured in an environmentally friendly way, natural materials offer green alternatives to materials based on petrochemicals such as the foam used as filler in many pieces of upholstered furniture. Soybeans, for example, are now being used as filler for mattresses and cushions for one-third less global warming emissions than its petrochemical cousin. Other green fillers include untreated organic cotton and organic wool. Although green materials can be more expensive than conventional ones, the prices are decreasing as demand increases. And in many cases, the lifecycle costs of green materials — meaning the savings in maintenance, energy efficiency, and durability over their lifetime — is lower in the long run.



It's not just the product and the raw material that should be green — it's also the manufacturing process. The greenest processes minimize energy or water use, don't use chemical pesticides or fertilizer, and produce low or no emissions or pollutants. Suppliers should be carbon neutral, and waste should leave the smallest possible footprint.

Building and renovating homes can generate a great deal of waste. To divert as much construction waste as possible from landfills, consider how much can be reused or recycled. Items such as lumber that you bought but didn't use — and can't return to the store — can be donated to local nonprofit agencies such as Habitat for Humanity. The same goes for items such as kitchen cabinets that you tear out: If you can remove them carefully, they can be reused by someone else. (The process of taking a house apart so that its components can be reused is known as *deconstruction*.) To find out what can be diverted from your waste, check with local building associations or government waste offices. You can find a list of local programs at [www.epa.gov/epaoswer/non-hw/debris-new/index.htm](http://www.epa.gov/epaoswer/non-hw/debris-new/index.htm), along with excellent background information about construction waste issues.



Sourcing materials for your construction or renovation project from recyclers and salvagers operating in your area is both green and economical: Items in good shape can cost far less than new ones.

## Considering frame construction materials

Wood is a renewable resource, but it's one of the natural resources that's used at a much faster rate than it grows. Reducing the number of trees on the earth affects air quality and influences global warming. For a home construction or renovation project, use as little wood as possible and either source it

from material that's been recycled or reused or source it from suppliers accredited by the Forest Stewardship Council ([www.fsc.org](http://www.fsc.org)).



Both Home Depot ([www.homedepot.com](http://www.homedepot.com)) and IKEA ([www.ikea.com](http://www.ikea.com)) are committed to using wood from only FSC-accredited suppliers. You can find a good explanation of wood sourcing at [www.greenpeace.org/usa/campaigns/forests](http://www.greenpeace.org/usa/campaigns/forests).

Along with lumber from sustainable forests, consider lumber alternatives. Some innovative options include composite wood made from reclaimed hardwood sawdust and plastic formed from reclaimed or recycled plastic. If you're using antique lumber, do your best to find out where it came from: It's great to reuse wood that would otherwise be thrown out, but it shouldn't come from historic buildings that could have been preserved instead. One novel option is to use lumber salvaged from lakes and rivers. When lumber is floated downstream to a mill, a few logs inevitably sink, and companies now dive to find and recover that lumber.



You also can use alternative building systems such as straw bales and rammed earth to build a well-insulated, energy-efficient, naturally sourced green home. There's a whole wealth of information on the latest green building technologies on the Internet. Type "building a green home" into your favorite search engine and you'll find more information than you can imagine. Also check out [www.sustlife.com](http://www.sustlife.com), a not-for-profit Web site promoting sustainable living.

Consider these options for using natural materials in different parts of your home construction or renovation project:



✓ **Flooring:** Among the natural options are tile, hardwood, organic wool carpeting, jute (especially for backing), sisal, cork (harvested from living trees), bamboo, linoleum (made from linseed oil, which comes from flax), and marmoleum (a type of linoleum).

A fast-growing grass, bamboo is definitely a renewable crop, but it's important to find out how it's grown and processed in order to fully qualify it as green. In some areas, bamboo is replacing local vegetation, and when it's turned into fabric for textiles and clothing, the processes may use chemical solvents and therefore not be so environmentally friendly.

✓ **Tiles:** Floor and wall tiles can now be made of recycled glass and porcelain. Even regular ceramic and porcelain tiles offer the advantage of low toxicity.

✓ **Walls:** You can buy gypsum and fiberboard made of recycled material such as gypsum and waste paper.

✓ **Roofs:** Recycled shingles, metal roofing, and rubber tiles are alternatives to asphalt shingles.

## *Finding green insulation*

If you're building a new house or renovating an older one to the point where your interior or exterior surfaces are exposed, you have an opportunity to improve the insulation not just in accessible areas such as attics but throughout the home, inside and out.

Adding insulation is, by itself, a very green measure for your home because it increases energy efficiency. However, some insulations aren't especially green in terms of content. Fiberglass batt insulation, for example, often contains recycled materials but also may contain formaldehyde and is well known for its ability to irritate breathing passages with direct contact. Also, many types of rigid board insulation are made from polystyrene, which is produced using petrochemicals.

Greener insulation choices include the following:

- ✓ **Cellulose:** Manufactured from fire-retarded recycled newspaper, this loose-fill insulation is blown into attics and walls. It requires much less energy to manufacture than fiberglass and mineral wool insulation.
- ✓ **Cotton:** Available in both batts and loose fill, cotton insulation is based on a renewable resource and can contain upwards of 70 percent recycled content. Unless farmed organically, however, the cotton used in insulation can consume significant water and pesticides while growing.
- ✓ **Soy:** Most spray-on foams use a petrochemical-based product; however, a soybean alternative has been developed that decreases the petrochemicals involved.

Although *insulating concrete forms* (ICFs) and *structural insulated panels* (SIPs) incorporate polystyrene, both products are worth considering in a new green home. Both methods create the home's walls, combining strength and insulation at the same time. ICFs involve foam blocks that are placed one on top of the other and then filled in the center with concrete. SIPs have a core of polystyrene between layers of oriented strand board. The advantage of both methods is a very well-sealed and well-insulated home that can significantly reduce energy consumption.



Insulation and ventilation are linked inextricably when it comes to indoor air quality in your home. If you seal your house up with great insulation but don't allow for adequate ventilation, your home's air will become stale and moisture-laden, which can lead to odors and mold and mildew growth. Many new, well-insulated homes incorporate an air exchanger such as a *heat recovery ventilator*. This mechanism ensures that the indoor air is exchanged regularly with outdoor air, and it incorporates technology that allows part of the outgoing indoor air's heat to transfer to the incoming outdoor air in order to boost energy efficiency.



## Not much yard space? Put your garden on the roof!

If you have a flat roof, consider making it green by sealing it, adding earth or planters, and growing a garden. Green roofs reduce water runoff into storm sewer systems, decrease

urban temperatures, and even can produce fruit and vegetables. Find more information at [www.greenroofs.org](http://www.greenroofs.org).

## Putting on the finishing touches

To avoid VOCs, look for paints and stains whose labels say that they have low or no VOCs. The most eco-sensitive paints are water-based (acrylic) paints with fewer chemical additives and toxic materials, no animal testing, and recycled packaging. You may opt for natural wood finishes (linseed oil, for example) instead of chemical-based finishes.



You can further reduce the VOCs in your home by choosing solid wood instead of particleboard (which is held together by glue) and by choosing natural materials such as cotton, wool, hemp, and soy instead of chemical-based options. Refer to the section “Reducing volatile organic compounds” earlier in this chapter for more ideas on how to combat VOCs.



Using fasteners such as screws or nails instead of glue in items such as furniture saves the VOCs that the glue would emit. Screws are the greenest option because at the end of the furniture’s life, you can remove the screws easily to enable the wood to be reused.

## Financing Green Home Construction or Improvements

If you want to build a green home, buy and renovate a derelict building to become a green home, or adapt your own home to be more green through a major renovation, chances are good that you need a *mortgage* — a loan secured against the property concerned. Until recently, green mortgages — known as *Energy Efficient Mortgages* (EEMs) — weren’t very common. However, they’re gaining more widespread acceptance from mainstream financial institutions. If you don’t need a mortgage but could still use some financial help, we offer a couple of other options for you to investigate, including tax credits, grants, and other financing avenues.

In addition, some lenders are concerned enough about the environment that they provide special bonuses for ecologically minded homeowners. Bonuses include offering energy rating inspections, carbon offset programs, or tree plantings to compensate for home energy use.

## *Tax credits or grants*

You may be able to apply for tax credits or grants to help with the cost of making your home more energy efficient. The following programs may be able to help:

- ✔ **Federal tax credits:** The IRS offers tax credits for certain energy-efficiency, solar energy, fuel cell, and microturbine system improvements; however, the credits have varying eligibility dates and may be extended or changed as energy efficiency continues to be a government priority. Check [www.irs.gov](http://www.irs.gov) for the latest information.
- ✔ **Home weatherization help:** Low-income families can receive assistance with making their homes more energy efficient through the Weatherization Assistance Program at [www.eere.energy.gov/weatherization](http://www.eere.energy.gov/weatherization).
- ✔ **State, local, and utility incentives:** Check with your state and local government to find out about energy-efficiency and environmentally friendly programs. California, for example, offers a tax credit for rainwater harvesting systems. Your local energy supplier or water supplier also may have special incentives for reducing consumption.

Of course, these grants and credits may not be enough to help fund your home improvements. In that case, your best bet may be an Energy Efficient Mortgage (EEM, sometimes known in this case as an Energy Improvement Mortgage), which we discuss in the next section.

## *Energy Efficient Mortgages*

Energy Efficient Mortgages, or EEMs, are insured by the U.S. Department of Housing and Urban Development, or HUD ([www.hud.gov](http://www.hud.gov)), and issued through regular lending institutions. They're part of the federal government's initiative to help Americans reduce their energy use and greenhouse gas emissions.

- ✔ **If you're buying an existing home and renovating it for energy efficiency,** an EEM allows you to include the cost of the energy-efficient improvements — up to 15 percent of the total mortgage amount — in the mortgage. The money for the improvements is held in escrow until it's needed to pay for them.

- ✔ **If you're remodeling your home for energy efficiency**, you may qualify for an EEM if you refinance your home to pay for the energy-efficient improvements. If you already have a conventional mortgage on your home and you think an EEM mortgage may be available, check the paperwork to find out what kind of penalty you'll pay to switch your mortgage, and consult your financial advisor to find out if the savings offered by a green mortgage make the penalty worth paying.
- ✔ **If you're buying a new home**, you can request an EEM mortgage if your builder is part of an energy-efficiency certification program or if the house passes a home energy rating inspection.

If your lender can't help or doesn't offer green mortgages, look for one that does at [www.socialinvest.org/directory](http://www.socialinvest.org/directory).



The key difference between a regular mortgage and a green mortgage is that the green variety requires a home energy rating. If the builder isn't part of a recognized energy certification program, you need to arrange for a qualified inspector to conduct an on-site inspection. This is similar to an energy audit, but it's conducted according to nationally recognized standards for home ratings.

The inspection costs between \$200 and \$400 depending on the size of your home. Expect it to take several hours, during which the inspector assesses different parts of the building — including doors, windows, insulation, heating and cooling systems, and airtightness — for energy efficiency. You end up with a rating on a scale of 1 to 100 that's translated into a star rating (think of it like a movie review): One star isn't very efficient; five stars is very efficient. The rating also provides you with your estimated energy costs.

When you get the rating, you also receive house-specific details that let you see where improvements can be made cost effectively, helping you plan renovations that will provide the most energy savings. In the case of a new home, your rating may simply prove that your home qualifies for an EEM. For more information about home energy ratings, visit [www.resnet.us](http://www.resnet.us).



You may qualify for more house with an EEM than with a conventional mortgage because the EEM incorporates into the loan qualification calculations the fact that your utility bills will be lower thanks to the energy-efficient improvements. And the improvements that you make may increase your home's value, too, making it worth more than similar homes that aren't energy efficient.

## *Other loan options*

Your other option for funding the green renovation of an existing home may be a home-equity-based loan or line of credit. With these loans, the lender takes into account your home's *equity* — the difference between your mortgage amount and the value of your home. Depending on your financial situation, you may qualify for funding that's secured by the home's equity. In the case of a loan, you agree to pay back the funding in specific amounts at specific times (monthly, biweekly, and so on). A line of credit is more flexible, allowing you to choose how much you pay back each month (it usually requires you to pay at least the interest amount for the month); you have some flexibility when finances are tight during the renovation and then can pay back the loaned amount as quickly as you want when finances aren't as tight (paying it back quickly can reduce the amount of interest you're charged).

## Chapter 5

# Making Your Home Healthy and Efficient

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### *In This Chapter*

- ▶ Focusing on home heating and cooling
  - ▶ Using and maintaining appliances for top efficiency
  - ▶ Conserving water
  - ▶ Ditching chemical products: Cleaning, personal care, and food storage
  - ▶ Making simple changes around the house
- 

**D**eveloping green habits around your home can reduce your impact on the environment in a major way — and they come with some great side benefits. Choosing environmentally friendly fabrics and products can help you maintain your health as well, and switching off a few lights or appliances can lower your utility bills. Best of all, being green at home doesn't have to cost much at all, so even if your budget doesn't allow building or renovating your home to fit a green lifestyle (as described in Chapter 4), you can still make a healthier home and contribute to a healthier planet.

This chapter provides tips and tricks for eco-friendly living in your home. From your home's biggest energy draws (heating and cooling) to more moderate ones (various home appliances), we tell you what to pay attention to and how to reduce your impact on the environment. We also cover natural alternatives to chemical-filled household products and items that you're likely to use daily. Add a little water conservation (or a lot!) and some simple changes that you can make around the house, and this chapter is chock-full of useful information for greening up your home.

## *The Most Effective Change You Can Make: Green Heating and Cooling*

To employ big-bang-for-your-buck green strategies at home, start with your heating and cooling system as well as your water heating system. Families in the United States typically spend more than \$1,600 on utility bills every year, so there's plenty of room to reduce both bills and energy use, even if replacing your furnace, water heater, or windows with higher-efficiency models isn't in the budget for a few years.



According to the U.S. Environmental Protection Agency (EPA), approximately four metric tons of carbon dioxide per person per year are emitted from people's homes as a result of electricity use, heating, and waste — that's about 17 percent of the nation's total emissions.

### *Managing your home's temperature*

Many living areas in homes are hotter than they need to be in winter and cooler than they need to be in summer. Sure you want to be comfortable, but a few degrees difference here or there isn't as noticeable temperature-wise as you may think. This section shares some easy ways to manage the temperature inside your home in a better, smarter way.

Check with the U.S. Department of Energy for more tips on using less energy and keeping the bills down at [www.energysavers.gov](http://www.energysavers.gov).

#### *Adjustments you can make any time of year*

Whether it's spring, summer, fall, or winter, some energy-saving tips work all year long. In this section, we focus on making sure that your home isn't leaking warmed or cooled air and on techniques that you can use to reduce your need for heating and cooling.

Try the following actions to save energy year-round:

- ✓ **Add weather-stripping to doors and windows.**
- ✓ **Tuck insulating foam inserts behind switch plates and face plates of electrical outlets on exterior walls.** These products are readily available at home improvement centers.
- ✓ **Install awnings that shade windows in summer but retract in winter to let you take advantage of the sun's warmth.**
- ✓ **Plant deciduous trees (that lose their leaves in winter) to shade the house in summer and let sunlight through in winter.**

- ✔ **Control the amount of heating or cooling going into rooms in your home that you're not using by fully or partially closing the forced-air registers, for example.** Don't completely block off the heating in particular, because you don't want anything to freeze.
- ✔ **Use kitchen and bathroom ventilating fans as little as possible to avoid sending too much heated or cooled air out of the house.**

### *During the hot season*

Sweltering outside temperatures can make sleeping, working, and even doing chores in the house downright unpleasant. Air conditioning can make a huge difference in how much you enjoy your days and nights in your home — as long as you use it to gain the maximum possible comfort in the most energy-efficient way.

Take these measures to keep your cool during the hot season:

- ✔ **Set your thermostat to about 78 degrees when you're in the house during the day, and turn the air conditioning off completely when you're away from the house for an extended period, such as when you're on vacation.**
- ✔ **Take advantage of cooler night air if possible (and safe) by turning off the air conditioning and opening your windows overnight or at least in the evening and early morning.** Open them at strategic points around the house to allow a flow of air.
- ✔ **To reduce solar heating during the hot months, keep window coverings closed during the heat of the day.**
- ✔ **If you need air conditioning and don't have a central air system, install window air conditioners in north-facing or shaded windows so that they don't fight the sunlight.**

### *During the cold season*

Keeping your home warm during the winter is absolutely critical, not only for your own comfort but also for your home's well-being: Without sufficient heat, water pipes can freeze and burst, and building materials can become stressed. Luckily, easy actions take advantage of the sun's natural warmth and your furnace in order to keep your heating bills and energy use down.

Try these tips to keep your heating bills down but your house warm:

- ✔ **Set your thermostat to no more than about 70 to 72 degrees when you're in the house during the day, and set it to 65 degrees at night and when you're away from the house (such as at work or on vacation).** Every degree that you lower the thermostat will save you approximately 3 percent on your heating bill. A programmable thermostat is the easiest way to manage these temperatures automatically, but you can reset the thermostat manually if you need to — it just takes a little more commitment.



Turn the temperature down if you have a house full of people, perhaps for a party; body heat really warms things up.

- ✓ **Open curtains and blinds on sun-facing windows during the day. Conversely, close curtains and blinds at night to reduce the heat that's lost through the windows.** You also can purchase heavy, insulating curtains at department stores; these curtains help to keep indoor heat from escaping through the windows.
- ✓ **Block any fireplaces and chimneys that you don't use to prevent heated air from escaping and drafts of cold air blowing down.** You also can buy a chimney balloon, which acts like an inflatable pillow, to install in the chimney (above the damper); it stops drafts, reduces heat loss, and saves you money. Check out [www.chimneyballoon.us](http://www.chimneyballoon.us).
- ✓ **When you turn the heating thermostat down at night, put an extra blanket on the bed, or take a hot water bottle to bed rather than leaving an electric blanket turned on all night.**

## *Maintaining the efficiency of furnaces and air conditioners*

Regular maintenance of furnaces and air conditioners helps to keep them working at top efficiency. Maintenance not only reduces your energy use and thus saves you money on a monthly basis, but also it lengthens the life of the equipment, which lets you keep your money in your wallet longer. And, of course, the less energy you use, the more eco-friendly you are.

The following actions can help you get the most from your furnaces and air conditioners for the least possible cost:

- ✓ **Replace filters.** This is the most effective maintenance task as well as the easiest. Dirty filters restrict effective air movement through the appliance, which makes the motors work harder, which in turn burns more fuel. Replace your filters monthly, particularly if you have pets in the house, if you live in a dusty area, or if you're renovating.
- ✓ **Have the units professionally cleaned and serviced annually.** Regular service protects against dust buildup that can damage sensitive parts and shorten the appliance's lifespan.
- ✓ **Check ductwork for leaks.** This recommendation applies to you if your system runs on forced air and you can easily see or access at least some of the ductwork. When the system fan is on, run your hand, a sheet of thin paper, or even the smoke from an incense stick beside the ducts. Look or feel for air leaks around joints and seams. Seal seams with heat-resistant tape (not your everyday duct tape).



- ✔ **Have the ducts professionally cleaned once every three to five years.** Go with greater frequency if you live in a dusty area or you have pets, and also have the ducts cleaned after you move into a new home or after major renovations. The cleaning helps to reduce the dust that's blown through your home, which helps to keep the furnace filter clean, in turn helping the furnace to operate more efficiently. Between duct cleanings, vacuum forced-air registers occasionally to keep them clean.
- ✔ **Don't block forced-air registers, radiators, and other heating and cooling system components.** Make sure that they're not tucked away behind furniture, curtains, or other heat-blockers. Clearing the way helps to ensure good air circulation, which improves system efficiency and room comfort as well as helps to prevent mold and mildew growth. If your system runs on radiators, you can buy heat reflectors to place between the walls and the radiators in order to direct the heat into the room.

## *Making Appliances More Efficient and Eco-Friendly*

From the kitchen to the laundry room to the basement or utility room, you have appliances throughout your home — appliances that often get forgotten until they suddenly break down (usually at the most inconvenient time possible!). Keeping them clean and well-maintained helps them to function more efficiently for longer periods of time, so it's well worth spending a little quality time with items such as your oven, fridge, water heater, dishwasher, and laundry appliances.

If you have to buy new appliances (perhaps because you're upgrading to greener options), give away older models to people who will use them — friends, members of the Freecycle Network (see Chapter 19), or nonprofit groups, for example. If something isn't broken, it should be reused and recycled rather than dumped in a landfill.

### *Water heater*

Tucked away in the garage, basement, or utility room, water heaters are the most common appliances to be forgotten until they go on the fritz. There's not a lot that you can do in terms of cleaning the interior of your water heater, but you can take measures to limit how hard it has to work.

Energy-saving measures for water heaters include the following:



- ✓ **Check that the setting on your water heater isn't overheating your water.** A setting that's unnecessarily high not only wastes energy but also creates a scalding risk, particularly for young children and the elderly. It's generally accepted that 120 degrees suits most uses, but double check the owner's manual for your dishwasher, which may require a higher setting (most newer dishwashers don't).

Don't set your water heater thermostat too low (below 115 degrees) for regular use. In some cases, this can lead to the growth of mold within the water heater.

- ✓ **Wrap the first six feet of pipe leading out of your water heater with insulating foam.** Heat is lost from hot water when it sits in the pipes waiting to be used. Wrapping part of the pipe partially reduces this heat loss, potentially giving you hot water faster.
- ✓ **Wrap the water heater in a foil blanket for insulation.** If your water heater is more than a decade old, its insulation may be letting some of the heat inside the tank escape before it ever reaches your faucets. A foil blanket, which you can find at home centers, prevents heat loss, but follow the instructions very carefully when you install it to avoid blocking vents or controls. Check your heater's instructions to ensure that adding insulation is permitted for your model.

## *Cleaning appliances*

Your cleaning appliances for clothes and dishes save you some serious hard work; take care of these labor savers, and they'll take care of you for longer. Because these are big-ticket items, taking care of them helps you out in the pocketbook, but it's also good for the environment. Maintaining these appliances and using them efficiently reduces the amount of waste that's generated and the number of new products that need to be manufactured.

### *Clothes washer and dryer*

Clothes washers don't require a great deal of maintenance, but there are a few steps that you can take to make sure that yours works properly. First, if it has a lint filter or an area inside where lint builds up, make sure that you clean it regularly to help the washer work more effectively. Also check the hoses and their connections to the machine and the faucet: They should be replaced at the first sign of wear (bulging, cracking, splitting, or leaking, for example) because a worn hose can burst, pumping a great deal of water out onto the floor in a very short period of time.

To keep your dryer working at top efficiency (and top safety), clean out the lint filter after each load. Also check the dryer vent that exits your home to make sure that it's working properly; specifically, the vent shouldn't be blocked, and the flap should operate freely. Install wire screening over the vent (if it's not there already) to keep critters such as mice and squirrels out of the vent and therefore out of the house.

Follow these recommendations for making what's perhaps one of your most tedious chores more enjoyable because it's earth-friendly:



- ✔ **Wash your laundry in cold water.** Up to 90 percent of the energy that clothes washers use goes to heating up the water. Determine what can be washed in either cold or warm water rather than hot. Even with a hot or warm wash, choose a cold rinse.

For best results in cold water, use detergents that are designed for cold-water washes. See the later section “Laundering with eco-friendly detergents” for more on detergent.

Stick to hot water for items such as sheets and towels, particularly if someone in the family has been ill. Only hot water kills hangers-on such as germs and dust mites.

- ✔ **Do the laundry only when you have a full load.** It's easier to gather a full load when you wash at lower water temperatures because you can put colors together without the risk of color bleeding.
- ✔ **Even with a full load, don't overload the washing machine.** If you do, the clothes won't move around freely enough to get clean, and you'll end up having to wash them again.



- ✔ **Line-dry your clothes.** The clothes dryer uses a significant amount of energy and can actually shorten the life of your clothes because of shrinkage and other wear and tear on the fabric. If you have the space, hanging your clothes on a clothes line or drying rack or even hanging them up on hangers to dry not only reduces dryer use but also helps clothes last longer.
- ✔ **If you need to use the dryer, make it as efficient as possible.** Dry full (not partial) loads only, and dry your clothes for the minimum time possible. Many newer-model clothes dryers use moisture sensors to automatically cut the heat when the clothes are dry enough, and they may also have cool down cycles in which they use the heat left in the dryer to finish off the clothes. If yours has these features, take advantage of them when you set the dryer to run. If not, stop the dryer just before the clothes are completely dry and either hang them up or iron them to finish drying.
- ✔ **If you have to iron, do it when clothes are still slightly damp or use a spray bottle to dampen them rather than a steam iron.** A steam iron uses energy heating up the water in its tank.

### *Dishwasher*

The big question when it comes to eco-friendly dishwashing is whether to wash by hand or to use the dishwasher. In some cases (such as tough-to-clean pots or fragile items), it's an easy decision (grab that scrubber!), but what about regular, everyday dishes?

According to the U.S. Department of Energy, an Energy Star-rated dishwasher ([www.energystar.gov](http://www.energystar.gov)) saves nearly 5,000 gallons of water a year compared to washing dishes by hand and uses less than half as much energy, which can cut utility bills by more than \$40 a year. And it can save time: some 230 hours a year, or nearly ten days that you could put to other uses.

Keep in mind that these figures are based on what average people do, so if you're very frugal with water when you wash dishes by hand, your water consumption may be lower than the numbers considered "average" in the study. It's also likely that part of the hot water savings with automatic dishwashers is the fact that washing dishes by hand is often done two to three times per day, whereas a dishwasher is run only once a day or even once every two or three days.

Dishwashers have a clear advantage when it comes to temperature, however, because the Energy Star models boost the water temperature quite efficiently to levels that disinfect the dishes. This also means that you may be able to reduce your water heater setting to 120 degrees rather than the 140 degrees required by many older dishwashers. The greater efficiency of newer models also means that you don't have to pre-rinse your dishes.

On the flip side, it takes energy (and therefore carbon emissions) to manufacture the dishwasher, and it's likely that you'll have to dispose of it some day. Even though many of its major elements can be recycled, that process requires energy, and some parts will inevitably end up in the landfill.

If you go with the dishwasher over hand-washing, consider these recommendations to reduce your environmental impact regardless of whether you have an Energy Star dishwasher:

- ✔ **Skip the pre-rinse if your dishwasher gets the dishes clean without it.** Scrape larger food particles into the trash or compost bucket if they're compostable (see Chapter 8 for more details about composting).
- ✔ **Consult your owner's manual for the way to place items in the dishwasher for the most-efficient cleaning.**
- ✔ **Only run the dishwasher when it's full.**
- ✔ **Use the dishwasher's no-heat air-drying option if it has one. If it doesn't, turn the dishwasher off as soon as it has finished washing, before it starts the drying cycle.**
- ✔ **Clean out the drain filter monthly both to keep the dishwasher clean and to maintain its efficiency.** Many models have some kind of screen at the bottom that lifts up so that you can clear out any large food particles or buildup.

If you're not convinced that your dishwasher is more environmentally friendly than your own two hands and some hot, soapy water, check out the section "In the kitchen" later in this chapter for advice on ways to conserve water while hand-washing your dishes.

## Entertainment system

Big and loud isn't always beautiful when it comes to the amount of energy used in entertainment systems. Modern LCD (Liquid Crystal Display) and high-definition television sets, digital radios, and digital televisions use more energy than smaller, older models with fewer functions. If you're replacing an older model, ask the retailer for details about energy consumption.



The less new equipment you buy, the more you reduce the total numbers that will be manufactured, which decreases the damage the production process causes. Think of the energy it takes to make a new item and how many potentially damaging gases such as carbon dioxide were generated by the manufacturing process. (There's more on carbon emissions in Chapters 1 and 2.)

To prevent using energy unnecessarily, don't turn televisions, radios, and music players on unless you're listening to or watching them. Also consider using solar- or crank-powered radios if you need a small music source at your desk, for example (check out [www.freeplayenergy.com](http://www.freeplayenergy.com) for various models).

## Food cooling and heating

Fridges, freezers, and ovens of various types have become essential parts of today's homes. If you're buying new appliances, always opt for Energy Star models if you can. Always make sure that you use and maintain your appliances so that they operate at optimum efficiency.

### Helping your fridge and freezer work best for you

The refrigerator is pretty essential in today's world, but it doesn't have to be an energy guzzler or an environmental hazard. Try these strategies for making the most of your fridge (and, by extension, your freezer):

- ✔ **Get a smaller, more energy-efficient fridge. If possible, get an Energy Star model.**
- ✔ **Buy nonperishable food that you can store in cupboards instead of in the fridge or freezer.**

If you're within easy reach of a grocery store, you may find you don't need a freezer at all. But if you have to drive a considerable distance to the store, or if you have a large family and time is at a premium, stocking a freezer may be greener than using your car to shop more frequently.

- ✔ **Keep the fridge and freezer doors closed as much as possible, and when you open them, be quick.**
- ✔ **Consider relocating your fridge or freezer if it's next to a heat source such as the stove or dishwasher.** Heat sources make the fridge or freezer work harder to keep its interior cool.



- ✔ **Use a soft brush or a vacuum cleaner attachment to clean your fridge's condenser coils (which are either at the bottom or the back of the fridge) every 6 to 12 months.**
- ✔ **Check fridge and freezer gaskets (the rubber seals around doors) to make sure that they aren't letting cold air leak out.** A piece of paper placed between the door and the appliance should be slightly difficult to pull out. If it's not, look into replacing the gasket. (On some models, you may be able to replace the gasket easily, but for many others, a pro is the better way to go. Check your instruction manual and your fridge to see if it's within your skills or if you need to call a technician.)
- ✔ **Set the thermostats in both the fridge and freezer to the optimum energy-efficient temperatures (37 to 40 degrees for the fridge, 0 to 5 degrees for long-term freezer storage, and 10 to 15 degrees for short-term freezer storage).** If the temperatures are set any higher or lower, the appliances use more energy unnecessarily.
- ✔ **Defrost frozen food in the fridge instead of using the microwave or running water over the food in the sink to thaw it out.** Defrosting in the fridge is also far safer from a food safety point of view.



Even though putting warm leftovers right into the fridge can make the fridge work harder to cool the food, it's better from a food safety approach not to let leftovers cool on the counter.

### *Heating up your green food*

It takes a lot of energy to heat up a large oven, so anything that you do to either reduce or optimize your use of this appliance can help. These measures are tried-and-true ways to do just that:

- ✔ **Use small appliances in lieu of the oven.** Both electric and gas ovens draw a huge amount of power while they cook your food, although gas is more efficient. Microwaves, toaster ovens, stove tops, slow cookers, countertop roasters, and even broilers can be much more energy efficient while still heating your food just fine.
- ✔ **Preheat your electric oven for the minimum amount of time.** Schedule your prep work so that the oven's not waiting at full temperature long before you're ready for it. Also resist the urge to open the door and peek while your food's cooking; the temperature drops between 25 and 75 degrees every time you open the oven door, which means that the oven has to work harder to heat back up to temperature.
- ✔ **When using the oven's self-cleaning feature, do it right after you cook something in the oven to take advantage of the heat that's already built up.** The self-cleaning feature heats up the oven to a very high temperature to burn off food residue. Keep in mind that although the self-cleaning feature consumes energy, it helps you to avoid the harsh chemicals in many oven cleaners.

- ✔ **When you're using the stove top, make sure that your pans fit the burners.** Using a small pan on a large burner wastes the heat generated by the extra burner area.
- ✔ **When boiling water on the stove top, save water and energy by using only as much water as you need in the kettle rather than filling it up each time.**

## *Reducing your reliance on unnecessary appliances*

It's hard to live without some household appliances, but by reducing the number that you use and changing the way you use them, you can become greener — and save money on your bills.

Assess each of the appliances throughout your home — not just in the kitchen — to determine how or even if you use it. If it could potentially save you money (a toaster oven, for example), improve your daily nutrition (perhaps a juicer), or make your life a little happier (an old record player that lets you listen to those LPs you thought you'd forgotten!), get to the root of why you're not using it to its full potential. Is it difficult to clean, or is it stored in a difficult-to-access place? Try to find a solution to the problem in order to pull the full value from that appliance.

If you decide that an appliance really isn't for you, however (some people swear by slow cookers, whereas others stick them in a basement, never to see the light of day), pass it on to someone else who wants it rather than throwing it out to end up in a landfill. Try selling your extra appliances at a garage sale or on an Internet auction site, giving them away by Freecycling them (there's more information on Freecycling in Chapter 19), or giving them to a charitable or nonprofit organization. If an appliance is too old to be used safely, investigate local recycling facilities. It's possible that parts of the appliance could be recycled or put to good use (or in the case of items such as small bar-sized fridges, there may be elements of the cooling system that need to be very carefully dealt with to prevent environmental damage).



There's often an alternative way of doing things that doesn't require an electricity-using appliance. For example, use a dust pan and brush instead of the vacuum cleaner for small clean-up jobs, and try natural beeswax, soy, or vegetable oil wax candles with cotton wicks instead of electric lights to create a romantic atmosphere (the candles burn cleaner than paraffin-based candles and don't use lead-core wicks).

## Conserving Water Manually

Water is one of the Earth's most precious resources — it literally gives life to plants, wildlife, and us! Using as little of it as possible not only reduces the energy needed to transport the water from its source, process it, and send it along the pipes to people, but it helps to ensure that there's enough to go around. In this section, we share some water conservation tips that you can apply throughout your home, and then we focus on two places that water tends to flow most freely: the kitchen and bathroom.

### General whole-home tips

Try these general tips to conserve water by reducing the amount you use every day:

- ✓ **Fix leaking faucets right away.** If you can't get to the repair immediately, or if you're waiting for the plumber to arrive, collect the leaking water in a bowl or bucket to use for something else, such as washing the windows or your car or watering your garden or indoor plants.
- ✓ **Install faucet aerators to both kitchen and bathroom taps.** These small screens screw into the faucet and work by adding oxygen to the water flow, thus reducing water volume while maintaining good water pressure.
- ✓ **Check the insulation around water pipes that are exposed to outdoor temperatures to be sure that they won't burst in cold weather.** Don't forget to also check indoor pipes near poorly insulated exterior walls. If a pipe bursts, not only does the resulting flood waste a lot of water, but it also can cause a lot of damage inside and outside your home.
- ✓ **Ask your water supply company to fit a meter if you don't already have one (this usually applies to older homes that may have been built before water meters became the norm).** You pay for the water you use, which gives you an added incentive to cut down. Some water utilities charge a slightly lower rate for homes that are metered, which increases the incentive even more.



If you use less water, you also use less energy to heat it up or cool it down.

### In the kitchen

In the “Dishwasher” section earlier in this chapter, we cover ways to make using the dishwasher more eco-friendly. This section does the same for the process of washing dishes by hand and adds a few more tips for water conservation in the kitchen. The following tips can help you to avoid wasting water:



- ✔ **When you turn the tap on and wait for hot water, fill a basin or jug with the cold tap water that would normally go down the drain while you wait.** Use this cold water for drinking, cooking, watering your plants, filling your pets' water bowls, pre-rinsing the dirtiest dishes, or rinsing off the dishes after you wash them.
- ✔ **Keep a bottle or jug of water in the fridge if you prefer your drinking water cold rather than waste water by running the tap until the water cools down.**
- ✔ **Avoid using or installing garbage disposals, as they require water in order to operate.** Dispose of food scraps in the trash or compost pile if they're compostable.
- ✔ **Use as little water as possible when cooking (avoid overfilling saucepans when boiling potatoes or pasta, for example).**
- ✔ **Wash the dishes in a bowl or basin placed in the sink rather than in the sink itself.** Filling the sink requires more water than a smaller bowl or basin.
- ✔ **Use a natural detergent so that you can use the dirty water to water the garden.**
- ✔ **Wash the cleanest dishes first and work your way up to the dirtiest ones so that you don't have to change the water so often (or at all).**
- ✔ **Recycle the rinse water by using it to wash windows, floors, or the car, to flush the toilet, or to water the garden.**

## *In the bathroom*

One of the most effective ways to save water is to turn the tap off while you brush your teeth. Letting the tap run constantly for the two minutes that dentists suggest you clean your teeth sends around 1.75 gallons of perfectly good water directly down the drain!

Installing water-saving showerheads in the bathroom is also an excellent way to conserve water and still enjoy a full-pressure shower. The low-flow showerheads use aeration (adding air to the water stream) to make the water pressure feel strong while reducing the amount of water you use.



Showerheads manufactured before 1992 likely provide up to 5 gallons of water per minute. Since 1992, government regulations require showerheads to hit a maximum of 2.5 gallons per minute, and some low-flow models on the market take the flow rate down even further.

### *When bathing*

In general, a shower uses about a third of the water it takes to fill your bathtub. However, the amount of water you use for a bath versus a shower

really depends on the depth of the water in the tub, whether or not you have a low-flow showerhead, and how long you stand under the running water. So, whether you prefer showers or baths, keep water conservation in mind and limit the amount of water that you use.

Tips for conserving water while you get sparkling clean include:

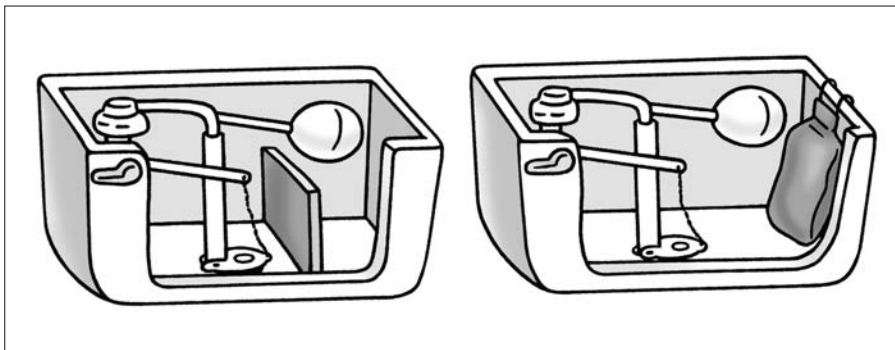
- ✔ **Bathe with your partner (sounds like fun!), or schedule baths and showers directly after each other so that hot water doesn't lose its heat sitting in the pipes.**
- ✔ **Take a shower instead of a bath, but reduce your shower time (five minutes is ideal and ten minutes is the maximum).** To keep your shower time to a minimum and conserve water, shave and brush your teeth at the sink (and turn off the water when you're not using it).
- ✔ **Place a bucket under the tub spout to catch the water flowing while it heats up.** Use the collected water for other tasks such as watering the garden or flushing the toilet.

### *When flushing*

Toilet flushing accounts for about one-third of all the household water you use, which is especially significant when you consider that you flush drinking-quality tap water down the drain. Environmentally friendly low-flow toilets and dual-flush toilets are now widely available, but whether you have one or not, you can still conserve water in a number of ways.

- ✔ **Install water-saving devices such as dams or displacement bags in your toilet tank (see Figure 5-1).** These items take up part of the space usually occupied by water and so reduce the amount of water used with each flush.
- ✔ **Use recycled water to flush the toilet, such as rainwater collected in the garden or cold water saved from sinks and tubs while you're waiting for the hot water to come through.** Pour the recycled water into the toilet tank (not the bowl) immediately after you flush, as the tank is refilling.

**Figure 5-1:**  
Toilet dams  
and displace-  
ment bags  
conserve  
water every  
time you  
flush.





## Choosing green furnishings

Furniture can be a source of potentially harmful compounds, including volatile organic chemicals (VOCs) that are released (in a process commonly called *offgassing*) from newly made items. One such harmful compound is formaldehyde, which is used as a glue in many particleboard-based items. Another example is the flame-retardant material used in sofas; it has been successful at reducing fires but is also a concern because of its chemical makeup. Choosing greener furnishings often comes down to focusing on natural materials, which is especially important for children's furniture and décor because it's thought that their developing health and immune systems may make them more vulnerable to toxins.

Of course, wood is the most natural material for many pieces of furniture, but it's essential to choose wood that has been sustainably harvested. Look for the Forest Stewardship Council logo to guide your choices ([www.fscus.org](http://www.fscus.org)), but in general avoid hardwoods and tree species such as mahogany and merbau that are known to be harvested under questionable circumstances. Some manufacturers and local furniture makers may also use reclaimed

wood, which is a kind of recycling. For example, they may create tables from old barn wood or from logs that sank underwater during transport or storage before processing. Every piece of reclaimed wood that you use (or buy) means less wood is taken from standing trees.

For fabrics, again go natural. Look for wool, organic cotton, hemp, soy, bamboo, and linen. You can buy sofas, chairs, and other upholstered furniture that incorporate these fabrics, along with mattresses that use organic cotton (think about how long you spend near your mattress and your sheets, and you'll see what a difference this can make). Sticking to natural fabrics significantly reduces the offgassing problem.

Buying secondhand furniture is also eco-friendly. It's already done most of its offgassing, you save it from a potential landfill destination, and you save the energy required to manufacture a new product. Using nontoxic paints and natural fabrics to spruce up the furniture can give it a new lease on life (ideas and tips for this are in Chapter 20).

## *Opting for Natural Products Rather than the Chemical-Laden Sort*

It's easy to whip out a commercial cleanser to shine up the bathroom, kitchen, or floor, or to dig into bathroom shelves and makeup bags to give yourself a bit of a sparkle, but you may be getting more than you bargain for along with that clean, polished feeling. Many of the chemicals that go into cleaners and personal products are coming under increased scrutiny from scientists looking into their possible effects on human health. The evidence isn't yet conclusive, but it's fair to say that going natural is both sensible and green.

## *Green cleaning*

When it comes to cleaning, you can find a greener way to clean just about everything in the home. Take stock of your cleaning supplies and resolve to replace each one with a greener version the next time it needs replacing. If you have a cleaning service, get them involved, too — you can explain that many natural alternatives work well and are less toxic to the user. If your service isn't willing to change its ways, shop around to find one that's environmentally conscious.

In this section, we start out with some general recommendations for green cleaning before moving on to specifics — all-purpose solutions and detergents.

### *Tactics*

Here are the basic rules of green cleaning:

- ✔ **Use as little detergent as possible.**
- ✔ **Save old toothbrushes for scrubbing dirt and stains out of small, difficult-to-reach areas.**
- ✔ **Clean up as you go along so that dirt and grime doesn't get too dried out and encrusted to be removed by natural cleaners.**
- ✔ **Use a carpet sweeper or dustpan and brush instead of your vacuum cleaner for small cleaning operations.**
- ✔ **Trade aerosol sprays for plastic spray pumps.** Aerosol spray cans are filled under pressure, so when you press the button, the product is carried farther — which carries the chemicals into the air. The sprays can trigger allergic reactions in some people and bring on asthmatic attacks as well as contribute to polluting the atmosphere. (Aerosol sprays no longer contain chlorofluorocarbons, which contribute to damaging the protective ozone layer in the Earth's atmosphere, but they still contain hydrocarbon-based gases.) The cans are also dangerous if they're exposed to heat; even an empty one can explode if it gets too hot or if it's punctured.

### *All-purpose cleaning solutions*

You can use everyday items you probably already have in your cupboards to clean almost everything in your home — from the stove to the floors, wooden furniture to glass windows, and more. The following list offers examples of some natural cleaners and how to use them.

- ✔ **Borax** is a natural mineral that's a disinfectant. It's great in the laundry and as a kitchen cleaner. Add it to your laundry powder to whiten and soften discolored towels and other whites. You can buy it in drugstores, supermarkets, and online; for large quantities, head to a hardware store.

✔ **Baking soda** is a mild abrasive that's pretty much a wonder cleaner. (You can get large quantities of baking soda at hardware stores.) Use it as you would an abrasive cleaning powder; following are some suggestions:

- Brighten up taps and other chrome fittings with water mixed with a little baking soda.
- Clean worktops, appliances, and other surfaces with a small amount of baking soda on a damp cloth.
- Clean your fridge inside and out with a solution of 3 tablespoons of baking soda dissolved in  $\frac{1}{2}$  cup warm water. Wipe it all over the fridge with a damp cloth.
- Clean the inside of your oven by moistening the walls with a damp cloth, sprinkling baking soda on the surfaces, and leaving it for an hour before wiping it off with a cloth. (If oven stains are too stubborn, try an oven cleaner that contains as few chemicals as possible.)
- Soak dirty pots and pans in a basin of hot water with 2 or 3 tablespoons of baking soda for about an hour. Then scrub them clean with an abrasive scrubber.
- For wet red wine or coffee stains, pour soda water on the stain; if that doesn't work, pour baking soda on the stain, rub it in, and then brush it off.
- Use baking soda on mildew in the shower and on shower curtains. Add just enough water to the baking soda to turn it into a thick paste. Use an old toothbrush for cleaning the grout between tiles.
- Pour  $\frac{1}{2}$  cup baking soda down your kitchen or bathroom drain followed by  $\frac{1}{2}$  cup vinegar and then some boiling water. This combination breaks down fatty acids that block drains and helps to keep drains smelling fresh.

✔ **Vinegar** clears away grease and deodorizes. Use regular distilled white vinegar (not your expensive balsamic) to

- Clean lime scale off bath tubs, sinks, and shower heads. Soak the shower head in vinegar and then brush the built-up lime scale off with an old toothbrush.
- Wash your windows. Spray a mixture of equal parts vinegar and water on the windows and wipe them with old, crumpled-up newspaper to shine them up. (If the print comes off the newspaper onto your hands, it's not yet old enough, so don't use it for cleaning just yet.)
- Brush around the toilet bowl. For stubborn marks, sprinkle the toilet bowl with baking soda and follow up by pouring some vinegar on top of it. Be prepared for the bubbling froth that results. Use a toilet brush to scour the bowl clean.

- ✓ **Lemon juice** works on lime scale on bathroom fixtures. If the stains are stubborn, leave some lemon juice on the mark for a few minutes, or soak a tissue in lemon juice and set it on the problem area. Bottled lemon juice is less trouble than squeezing fresh lemons and works just as well.
- ✓ **Cornmeal** works on grease stains. Just rub in on the stain and then brush it off.
- ✓ **Olive oil** takes finger marks off stainless steel, and when mixed with a little vinegar (about one part vinegar to three parts oil), it makes a good floor polish (or salad dressing!).  
  
Use a mixture of lemon, water, and olive oil instead of furniture polish. The proportions you use depends on the wood and how dirty it is; try a spoonful of each to start. Use it like you would any other polish: Wipe it on and then wipe it off with a dry cloth.
- ✓ **Castor oil** is good for conditioning leather. A bit of elbow grease and this natural cleaner brings tired leather to life again.
- ✓ **Soda water** helps remove carpet stains. Simply dribble some on and dab the stains away.

Experiment with the proportions and combinations of these natural cleaners until you find the ideal mix for cleaning every item in your house. When you find a mixture that works for you, make up a batch, put it into an empty jar or bottle, label it, and keep it for future use.



Using natural products may call for a bit more effort on your part because they're less abrasive and may be slower acting than chemical-laden alternatives. On the plus side, the exercise is as good as going to the gym.

## Sniffing out some air freshener alternatives

Air fresheners, most of which simply cover up smells rather than remove them, contain chemicals. Plug-in air fresheners use energy while they're pumping their chemicals into the air. What's more, some people find that air fresheners make them short of breath and give them headaches. In all, air fresheners aren't particularly eco-friendly.

Fortunately, you can enjoy a nice-smelling home while using an air freshener because natural alternatives abound. Both vinegar and baking soda dissolved in water absorb bad smells. Lemon slices in a pan of boiling water make another good air

freshener. If you have smokers in your house, hide a small bowl of vinegar under a piece of furniture to deodorize the room. Burning natural beeswax or vegetable wax candles with pure essential oils also takes the cigarette smoke out of the air and stops fabrics getting smelly.

Another alternative to the conventional air freshener is to use essential oils to make rooms smell nice. Get an oil burner, some small candles, and your favorite pure essential oils to get a more pleasant smell. For even less work, fill up a bowl with petals from flowers and herbs from your garden!

Although you can try many natural recipes for creating your own cleaning products, you may still want to purchase some greener cleaning and washing products (especially if life is too short to make your own versions or you can't make a natural version of the product you need). Some of the top sellers are green laundry detergents, toilet cleaners, recycled toilet paper and garbage bags, dishwashing liquid, fabric softener, and recycled aluminum foil.

Many supermarkets and home stores are coming out with their own brands, but some existing brands to look for include Ecover, Method's Free & Clear line, Restore, and Seventh Generation.

### *Laundering with eco-friendly detergents*

Some laundry detergents on the market are less harsh on the environment than others when they enter the water system after the wash. These eco-friendly detergents aren't difficult to find these days; most stores stock a range of eco-friendly laundry products.

- ✔ Choose as green a detergent as possible, and experiment with the recommended amount to see if you can reduce it while still effectively cleaning your laundry.
- ✔ Use detergent designed to work in cold water (refer to the earlier section "Clothes washer and dryer" for more on washing clothes in cold water).
- ✔ Avoid heavy-duty detergents that promise to obliterate every stain under the sun; they're likely to contain more potentially damaging chemicals than other detergents.
- ✔ Even if you stick to your normal detergent, reduce the amount you use in each wash cycle. Using less detergent means that you're greener than you were last time you did the wash.

When it comes to powder versus liquid detergent, you may find that one or the other works better in your machine, so a little experimentation may be in order. Either way, choose the detergent that comes in a concentrated form in order to reduce both the amount you use and the packaging volume. For liquid detergent, buy refills that come in cartons rather than buying new plastic jugs each time.



Not all clothes need to be washed every time they're worn. If something's a bit smelly but not dirty, put it on a coat hanger and hang it outside or near an open window to freshen it up.



Instead of using chemical-impregnated fabric softener sheets in the dryer, try the long-lasting softening and anti-static products now on the market. These "balls" may be made from foam or plastic and act to soften fibers and reduce static without chemicals. They're not perfect, but they're worth a try. You may need to use four: two "spiky" balls that soften fabrics and two foam balls that reduce static.

## What's in some cosmetics and toiletries

Chemicals abound in cosmetic and toiletry products on store shelves today. These include sodium laurel sulphate, which is used in shower gel and shampoos and is also used to degrease engines; and propylene glycol, which is used in skin cream and as antifreeze. Parabens used as preservatives and phthalates used to make products more flexible have come into question in recent years,

but scientific evidence isn't yet conclusive enough about the link between them and human health risks for many governments to take action. It's therefore up to you as a consumer to educate yourself on cosmetic ingredients: You can get started with information provided by the U.S. Food and Drug Administration at [www.cfsan.fda.gov](http://www.cfsan.fda.gov).

## *Going green with your toiletries and cosmetics*

The green cosmetics and toiletries industries are flourishing, with greener versions of everything from perfume and lipstick to cotton swabs and hair dye, soap, shaving cream, and deodorant. This may seem a little unnecessary, but in fact it's an important issue: Just as all kinds of synthetic chemicals are found in household cleaners, they also can be found in personal care products and cosmetics. In addition, many products (such as facial wipes) are designed to be disposable and convenient — but that comes with an environmental price because it increases waste. In this section, we look at ways to reduce your consumption of these products and choose greener versions of them; remember that every little bit makes a difference, so these strategies really can help.

To be as green as possible, you can pursue several paths:

- ✔ **Stop using anything that isn't essential.** Wastefulness is definitely not environmentally friendly.
- ✔ **Reduce the amount of cosmetics and toiletries you use so that you don't have to replace them as frequently.** For example, most people use far more toothpaste than necessary — a blob the size of a small pea is enough. You also can use scissors to cut through tubes such as toothpaste and hand cream when you can no longer squeeze out any contents: There's usually enough still in the tube for another two to three applications.
- ✔ **Choose items that have little or no packaging and that come in recyclable or refillable containers.**
- ✔ **Buy products made with organic cotton if possible.** The cotton industry is one of the biggest consumers of agrochemicals in the world, and the cotton is often treated with chlorine.





- ✔ **Use electric razors or replaceable razor blades so that you don't throw out disposable razors with plastic handles that aren't recyclable.**
- ✔ **Look for products that have all-natural ingredients such as plant or vegetable extracts and that don't contain synthetic chemicals.** This isn't easy — there are nearly 10,500 ingredients used in cosmetics and toiletries according to the Campaign for Safe Cosmetics ([www.safe-cosmetics.org](http://www.safe-cosmetics.org)), many of which can be toxic under certain circumstances — but it can be done. See the sidebar “What's in some cosmetics and toiletries” for more on chemicals in personal care products.
- ✔ **Choose cosmetics that haven't been tested on animals.** Look for manufacturers who have signed onto the Coalition of Consumer Information on Cosmetics, which ensures they will neither conduct their own animal testing nor use ingredients that have been tested on animals. You'll find the manufacturers listed at [www.leapingbunny.org](http://www.leapingbunny.org) — the “leaping bunny” logo is the coalition's official mark.

There are plenty of natural products you can use instead of potions made with lots of chemicals. Tea tree oil is a natural antiseptic and disinfectant, for example. A variety of plant and herbal ingredients such as lavender essential oil and coconut can replace toxic ingredients in cosmetics. Just beware of products labeled “natural,” which is often used as an advertising term instead of an accurate description. Always check the ingredient list to find out if the product really lives up to its label.

Sources for greener products are expanding almost daily. Health food stores are the old standby, but even department stores and supermarkets are getting in on the act. You'll find a variety of green cosmetics and toiletries in the big chains of drugstores, and there are even specialist chains dedicated to natural personal care products. If you can't find a greener version in stores, try the Internet. Type “chemical-free cosmetics” into your favorite search engine to find a whole array of companies selling what they claim to be 100-percent chemical-free products. Always read the label to be certain. You also can search for your favorite products at the Cosmetics Database on the Environmental Working Group's Web site, [www.cosmeticsdatabase.com](http://www.cosmeticsdatabase.com), to see how safe their ingredients are.



Some green items may be more expensive than their less environmentally friendly equivalents, but as demand grows for them, they become more widely available and less expensive. You can save some money by choosing greener products to replace your usual choices as they run out rather than replacing them all at once. The shock to your wallet isn't as great, and you're not disposing of half-used products that end up in landfill sites.

## *Storing food greenly (and safely)*

The use of plastic containers and cling wraps for storing and heating food has recently come under the environmental spotlight because researchers have discovered that certain chemicals used to make those plastics — especially to keep them flexible — can leach out of the plastic and into the food, particularly during the heating process. These chemicals include:

- ✓ **Phthalates:** Give plastic wraps their flexibility and have been linked with reproductive, developmental, and endocrine health issues
- ✓ **Bisphenol A:** Found in microwavable dishes and plastic coatings for metal cans; potentially a hormone disrupter
- ✓ **Styrene:** Found in polystyrene cups and take-out containers; may be a human carcinogen (that is, cancer-causing substance)

Some nonstick coatings on pots and pans (such as Teflon) have come under the same criticism. It's important to note, however, that scientists are divided on this issue: Some studies indicate reason for great concern, others sound a note of caution, while still others question whether the other studies, primarily conducted on animals, are applicable to humans. The safest option is to be cautious about the use of plastics, and in particular to avoid heating food in any kind of plastic (this includes leaving plastic water bottles in hot cars).

Manufacturers either are moving away from using the chemicals (including phthalates) causing the main concern or are ensuring that their containers don't leach any potentially harmful substances into food. You can find a list of plastic containers and wraps considered safer at National Geographic's [www.thegreenguide.com/doc/108/plastic](http://www.thegreenguide.com/doc/108/plastic) and [www.thegreenguide.com/reports/product.mhtml?id=44](http://www.thegreenguide.com/reports/product.mhtml?id=44).

Consider limiting your use of plastics altogether, choosing waxed paper instead of plastic film when microwaving dishes and choosing ceramic, glass, or metal dishes for cooking, reheating, or storing food. At a minimum, banish from your kitchen any older plastic containers, which are more likely to contain leachable chemicals and which tend to leach more as they age (perhaps retire them to the garage or sewing room for use as non-food storage containers).



Never use items such as plastic margarine tubs to store leftovers and reheat them, as these types of containers aren't designed to take the heat safely.

## *Going Green in Storage Spaces*

Storage spaces can pose a serious problem when you're trying to go green because they tend to be home to everything that's not wanted (or not safe) in the house: propane bottles for barbecues, old paint, auto products such as

antifreeze, and more. They're also a magnet for clutter. Unfinished basements and attics can be particularly problematic because they're also the most vulnerable to conditions that adversely affect what's stored in them (think moisture in basements and heat in attics).

Green your garage, attic, or basement by going through everything in it and following this advice:



- ✓ **Dispose of anything that you no longer use.** Have a garage sale, Freecycle it (see Chapter 19), or take it to your local recycling center or hazardous waste drop-off point to make sure that it's disposed of properly.

If you have an old fridge lurking in your basement or garage, send it off to a nonprofit organization for resale or reuse or to a recycler. Older fridges consume a lot more electricity than newer models and can be hazardous around children (who like to climb inside them and can get trapped). Instead of relying on an old fridge, consider using coolers to keep extra drinks cold during parties and such.

- ✓ **Dispose of old paint thinner, paints (especially oil-based ones), and other flammable items at an authorized drop-off site.** These items are dangerous to have in the house.
- ✓ **Organize what's left.** Store sentimental items such as photos and mementos in moisture-proof containers, preferably in the main area of the house that's more climate-controlled.

**Warning:** Store potentially toxic compounds (such as antifreeze) well out of the way of kids and animals; high shelves are best.

- ✓ **Clean your garage floor by sweeping it rather than spraying it with water.** Rolling on floor products such as concrete paints and coatings make cleaning easier and also can help the floor surface last longer.
- ✓ **Keep your garage floor clean with floor or tire mats and drip pans.** These supplies help keep the floor clear of winter road salt and anything leaking from your vehicle, such as oil. In turn, you keep the chemicals from running off into the environment. Use drip pans to collect leaks and drips and such, and then dispose of it safely at a hazardous waste drop-off point.

## Small Household Habits that Make a Big Difference

You don't necessarily have to put forth major effort to conserve energy and save money at the same time. Sometimes it's as easy as changing a light bulb. In this section, we look at lighting, standby power, and even the time of day that you use your appliances in order to find hidden but powerful sources of energy savings.

## Lighting your way

Compact fluorescent light bulbs have come a long way in the past few years, and that's good news for your home. The current technology in the bulbs lets them use 75 percent less energy than incandescent bulbs, plus they last up to ten times longer and burn cooler, making them safer. Even though they cost a little more than standard bulbs to purchase, compact fluorescents more than pay for themselves over time. They're also available to fit many lamps and lights (though not all; check before you buy to see what the bulb is rated for and to make sure that the compact fluorescent bulb's distinctive spirals or loops will fit with the lampshade, if there is one).



Compact fluorescent bulbs now come in many varieties, including those designed for outdoor use, dimmer switches, and nightlights.

Of course, turning off lights of any kind when you don't need them is one of the best ways to reduce electricity use. If your family has trouble with this concept (and many do!), install motion sensor lights in areas such as halls or stairways. These lights come on automatically when they sense movement and then shut off after a preset amount of time. Targeting the light also reduces the amount of electricity you use. Use task lighting over kitchen counters or on desks to light up just the area that you're working in. Dimmer or three-way lights let you control the amount of light, so they can help you save electricity as well.



You'll often see motion-sensor lights used outdoors to provide security lighting. If you want your outdoor lights left on all night for safety, get a photosensitive socket that just pops into your existing light fixture and holds the bulb. It goes on when it gets dark and switches off when it's light.

## Living greenly with pets

Pets can be green too! According to the American Pet Products Manufacturers Association, some 71.1 million American homes include pets of all kinds. Luckily, there's plenty that you can do to reduce the impact that your furred, feathered, and even fanged friends have on the environment while making sure that you're doing your best to care for them in a socially responsible way. Taking care of another living creature is, in fact, a huge responsibility — part of green living is to make sure that you take that seriously.

If you decide to buy a pet from a breeder, make sure that the breeder has a good reputation and the animal has been bred responsibly. Unfortunately,

puppy mills that are just a money-making exercise exist across the country, with the animals kept in very poor conditions. Ask friends and local vets for recommendations, and visit the breeders personally to check them out. If you opt for a pet shop, do your research to make sure it's a responsible outlet. Many now work with local humane or animal rescue groups to give animals a second chance at a home. These groups can often tell you a great deal about your potential pet, including training and feeding tips. Visit the U.S. Humane Society at [www.hsus.org](http://www.hsus.org) to get started. In fact, humane shelters can be great sources of pets — they have

rules and policies in place to make sure that their animals go to good homes. Where you choose your pet from is up to you, however — just make sure that it's a responsible, caring source.

Follow these recommendations:

- ✔ **If you're looking for an exotic pet, make sure that it's both legal and sensitively sourced.** For example, fish should be certified by the Marine Aquarium Council ([www.aquariumcouncil.org](http://www.aquariumcouncil.org)) to ensure that you're not inadvertently contributing to the degradation of fish habitat such as coral reefs. Don't rely on retailers to give you this information: Do your homework before you go shopping.
  - ✔ **Be sure that you have the time and patience to give an animal the love, care, and training it needs and that your home has the space and facilities necessary.** For example, keeping an active dog in a small apartment all day by itself while you're at work is a recipe for arriving home to chewed furniture. And cats love to be outdoors, but you can't let them out if they'll be in danger from traffic or other animals or if they'll be a danger to wildlife such as birds. Also be sure to have your cat or dog spayed or neutered to prevent unwanted kittens or puppies. All these measures help to ensure that your pet — or its offspring — doesn't end up at a shelter.
  - ✔ **When it comes to feeding your pet, apply the same green principles you apply to the rest of the family: Look for natural, organic, or holistic pet food options.** Many manufacturers and pet food stores now offer these lines. Some pet owners also are choosing to cook food for their pets or feed them raw food diets; consult with your veterinarian before going this route to ensure that your pet will receive a balanced diet with all the vitamins, minerals, and other elements needed for a long and healthy life.
  - ✔ **Commit to feeding your pet properly and giving it the exercise it needs to stay healthy.** Just like many Americans, pets are getting heavier as a result of too many treats and not enough exercise. Allowing animals to become overweight is a form of cruelty. It can lead to all kinds of health problems and leave them in pain from joint conditions that are worsened by extra weight. Take advice from your vet about how best to feed and exercise your animal. Keeping it healthy is an important part of being socially responsible.
  - ✔ **Use only chemical-free grooming and bathing products.**
  - ✔ **Talk to your veterinarian about herbal alternatives for flea control.**
  - ✔ **Always poop and scoop using biodegradable bags.** Most plastic bags from stores take years to break down in landfills.
  - ✔ **Make sure that your pet carries identification such as a microchip and collar tag in case it gets lost.** Proper identification means that you're reunited with your pet and it doesn't end up sitting unclaimed at a shelter.
  - ✔ **Choose biodegradable or organic cat litters.**
  - ✔ **Buy toys and accessories that are made from natural fibers such as hemp and organic cotton.**
  - ✔ **Protect both your pet and the environment by avoiding the use of chemical weed control products on your lawn in summer and harsh de-icers on pavement in winter.** Go with environmentally friendly products instead.
- As much as you love your pet, you need to ensure that it's not doing anything to harm the environment. Consider the natural instincts of dogs and cats. Cats, for example, have a terrible reputation for killing birds, and most dogs love to chase anything that moves, including wild animals. Consider keeping your cat indoors or confined to your yard (by fencing and leashes, under supervision). Also put a bell on your cat's collar to warn birds that your feline friend is in the neighborhood. Dogs should always be leashed, except in designated off-leash parks and areas. If your dog is outside in the yard, make sure that it's supervised or that the fence is one that it can't get under, over, or around.

## Getting out of the standby habit

Electronics such as stereos and televisions use a considerable amount of electricity while on standby. In fact, some appliances — especially older ones — can use up to 85 percent of the power on standby that they do while in use!



Standby loads are also known as *phantom loads*, and they can add up to 43 billion kilowatt-hours of electricity use annually (yes, that's billion). In your own home, the figure's probably about 450 kilowatt-hours a year, which is a potential savings source.

To reduce the standby loads in your home, turn everything off at the wall rather than leaving it on standby. In addition to the living room, check around the kitchen, study, utility room, and bedrooms for appliances that are plugged in and drawing power even when they're not switched on. Make it someone's job to check the house every night before bed, turning off every switch that doesn't have to be on. Don't forget to unplug all those cellphone and other small appliance chargers that use electricity even when they're not charging anything. Just about the only items you need to leave on overnight are the fridge and freezer, the heating and hot water heater, and the alarm clock (unless you have a wind-up or battery-operated alarm).



Plug appliances such as TVs and DVD players into a power strip to make it easy to turn them off completely. Instead of pulling the plugs from the wall sockets, you simply turn off the power strip. This works especially well if your appliances have a battery backup that maintains your channel and clock settings even if the power's off.

## Timing electricity usage

Peak hours for electricity use are generally late afternoon and early evening, as people arrive home from work to start dinner and do chores such as laundry and dishes. Electric utility companies often encourage users to avoid adding to the load unnecessarily during this period (some even offer discounts). Excessive power demands can place a serious strain on the entire power grid and can force utilities to source power temporarily from other, more expensive areas.

To reduce the load — and the bills — for everyone, schedule power-hungry tasks for other times of the day. And if your area is experiencing a demand emergency, delay your chores until after the emergency has been lifted.

## Chapter 6

# Minimizing Your Trash and Decluttering Your Life

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### *In This Chapter*

- ▶ Generating less waste
  - ▶ Giving your possessions a new lease on life
  - ▶ Unloading electronics in an eco-friendly manner
- 

**F**or many people, trash is “out of sight, out of mind” as soon as it leaves their homes. But that’s not the end of trash’s journey; it’s just the beginning. The scope of the trash problem worldwide involves more than just the volume of trash that’s produced. For every item you throw out, there’s hidden waste — the raw materials that went into its production and the resources such as water and energy that fueled the process, from raw materials to finished goods to landfill. And much of that energy comes from nonrenewable sources.

The green living ideal is to reduce your trash so much that you produce no waste at all; however, achieving that ideal is quite challenging. It’s far more practical to focus on reducing your trash as much as you can. Zero waste will become more achievable as recycling and packaging practices catch up with today’s culture.

Quick and easy ways to reduce your trash all start with what — and how much — you buy. When you reduce the amount that you consume, you declutter and simplify your life, automatically reducing the amount of trash that you generate (and maybe even reducing your stress level as well). For those things you can’t reduce, reusing and recycling remain the key to dealing with waste. This chapter discusses ways of incorporating all three Rs into your daily life and adds a couple more, including repairing and regifting, plus a C for composting to help you reach your trash-reduction goals.

## Cutting Back Consumption and Aiming for Zero Waste

The best way to reduce waste is to reduce what you buy. Only bring into your home what you really need and know that you'll use — whether it's food, clothes, or electrical appliances. Bringing in less not only reduces the items you eventually have to dispose of, but it also reduces their associated packaging, which is where much of your waste likely originates. If you're thinking about reducing waste, it's also a great time to think about simplifying what you already have — decluttering your home can help to declutter your spirit, too!



In the United States, cities are leading the way with zero-waste initiatives. San Francisco's goal is to increase its current 67 percent recycling rate to 75 percent by 2010 and to achieve zero waste by 2020. Berkeley, California, has changed the name of its Solid Waste Management Commission to the Zero Waste Commission to reflect its changing goals. In Seattle, a "Wasteless in Seattle" program is encouraging city employees, businesses, and residents to eliminate waste completely.

### Buy less

Living a simpler lifestyle isn't about doing without or cutting out the things you truly enjoy. It's about knowing the difference between what you "need" and what you "want," but it's also about prioritizing — looking at your days and deciding what's really *important* to you — so you can make better decisions, for both you and your environment, about how you spend your money. In this way, being careful about what you bring into the house has more benefits than just reducing the trash that you produce: It also can help to simplify your life and reduce your stress level.

Some experts suggest keeping a journal of everything that you buy for a month or even a week. When you review the journal, you may see patterns of spending emerge that you weren't even aware of. Perhaps you bring home convenience or take-out food more often than you realize, or maybe you make up for a tough day at work by buying yourself a "treat" such as a new piece of clothing for your closet. Simply recognizing these patterns is often enough to help you break out of them; the next time you're tempted by the fast food drive-through or the mall, think twice and keep going instead of stopping and shopping.

Another way to scale back your purchases is to opt for good quality items over mediocre quality ones. From the kitchen cupboards to the bedroom closet, buying fewer items of good quality keeps your spending in check and doesn't overwhelm your storage space. It also ensures that you're not throwing items out because they've worn out prematurely. For example, if that adorable knit sweater is on sale because it was made from inexpensive, less-than-durable



fabric, consider how many times you'll be able to wear it before it starts showing signs of age. If it's likely that you'll have to retire it within a year or two, buy a more durable, equally fabulous sweater instead to fill the hole in your wardrobe. By not replacing the crummy sweater so soon after you purchase it, you save your hard-earned cash *and* keep one less item out of the trash bin for a while longer.

## *Be mindful of packaging*

Keep in mind that the packaging of items you *do* buy is another important part of reducing excess. In an age where you seem to have less time and you're lucky just to get to the grocery store so you can prepare your meals at home, you certainly don't have time to think about what happens to the packaging that's left over or whether you can recycle it. The good news, though, is that choosing products with minimal or recyclable packaging is easy to do without much inconvenience; you can incorporate this awareness seamlessly into your shopping habits with just a little assessment work on the front end.

### *Evaluating your output*

Take a look at a week's worth of your trash in order to evaluate your output:

- ✓ **Assess how much is coming from typical sources such as packaging, food waste, and paper (such as junk mail).** You may want to keep track of your trash in separate garbage bags for the week: food scraps in one bag, paper trash in one, packaging in another, and so on. This makes it easy to see what's generating the biggest volume of trash.
- ✓ **If you're not already recycling or composting, make a list of all the items in your trash that could be recycled or composted.** Imagine how that would reduce your weekly trash.
- ✓ **Take a look at what's left — the unrecyclable items.** This is a great place to start considering measures to reduce this type of trash by not purchasing or producing it in the first place.



Prioritize your strategies so that you tackle the biggest unrecyclable source of your waste first — you don't have to reduce everything all at once. Take small, easy steps to begin with and get yourself started on a sustainable path.

### *Adjusting your purchases accordingly*

The general guideline for minimizing your trash (other than buying less) is to buy a version that has either the least possible packaging or recyclable packaging. You also can shop at stores that sell loose items or use refillable containers. Shopping around for the least-wasteful packaging takes some time, but you'll immediately see a difference in the amount of trash you throw away.

## Trash talk

According to the U.S. Environmental Protection Agency (EPA), more than 245 million tons of municipal solid waste is generated every year in the U.S. — that's 4.5 pounds of solid waste for every person in the country, each and every day. That's the most trash generation per capita of any country in the industrialized world. (Canada is second at 3.75 pounds.)

The EPA reports that municipal waste includes 34 percent paper, 13 percent yard trimmings, 12 percent food scraps, and 12 percent plastics. The rest is a mix of metals, rubber, leather, textiles, glass, wood, and other waste.

The good news is that, of the municipal waste that's generated, almost a third of it is recovered and recycled or composted. Just over half of it ends up in a landfill, while 14 percent is incinerated. The amount that's recycled is significant, and in fact the U.S. is one of the leading industrialized nations when it comes to recycling.

Even though current recycling efforts are a good start, they could be better. Waste management experts say that as much as two-thirds of total household waste can be recycled and even more can be composted (see Chapter 7), — so there's plenty of room for you to help improve the nation's record.

Here are some general tips to guide you around the grocery store, where most packaging trash comes from:

- ✔ **Buy fresh food that doesn't come prepackaged.** Place fruits and vegetables directly into your cart — skip the plastic bags hanging in the produce department. Or bring bags from a previous shopping trip to reuse.
- ✔ **Avoid individually packaged items.** For example, buy a larger container of juice and send the kids to school with juice in a thermos instead of those small, individual juice containers. The same goes for prepackaged kids' lunches in plastic trays that have cheese and crackers and such in them; dividing up cheese and crackers at home into reusable containers that can go into lunchboxes reduces waste considerably.
- ✔ **Opt for items in glass or other recyclable containers instead of plastic containers that can't be recycled.** Basically, try to avoid any plastic that can't be recycled through your local system (see the "Recycling" section later in this chapter for more information on recycling plastics).
- ✔ **Avoid aerosol cans altogether if at all possible because you can't reuse or recycle them.** For cleaning and toiletry products, purchase products in pump-action bottles, for example.
- ✔ **Take your own canvas bags, shopping basket, or reused plastic bags with you when you shop so that you don't load up on more plastic bags.** If you have a choice between paper and plastic bags, choose paper, which is more easily recycled than plastic. Of course, first reuse it if you can, perhaps to wrap parcels for mailing. For more on plastic shopping bags, check out the sidebar "The great plastic bag debate."

## If you gotta buy, buy used or recycled

There's little point in the government throwing its weight behind recycling as a major green initiative if the goods produced by the recycling process languish in warehouses and no one buys or uses them. So buy goods with recycled content because they're greener than goods with nonrecycled content. The more demand you create for recycled goods, the more of them will be produced and the less need there will be for equivalents made from new, precious raw materials.

When you start looking, you'll find an amazing array of products with recycled content, from carpet and carpet padding to paper and toner cartridges to playground equipment and surfaces. You can find a helpful list of many of these items at [www.epa.gov/epaoswer/non-hw/procure/products.htm](http://www.epa.gov/epaoswer/non-hw/procure/products.htm).

[epa.gov/epaoswer/non-hw/procure/products.htm](http://www.epa.gov/epaoswer/non-hw/procure/products.htm)

The principles of reducing and reusing still apply to recycled goods. Demand that they don't come with wasteful packaging, and reuse them as many times as possible. Just because something's recycled doesn't mean you should buy what you don't need.

The same goes for used goods: If you buy something secondhand, you not only keep it out of the landfill but also reduce the amount of new items that need to be manufactured. Online sites such as eBay, local secondhand or thrift stores, garage or yard sales, and friends and family who are getting rid of items they no longer need are all great sources of used goods.



Take your attack on product packaging one step further by sending packaging back to manufacturers with a letter telling them why you won't be buying their products again. Stores and manufacturers will get the message if sales drop for heavily packaged items or products in nonrecyclable packaging. Help them to understand by telling them why you're buying the competition's product instead.



All packaging is not necessarily bad, even if it's not recyclable (although, obviously, it's far better if it can be recycled). It may protect goods so that they can be transported without damage, thus reducing waste. It also may maximize the amount of a particular product that can be packed into a container such as a large box, and if fewer containers need to be used for the same amount of goods, fewer trucks are needed to transport an order, thus decreasing greenhouse gas emissions. Manufacturers may be thinking primarily of how to cut their transport and damage costs, but they're still being greener as a result of minimizing packaging.

## *Lengthening the Life of Your Possessions*

Cutting back on consumption is an important part of waste reduction, and if you're able to hold on to the possessions you already have for longer, you'll reduce even further your need to buy new items and get rid of the old ones. Not only does this practice reduce your waste, but it also saves you money,

which is always a good thing! In this section, we take a look at how reusing and repurposing items can give them a new and longer life at very little environmental cost. If you can't reuse something directly, recycling is your next best option because it turns the item into something that's once again usable. This conversion costs energy, but it's still better than throwing the item out. We identify the most common recyclable items and how to organize your home to get it done easily and quickly.

## *Reusing and repurposing*

You can't reduce your purchases to nothing, but you can look at what you can reuse. Sometimes you can't reuse items in the same way you've been using them because they're too worn out for that purpose; in these situations, find a new purpose for that item, adapting it however you need to.

Reusing sits above recycling in the hierarchy of the three Rs because it doesn't require any extra energy for reprocessing and because it cuts down on the need to buy new. The aim is to use items for as long as possible, for as many different uses as possible, or by as many people as possible, before they have to be recycled or disposed of in the trash.



Most things have more than one use. Here are some ideas to get you thinking creatively about how to reuse or repurpose things that you own:

- ✔ **Reuse paper that has only been used on one side.** Put the other side through your printer again for rough drafts, use it for notepaper, or give it to your children to use as drawing paper. Remember, you probably use more paper than you realize: grocery lists, hand-drawn maps to show your significant other how to get somewhere, or even the rough draft of that novel you're still writing.
- ✔ **Wash plastic food storage bags after use instead of discarding them.** Use hot soapy water to get them clean, but don't reuse bags that have been in contact with raw or cooked meat.
- ✔ **Use empty glass jars as containers in your workshop or as organizers at your desk or elsewhere.** If you drill holes in the lids and screw them to the underside of a shelf, you can attach the jars to the lids to reduce clutter on your work surface.
- ✔ **Use wrapping paper and gift bags again, and cut down cards to make gift tags.** Fold gift paper and bags carefully so that they store easily and live to wrap again. Make a wonderful joke or legacy card among your family members and friends by reusing the same birthday card over and over and simply encouraging everyone to keep passing it on to the next person who has a birthday — no apologies, just cross out the last giver's name and add on your own best wishes for many happy returns . . . and returns and returns.

## The great plastic bag debate

The average shopper uses some 300 plastic bags from stores and supermarkets each year — many of which end up in landfill sites where they take hundreds of years to decompose. Even worse, the bags can escape the trash and blow around the neighborhood on windy days, adding to street litter and creating hazards for wildlife.

Some areas are so fed up with the indestructibility of these bags that they've either banned or taxed them. Since Ireland placed a tax on each plastic bag in 2002, for example, the number of bags used has dropped by 90 percent. In 2007, San Francisco became the first city in the U.S. to ban plastic shopping bags designed for single uses only.

Many supermarkets now offer thicker, recyclable plastic “bags for life.” These bags help reduce the number of plastic bags used because they're sturdy enough to be reused again and again and then be

recycled. But it's important that you actually use them more than once, stashing them in your vehicle or someplace else where they're handy for shopping trips instead of using them once and then consigning them to the trash.

Paper bags are greener than plastic bags in that they can be reused, recycled, or composted. But paper bags are thicker than fine plastic bags, so they cost the environment more to transport — more fuel and energy, and thus more emissions.

Your best strategy for green shopping is to take along your own canvas or nylon bags or some other sort of basket in which to carry your purchases. If you do end up with the occasional plastic bag, make sure that you reuse it for the next trip or for taking out the trash, or make sure that it gets recycled (many recycling programs accept plastic bags, as do many grocery stores).

- ✔ **Line recycling boxes, drawers, and cat litter trays with newspapers, magazines, and junk mail instead of plastic liners that you need to purchase.** (Doesn't your cat deserve the posh images from that upscale museum catalog?)
- ✔ **Alter clothes and cultivate your own vintage look by contributing to and shopping at secondhand clothing boutiques (see Chapter 11 for tips).** If you're interested in more ideas for what to do with clothing, check out *Reconstructing Clothes For Dummies*, by Miranda Caroligne Burns (Wiley), which is filled with repurposing fashions from cover to cover.
- ✔ **Repair damaged items.** Try repairing an item rather than throwing it away and buying a new one. If it's not worth repairing the item — especially with electrical items, where safety is an issue — decide whether it really needs replacing. Life may be too short to darn a sock, but a chair with a broken leg or ripped upholstery, a defunct kettle, or a temperamental toaster may have years of life left with a bit of tender loving repair. You can find advice and step-by-step instruction for simple fixes to appliances, electronics, and furnishings, among other things, in *How To Fix Everything For Dummies*, by Gary Hedstrom, Peg Hedstrom, and Judy Ondrla Tremore (Wiley).



If you can't repair things yourself, find someone who can: Furniture restoration businesses, clothing alteration and repair services, shoe repairers, upholsterers, electronic appliances repair firms, and even toy hospitals can give your items a new lease on life. Find contacts in the phone book, or get recommendations from friends and family. Ask for references and even evidence of previous work if the item to be repaired is valuable. Neighbors and friends also may have the skills you need; if someone you know can help you out, maybe you can arrange a trade — your skill for theirs.

Sometimes, a little artful furniture arranging may do the trick to disguise damage. For example, if the cat has scratched up the front of the couch, you may take fabric from the back of the couch to replace the worn or torn fabric on the front. You can then replace the fabric from the back of the couch with an inexpensive remnant from a fabric store; it won't match, but if you place the couch back against a wall, it also won't show.

- ✓ **Turn small plastic containers into garden pest traps.** Set the plastic container into the ground and fill it with beer to create a baited trap for harmful pests such as slugs.
- ✓ **Cut old, worn clothing into rags for cleaning, dusting, or washing vehicles.**
- ✓ **Turn old pantyhose into plant supports for the garden.** Simply cut off the legs, loop them around plant stems or branches, and then tie them off to stakes.
- ✓ **Use wine corks to create a corkboard.** Check out [www.crafterslovecrafts.com/wine-cork-crafts.html](http://www.crafterslovecrafts.com/wine-cork-crafts.html) for instructions as well as many other ideas for using old corks.
- ✓ **Cut down a king-size sheet that's worn in the middle into a single-size sheet or a few crib sheets.**

## Recycling

If all else fails (meaning that you can't reuse or repurpose items), recycle. *Recycling* involves collecting goods that have reached the end of their lives and processing them, their parts, or some of their parts, into the raw materials from which new goods are made. Ever wonder just how green recycling is compared to producing new goods from scratch? Consider this fact: Recycling steel, aluminum, copper, lead, paper, and plastics can save between 65 percent and 95 percent of the energy it takes to produce new goods from these materials.



Recycling doesn't just help reduce the amount of trash that heads to landfills and incinerators: It also reduces the amount of greenhouse gases that are released into the atmosphere. Although the recycling process consumes energy and therefore emits some greenhouse gases, those gases are still less

than what would be emitted by a combination of machinery at landfills and incinerators and by the manufacturing processes used to create new goods that would be needed if the recycled goods weren't created. According to the EPA, in 2005 recycling prevented the release of 79 million tons of carbon into the air — about the same as would be produced annually by 39 million cars.

Because recycling isn't as green as reusing or reducing (which don't emit greenhouse gases), you should try to reduce and reuse first and foremost. Glass can be recycled into bottles, for example, but it has to go through a manufacturing process to get there, and that process uses energy. In an ideal world, the energy would be generated using renewable sources such as wind, hydro, and solar power so that the recycling process is completely green, but in the real world, that's not usually how it works.

Despite the drawbacks, recycling an item is far better than throwing it in the trash. And as states and cities increasingly develop and encourage waste-reduction strategies, recycling will become an even more important part of daily life.

## Reusing car tires

Car tires pose a big problem for the environment. They don't break down, burning them releases toxic gases, and they can release toxins and chemicals into the dirt on which they're stored. Almost every state has introduced legislation that deals with scrap tires, with many states banning them from landfills completely. The good news is that rubber tires can be reused in many different ways.

- ✔ Some can be recycled as retreaded tires and used again on vehicles.
- ✔ They make great rubber bumpers for boats and for children's play equipment.
- ✔ They can be used for computer mouse mats, pencil cases, and notebook covers.
- ✔ Broken down into rubber granules, tires can be used in surfacing playgrounds and artificial sports grounds.
- ✔ They can be made into mats and tiles in the carpet industry. Several carpeting companies use recycled tires as a major component of their eco-carpets.

- ✔ Broken down into a fine powder, they're used to reduce the noise of road surfaces.
- ✔ They can be turned into roof tiles and structural supports in eco-buildings.

To reduce your tire waste, take care of the tires you have: Purchase good quality tires with long tread life; check tire pressures so that you're not driving on over- or under-inflated tires; rotate the tires every 6,000 miles; and ensure that tires are balanced when rotated.

When it's time to replace your tires, either take your vehicle to a vehicle service shop that recycles them (they may charge a small fee for the recycling part of the service) or, if you replace the tires yourself, check with your local government or recycling service providers to find out where you can drop them off for recycling near you. In some areas, tire stores accept them for a small fee; in others, you may need to take them to tire recyclers or to specific recycling drop-off locations.



More-intensive recycling targets are part of the way to achieve zero waste, but manufacturers have to cut down on potential waste such as nonrecyclable packaging, and they need to design long-lasting goods that are unlikely to need replacing. As a consumer, you can write to companies to let them know about your concerns.

### *Identifying what you can recycle*

Not everything can be recycled (yet), but you should be able to find recycling facilities for these six main categories of household waste:

- ✓ **Paper:** Most paper is recyclable, including newspapers, cardboard, phone books, packaging, magazines, catalogs, and wrapping paper. If you have a garden, you also can turn most paper into compost; turn to Chapter 8 for composting instructions.

Some recycling facilities take paper products such as milk and juice cartons; others don't. These cartons are made of cardboard sandwiched between very thin layers of plastic, so not all the material is recyclable. Check with your local recycling service provider before you haul your waste for drop-off.

- ✓ **Plastics:** Most plastics are recyclable, but recycling rates for plastic tend to be low because of a lack of facilities. Each plastic product has a Plastic Identification Code — a triangle with the number 1, 2, 3, 4, 5, 6, or 7 inside it. The code usually appears on the bottom of the plastic product. Most recycling services accept plastics with codes 1 or 2, which includes beverage bottles and containers used for milk, juice, and body-care products. Table 6-1 shares details on the Plastic Identification Codes and the products they're associated with.

Check with your local service provider about which plastics it takes for recycling, and buy only products in plastics with those numbers if you can. If the local authority doesn't accept plastics, try to reduce the plastic that you buy and reuse what you already have.

- ✓ **Glass:** Most household glass can be recycled over and over again — you usually just need to rinse or wash out food containers and remove paper labels. In fact, glass is easier to recycle than plastic, so if your local service provider doesn't recycle plastic, buy the product you need in a glass bottle or jar if there's one available. Recycled glass has a whole variety of uses, but mainly it's used to create new glass containers.

Glass items such as car windshields, cooking dishes, and light bulbs aren't usually accepted by local recycling systems. These items may not be recyclable in your area, or you may need to take them to a special drop-off point. Check with your service provider or local government's waste office to find out if there's a special drop-off point near you. For example, compact fluorescent light bulbs aren't usually accepted in local recycling programs, but Home Depot stores collect the used bulbs for their own recycling program, so you can take them to your local Home Depot store.



- ✓ **Metals:** Metal food and drink cans made from aluminum or steel are recyclable. With food cans, wash them out first and remove paper labels — it's worth the extra chore. Aluminum cans in particular are very valuable in terms of recycling material. You can recycle used aluminum foil, too.
- ✓ **Organics:** Some recyclers include organic materials such as yard and kitchen waste in their regular services, whereas others offer seasonal organics recycling, such as Christmas tree drop-off locations after the holiday season.
- ✓ **Textiles:** Many charitable and nonprofit organizations operate drop-off points for textiles like clothes and shoes; you usually find these sites in supermarket parking lots and in the organizations' own business locations. What the groups can't use they generally sell to private firms dealing in textiles. We cover recycling textiles and clothing in Chapter 11.

**Table 6-1 Plastic Identification Codes**

<i>Plastic Identification Code</i>	<i>Type of Plastic</i>	<i>Common Products</i>	<i>Possibilities for Recycling</i>
1	PETE (polyethylene terephthalate)	Soft drink, juice, and toiletry bottles	Can be turned into T-shirt material and carpets
2	HDPE (high-density polyethylene)	Milk jugs, detergent or bleach bottles	Can be turned back into detergent bottles, binders, and fencing
3	PVC (polyvinyl chloride)	Shampoo and mineral water bottles, house siding and piping	Can be turned into new house siding, piping, and other building materials
4	LDPE (low-density polyethylene)	Grocery, garbage, and bread bags	Can be turned into new bags
5	PP (polypropylene)	Margarine and dairy tubs	Can be turned into car parts and milk crates
6	PS (polystyrene)	Meat trays, coffee cups, packaging	Can be turned into DVD cases and CD trays
7	Other plastics	Ketchup bottles, other plastics	Can be turned into park and picnic benches



Paint isn't recyclable, but it's worth a mention in this section because some communities offer a central drop-off point for leftover paints. People can come and pick up the unwanted paint for free, latex paints may be mixed together and reprocessed, and components of oil paints can be reprocessed into fuel (or at least disposed of responsibly if this isn't practical in your location). It's also possible that local organizations such as Habitat for Humanity ([www.habitat.org](http://www.habitat.org)) can use your unwanted paint, so check with your city or town to see if such a service is available.



When you buy anything, ask the retailer if a plan is in place to allow you to recycle either the old product or the one that you've just purchased.

### ***Creating your recycling system: Compost piles and recycling stations***

Turning your organic kitchen and yard waste — paper, vegetable peelings, eggshells, grass clippings, and leaves, for example — into new, nutrient-rich dirt is the best possible example of recycling success in action. If you have a yard, you can build or install a composter in a sunny spot; if you don't have the space and your local recycling options don't include organic waste, consider setting up a worm farm indoors to handle the compostable materials. For more information about how to compost, check out Chapter 8.

For those items you can't compost, you can create a recycling station in your home no matter how little room you have to devote to it. Essentially, you set aside a space where you can collect and store your recyclables until it's time for pick-up or drop-off.

A garage is the perfect place for a recycling station. To save space, install shelves on the wall, one above the other, that will each hold one recycling bin. You can buy brackets and wood or ready-made shelves from local building centers or organizing stores; you also can purchase bins to hold your recyclables (such as the folding recycling bags shown in Figure 6-1a; see [www.gaiam.com](http://www.gaiam.com)). If your recyclables need to be separated, label the bins and allow enough space between them to throw in the recyclable items.

For smaller spaces, especially apartments, check under your kitchen sink. You may already have a trash can there, so it's the ideal spot to add another trash can (or even two or three) for your recyclables. You can buy commercial products, such as pull-out trays, to make the bins easily accessible (see Figure 6-1b), or you can rig up your own tray that slides out. If you don't have enough room for trash cans under your kitchen sink, use paper bags to collect recyclables instead.



If you're really tight on space, buy a can compactor to crush metal cans, significantly reducing the space they occupy. You mount the compactor on a wall or sturdy, vertical surface, such as a wood shelf frame. You can crush milk and juice cartons without the aid of a compactor.

**Figure 6-1:** Recycling organizers include bags (a) and bins that you can stow away (b).



a) Available at [www.gaiam.com](http://www.gaiam.com)



b) Available Rev-a-Shelf, UC, at [www.revaShelf.com](http://www.revaShelf.com), 800-626-1126

### *Finding places to drop off recyclables*

Many local governments have well-established recycling programs that provide either curbside pickup at your home or operate neighborhood drop-off points. You may be asked to put all your material for recycling — bottles, food and beverage cans, paper, newspapers and magazines, cardboard, and recyclable plastics — into one box separate from the rest of your household trash. Or you may be asked to separate each type of recyclable material into different boxes for collection.

If your community doesn't offer government-sponsored services, look for commercial businesses in your area that offer weekly recycling pick-up. There's likely to be a fee involved, but it's worth it to divert waste that would otherwise end up in the trash. Increasingly, stores also are offering recycling services as a response to customer demand. The office supply store Staples, for example, lets you drop off used batteries, empty printer ink cartridges, and even unwanted electronics such as televisions and computers, and Ikea stores accept batteries for recycling.



To find recycling resources in your community, check with your local government. Earth 911 ([earth911.org](http://earth911.org)) and the National Recycling Coalition ([www.nrc-recycle.org](http://www.nrc-recycle.org)) also can help. Of course, if your state is one that has instituted a refundable deposit on certain containers (such as plastic beverage bottles), there's likely to be plenty of local bottle depots where you can drop off the items and claim your money.



If your municipality or county doesn't already tackle waste reduction, write to local politicians or representatives asking them to put the issue on their agendas. You can find more information about zero waste initiatives at [www.zerowasteamerica.org](http://www.zerowasteamerica.org) and [www.ecocycle.org](http://www.ecocycle.org).



To make it as easy as possible to recycle — and to prevent it from becoming an overwhelming task — set up a home recycling center that works for your family. If you need to drive somewhere to drop off the recycling, plan to stop by the recycling center on your way to another destination. That way you're not making a special trip, which costs you extra time, fuel, and greenhouse gas emissions.

## *Turning Your Garbage into Someone Else's Gold*

If you can't reuse something, you don't know anyone who wants it, and you can't recycle it, you may still have alternatives to throwing it out. You can give things away or sell them if you have access to potential customers.

**Remember:** If you can't reuse something, someone else may be able to.

### *Deciding what others may want*

Walk around your home and pick out things that you don't need but that other people could use. If you have room, create a storage system that allows you to add an item to the “find a new home for this” box when you're done with it. When a box is full, offer it to your local secondhand book or music shop; if you don't get a sale, offer it to a local charity or nonprofit.

Some of the most popular secondhand items include:

- ✓ **Books, magazines, CDs, and DVDs:** The market for these items is huge, and they can go on and on being reused.
- ✓ **Clothes:** Used and vintage clothes are fashionable, and someone else may be able to make good use of good-quality clothing even though you never want to wear it — or see it — again. Sift through your wardrobe and drawers and sort out things to give away, swap, sell, or turn into rags. If your items are fashionable or desirable, check out the later section “Cashing in on unwanted items.”
- ✓ **Furniture:** Whether it's old or relatively new, valuable or not, in good shape or has seen better days, someone out there will take furniture that you want to get rid of. All sorts of home clearance firms buy furniture; auctions sell antiques and less valuable furniture and household items; and charities often want furniture of all sorts to help furnish homes for those less fortunate.

## Knowing where your garbage ends up

Items that aren't recycled — in fact, the majority of domestic waste — lands in landfill sites or incinerators. Although both disposal methods have vastly reduced their impact on the environment in recent decades, neither one is ideal.

- ✔ **Landfills:** The U.S. is home to approximately 1,650 landfills. These massive holes in the earth are often located on the outskirts of cities and towns, where their contents slowly decompose over the course of several centuries. In the past, sites were simply covered with earth and the trash left to its own devices. Modern landfill sites, however, are better managed; they're lined and capped to stop toxic chemicals from the trash leaking into the surrounding earth and polluting nearby water sources. Built-in systems capture escaping gases and liquids, with some experiments now taking place to recapture energy released by the decomposition process. Suitable sites for landfills are becoming scarce, though, and concern still exists about the potential for leakage, especially ground-water contamination.
- ✔ **Incinerators:** A much smaller proportion of your trash is burned in big incinerators, which reduce the trash by both volume and weight. Older incinerators were major sources of air pollution, pumping environmentally damaging greenhouse gases into the atmosphere. Newer plants use up-to-date technology that makes them much cleaner and less damaging to the environment; in fact, the energy released by burning the trash can be used to generate heat and electricity. However, the burning process creates ash and gases, which remain cause for concern. The process of incinerating is even more environmentally harmful when it's done in people's back yards because there are absolutely no controls or processes to limit the amount of gases or particles being sent into the atmosphere.

Because neither landfills nor incinerators are facilities that most people want in their backyards, and because both methods of trash disposal have some negative impact on the environment, it's far better to focus on diverting waste away from them in the first place.

- ✔ **Electronics such as computers, appliances, and cellphones:** Other people may be able to get electronics in running order either for themselves or for charity.
- ✔ **Household items such as dishes, knickknacks, and storage containers:** If these items are in reasonably good shape (not chipped or cracked, for example), there's no reason why they can't be used by someone else who may find their patterns more attractive than you do. Charity stores often accept such household items.

## *Giving away your goods*

Giving things away may appeal to your green nature more than selling your unwanted items. In terms of being green, offering your used goods to another person reduces waste and fits in with the idea of reusing as much as possible. Try charitable and nonprofit organizations, private waste collectors, scrap

metal dealers, friends, family, and work colleagues. You also can give items away on Internet sites such as [www.freecycle.org](http://www.freecycle.org) and [www.sharingisgiving.org](http://www.sharingisgiving.org).

### *Contributing to sweet charity*

If you're interested in giving things away to people who have more need for them than you do, you can donate just about anything.



Make sure that anything you give is in good condition, usable, clean, and won't create a problem for the person receiving it. Too many people dump unwanted, dirty, or broken items on the doorsteps of charitable organizations, thus also dumping the expense of disposing of the items.

Following are a few organizations that accept household or clothing items:

- ✓ **Habitat for Humanity** ([www.habitat.org](http://www.habitat.org)) accepts tools, building materials, furniture, and appliances in good working order, either for use in homes being built or for resale to the public in order to help raise funds. The organization also accepts vehicle donations!
- ✓ **Lion's Clubs International** ([www.lionsclubs.org/EN/index.shtml/vision\\_eyeglass\\_recycling.shtml](http://www.lionsclubs.org/EN/index.shtml/vision_eyeglass_recycling.shtml)) conducts eyeglass recycling, collecting used eyeglasses at a number of eyewear chain stores and redistributing them in developing countries.
- ✓ **Nike Re-Use a Shoe** ([www.letmeplay.com/reuseashoe](http://www.letmeplay.com/reuseashoe)) collects worn-out athletic shoes of any brand and processes them into material that's used for sports surfaces such as playgrounds for youth around the world.
- ✓ **The Salvation Army** ([www.salvationarmyusa.org](http://www.salvationarmyusa.org)) operates local centers that accept household and clothing items for resale.
- ✓ **Goodwill Industries International** ([www.goodwill.org](http://www.goodwill.org)) has local stores that welcome donations of clothing and household items for resale.
- ✓ **Hands Across the Water** ([www.surplusbooksforcharity.org](http://www.surplusbooksforcharity.org)) collects unwanted books and sends them to schools and libraries that need them around the world.



Facilities such as hospitals, libraries, senior and rehabilitation centers, daycares, homeless shelters, and churches in your area may be able to use various items that you're ready to donate. Search online or check the phone book under "recycling" or "charitable organizations" to find them. Contact each organization to find out what they really want and to make sure that they can handle the items that you have to offer. Some may even offer to pick up your items.

### *Trading goods online*

Freecycle ([www.freecycle.org](http://www.freecycle.org)) was one of the first Web sites to offer members a way of giving unwanted possessions away for free to other members who would make good use of them. This program takes the principles of reducing, reusing, and recycling into cyberspace. Community members who want to find a new home for something, whether it be a chair, a fax machine, or a piano, send an e-mail offering it to local members, who then respond by e-mail. The rule is that everything offered must be free, legal, and appropriate for all ages. Membership in Freecycle is free.

Sharing Is Giving ([www.sharingisgiving.org](http://www.sharingisgiving.org)) is a site with a similar purpose, acting as a one-stop source for all free-transfer Web sites. You can find more information on Freecycling and similar sites in Chapter 19.

### *Regifting*

*Regifting* — giving a gift you've received to someone else as a gift — isn't for everyone; in fact, some consider it quite rude. It's up to you to assess the potential consequences; for example, it may not be the wisest idea to regift the birthday present your parents gave you, for example. And it's definitely not a good idea to regift an item if there's a chance that either the new recipient or the original giver could find out and be offended.

It's not usually acceptable to regift an item that's used rather than new. On the other hand, regifting something that's important to you and thus sharing its value with the recipient is actually quite generous and thoughtful. Perhaps you have a painting or a book that has always given you inspiration or encouragement during a difficult time and you want to regift it to someone you love who's now facing their own difficult time.

In the right circumstances, regifting offers these significant advantages:

- ✔ **You aren't buying new goods.** You're subscribing to the principle of reducing waste and thus reducing the amount of energy used to produce new products.
- ✔ **You're reusing something.** You're giving something to someone who will make use of it, therefore keeping the item out of a landfill site.
- ✔ **You're eliminating the need to recycle the item.** You're saving the energy required to reprocess the item.

## *Cashing in on unwanted items*

Buying and selling secondhand goods is a hobby for some people, a business for others, and an occasional pastime for the rest. If you like to hunt for secondhand treasures, or if you have something to sell, you have plenty of

choices. The only limiting factors are how much someone is willing to pay and whether it's economically viable and green to have the item mailed or delivered to that person's home. If something has to be transported by road or air for long distances, you should consider the carbon emissions that the journey could produce (see Chapter 1).

Here are the more common places where you can trade in or sell items for cash:

- ✔ **Pawnbrokers and secondhand dealers** are much more sophisticated than they used to be, and they abound in most areas.
- ✔ **Secondhand book and music shops** are very popular. Trade in your unwanted books and CDs for others in the store, sell them for cash, or leave them on a sale-or-return basis (that is, you leave them in the shop for a certain amount of time, and if they don't sell, you get them back).
- ✔ **Antique shops** are an option for some items. You may be quite surprised at how much you can get for that old painting that's been sitting in the attic for years.
- ✔ **Auction houses** generally sell antiques, jewelry, used cars, unwanted office and household furniture, and larger household items. You can set a reserve amount on an item you want to sell and take it home again if it doesn't make that much.
- ✔ **Classified ads** in the local weekly newspaper or the free advertising papers were the places for advertising your goods or picking up a used bargain long before the Internet, and they're still going strong.
- ✔ **Garage sales** are perfect for selling a lot of unwanted stuff, especially if it's too big or there's too much to sell to a secondhand store. Set up a sale in your front yard or garage. Find out whether your neighborhood organizes an annual sale and participate in order to tap into neighborhood sale advertising. If you live in an apartment or condominium, the owner or condo board of directors may support a community sale — check to find out.

Phone your local city or county government or check its Web site to see if you need any permits to hold a garage sale. Rules may be in place about the items you sell, especially food, and about permitted signage or hours of operation.

- ✔ **Online:** You're more likely to get a better price for your goods on the Internet than in your local secondhand store or through a garage sale, and you may be able to find buyers online for unusual or hard-to-sell items that other places won't take. In fact, the success of Internet sales sites has shown that selling things that you don't need anymore can be quite profitable. Of course, if you list an item that doesn't sell, you're out the money that you spent to list it.

You'll find two types of Internet sales stores:



- **Auction sites**, such as eBay ([www.ebay.com](http://www.ebay.com)) and uBid ([www.ubid.com](http://www.ubid.com)) where sellers place items for sale and buyers bid on the items up to a closing date and time. The highest bid wins the item.
- **Classified advertising sites**, such as Craig's List ([www.craigslist.com](http://www.craigslist.com)) and Kijiji ([www.kijiji.com](http://www.kijiji.com)) where sellers simply advertise items for sale. Buyers contact the sellers directly if they're interested in the items.



The success of eBay has led to services that help you sell items on the popular Web site. I Sold It ([www.i-soldit.com](http://www.i-soldit.com)), for example, has outlets in many U.S. cities where you can drop off an item you'd like to sell; service people at the I Sold It location take care of listing the item on eBay and managing payment from the eventual auction winner. The service is expensive compared to listing the item online yourself, which costs just a few dollars; I Sold It outlets charge varying commissions on top of eBay's fees — typically in the range of 35 percent of the first \$500 of the sale price and 20 percent on the amount above \$500.

## Disposing of Electronic Goods

As electronic goods such as televisions, computers, cellphones, and computer-driven toys, as well as automobiles, assume a more-prominent position in your home and daily life, they also become more-prominent contributions to your home's waste. The pace of technology development means that many items that are even a few years old are difficult to reuse, so recycling them has become an essential issue. In 2005, approximately 2 million tons of electronic products were discarded in the U.S., and the vast majority of the items went straight into the trash.

Not only does the fast pace of the technology industry represent huge losses of reuse potential for many electronic items, it also creates a toxic waste issue because of the components in many of these products. Electronics such as computer monitors, cellphones, and televisions can contain toxic materials such as lead, chromium, cadmium, mercury, and brominated flame retardants. The health of the environment depends on the safe disposal of these components. Thankfully, opportunities for reusing and recycling electronic goods are growing significantly.



The related issues of waste reduction and hazardous waste management have prompted several state governments — including those in California, Maine, Maryland, and Washington — to introduce mandatory electronics recycling programs. Most of these mandates place the responsibility on electronics manufacturers to create recycling programs, with some instituting a recycling fee that's passed on to consumers at the time of a new electronics purchase.

## Tips for selling online

Selling items online can seem a little intimidating if you've never done it before, but if you take the time to read the Web site's instructions and carefully do a little research, it's not at all difficult. Here are a few tips to help you maximize your sale price:

- ✔ **Check out similar items on the Internet to compare prices.** Potential buyers are likely to find those similar items in addition to yours, so do some research and price your items competitively. You can sell just about anything through the Internet, so if you get little response from would-be buyers, there's either no demand for your used goods or you've priced them too high. Try dropping the price before you give up completely.
- ✔ **Be sure that you're dealing with a well-known, established, reputable site.** The credibility and security of the site you choose is absolutely critical to ensure that your transaction goes smoothly and everyone comes out satisfied. With auction sites such as eBay, the

more you buy and sell successfully on the site, the better reputation you will get within that site's community. If you sell on eBay, for example, everyone who buys on the site has access to your past buying and selling history (and vice versa) thanks to eBay's community ranking system. This feedback system has greatly reduced the chances of being sold a dud product or not receiving payment for an item you sell. For more tips on selling on eBay, check out *eBay For Dummies*, by Marsha Collier (Wiley).

- ✔ **Be alert to the possibility that all may not be as it appears.** When dealing with Internet sales sites, you generally have very little protection if you send goods and the money doesn't arrive or if you send money and the goods don't arrive. Internet sales are based on trust. You can find consumer protection information pertaining to online sales on the Web site of the Better Business Bureau at [www.bbb.org](http://www.bbb.org).

Manufacturers and distributors are putting recycling plans into action, thus joining local businesses that offer electronics recycling. Find an electronics recycler near you through the National Center for Electronics Recycling at [www.electronic recycling.org](http://www.electronic recycling.org).

## Leveling the cellphone mountain

The EPA estimates that up to 130 million cellphones are retired each year, which means that a lot of dead phones are sitting around unused in drawers or are headed for the trash. Because cellphones contain toxic materials such as mercury, it's important to keep them out of landfills and incinerators. More importantly, however, your old cellphone may just turn out to be someone's lifeline.

Several organizations reprogram retired cellphones so that they can be used free of charge by people, particularly seniors or victims of domestic abuse, to call 911. Other organizations reprogram and sell the phones to raise funds for charity. The following organizations operate such programs:

- ✔ **Collective Good** ([www.collectivegood.com](http://www.collectivegood.com)) allows you to mail your phone, PDA, or pager in to be recycled.
- ✔ **Phones 4 Charity** ([www.phones4charity.org](http://www.phones4charity.org)) donates or recycles your cellphone or similar device.
- ✔ **Wirefly** ([www.wirefly.org](http://www.wirefly.org)) offers a trade-in incentive to encourage consumers to recycle wireless devices.

You also can check with your cellphone service provider about a recycling program; many providers collect old phones to reuse parts and to donate to charities.



You can do more than recycle cellphones; consider reducing the number of cellphones in circulation by turning your service provider down the next time you're offered a new model of phone as a free upgrade. If you prefer not to do that, give your old model to a friend or relative who can use it with their own SIM card rather than buy a new phone. The same goes for phone chargers and batteries — pass them on!

## *Getting rid of computers*

If you're thinking about upgrading your computer system, either at home or at work, consider what to do about your old one. The EPA estimates that some 250 million computers will become obsolete in the next five years, which has the potential for a lot of waste. You do have options for reuse and recycling, however: Computers can be donated for reuse by facilities such as schools and charities, or if computers are too old to be useful, they can go to a responsible electronics recycler to break down their components for reuse, recycling, and safe disposal.

Computer refurbishers can upgrade or adapt your unwanted computer so that it can be donated to schools, community centers, and even initiatives in developing countries to enable more people to gain access to the benefits of the information age. To find a computer refurbisher or recycling program in your area, check [www.earth911.org](http://www.earth911.org) (in the Find a Recycling Center box at the top of the home page, enter Computer and then your zip code or city and state) or [www.techsoup.org](http://www.techsoup.org) (click Learning Center, then Hardware, and then Ten Tips for Donating a Computer). Some computer manufacturers have established computer recycling programs, and you can also take computers to Staples stores ([www.staples.com/sbd/content/about/soul/recycling.html](http://www.staples.com/sbd/content/about/soul/recycling.html)), which participate in an electronics recycling program.



Whether you donate your computer for reuse or drop it off for recycling, make sure that you protect the personal information that may be on it. Computer-savvy criminals can access files that you've deleted, so use hard drive disk-cleaning software to properly erase your files. Also make sure that you deal with a reputable refurbisher or recycler with its own disk-cleaning procedures in place as well.

## *Dealing with old televisions*

The same places that recycle computer monitors in your area likely recycle televisions, too, because their technology is quite similar. If you can't find a charity or friend who needs your old television, drop it off at your nearest electronics recycling center.

You may have heard about the switch from analog to digital broadcast television; essentially, after February 17, 2009, all full-power television stations will have switched from analog signals to digital. The switch will only affect you if you have a television that's not hooked up to cable or satellite television services. If you have a television that receives free signals over the air with an antenna, you'll still be able to use your set but you'll need to add a digital-to-analog converter box for between \$50 and \$70.



Visit [www.ntia.doc.gov/dtvcoupon](http://www.ntia.doc.gov/dtvcoupon) for a \$40 coupon from the government that you can use toward the purchase of a converter box.

## *Disposing of an older vehicle*

If your vehicle can still be resold at a reasonable value, then it's easy to figure out how to get rid of it: Either trade it in when you purchase a new vehicle or sell it yourself (which can often get you a better value for it). But what if it's no longer in good enough condition to be sold — perhaps it's no longer running, requires far more repair than it's worth, or has been in a major accident — and you don't feel right about selling it on to become someone else's problem?

You may think it's time for the scrap heap, but that comes with some obvious issues. Some of the material that goes into a vehicle can be recycled or reused (the list of potential items includes liquids such as oil and gas, metal, refrigerants from air conditioning systems, tires, parts, and even windshields), but other material including foams and plastics end up shredded and in landfills.

Although programs and research are in progress to improve the situation, you can help out by checking your local resources to find out if there are any municipal or state recycling programs that will help you get rid of your vehicle. The U.S. EPA has a section dedicated to vehicles in its “product stewardship” area ([www.epa.gov](http://www.epa.gov)) that lists partners and resources for automotive end-of-life issues, including tire recycling and the removal of mercury switches from vehicles before they head to the landfill. You also can lend your voice to organizations such as Environmental Defense ([www.environmentaldefense.org](http://www.environmentaldefense.org)) that are pushing for better management of vehicle end-of-life issues beginning at the manufacturing stage.



Up to 11 million vehicles reach the end of their useful lives each year in the U.S., generating as much as 5 million tons of nonrecyclable waste. The U.S. Council on Automotive Research, a joint effort from DaimlerChrysler, Ford Motor Company, and General Motors Corporation, is working to improve how much can be recycled or reused. Find more information at [www.uscar.org](http://www.uscar.org).



Consider donating your older vehicle to charity: You get a receipt for a tax deduction, and the charity sells the car either at auction or perhaps to an auto recycler. As with any charity, research your local options and ensure that it's a 510(c)(3) organization that you're donating to in order to obtain the tax deduction. Try to avoid "middlemen" agencies that accept car donations and then pass the proceeds on to charities; a better proportion of your money actually gets to the charity if it's the charity itself that runs the donation program rather than a middleman. Charity Navigator has excellent information about car donation programs at [www.charitynavigator.org](http://www.charitynavigator.org).



## Chapter 7

# Getting Green in the Yard

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### *In This Chapter*

- ▶ Looking at your garden as an ecosystem
  - ▶ Designing a sustainable garden
  - ▶ Getting dirty with plants, wildlife, and other garden goodies
  - ▶ Caring for your garden in an environmentally friendly way
- 

**H**ow green does your garden grow? For many people, the garden is an extra room — a beautifully manicured place to relax in and enjoy during warm weather. For others a garden is functional — somewhere they can grow food and create a haven for wildlife.

Everyone can have a garden of some sort — from the window box on the tiny balcony or window ledge to the volunteer garden shared by the whole neighborhood; from the community garden rented (or perhaps even free) from the local municipality to your private garden that comes with a house in the suburbs. Whether your yard is a patch of concrete on an apartment balcony or a rolling expanse of green grass, there are lots of ways that you can make your outdoor space greener. In this chapter, we share methods to design, implement, and maintain your outdoor spaces that will help you to conserve water and energy and eliminate chemicals.

## *Balancing the Garden Ecosystem: The Concept*

Left to its own devices, any area becomes a complex ecosystem. Plants attract insects, which in turn attract birds and animals. Everything lives off something else in the ecosystem, and everything you do in your yard has a bearing on how that ecosystem evolves. The more you nurture your outdoor space without the use of chemicals and greenhouse-gas emitting tools, the greener your garden will be.

Table 7-1 presents the elements of a balanced ecosystem as they apply to your yard or garden.

<b>Table 7-1 Principles of a Balanced Ecosystem</b>		
<i>Principle</i>	<i>Reason</i>	<i>How to Implement It</i>
Conserving water	To preserve this natural and precious resource, which is in short supply in many areas	Keep the amount of water you use to a minimum, and rely on sources other than the tap (such as collected rainwater).
Promoting a flourishing environment for living things	To encourage a healthy and diverse ecosystem	Grow plants that suit local conditions and benefit the whole ecosystem, attracting beneficial insects, birds, and other wildlife.
Conserving energy	To reduce greenhouse gases and utility bills	Replace gas- or electric-powered appliances with manual or solar-powered versions.
Reducing chemical damage	To protect your family's health along with that of the local watershed	Banish the use of chemicals from your garden maintenance plan, and use natural materials such as homemade compost, bone meal, and some types of animal manure as fertilizer.

When you take active steps to balance the ecosystem in your garden, each species that calls it home eventually establishes a natural balance, too. For example:

- ✔ Snails will reduce algae in the water feature.
- ✔ Birds will reduce the insect population.
- ✔ Some good insects like ladybugs will devour bad insects like aphids (also known as greenflies).



Attract the beneficial insects to your garden to help keep the bad ones at bay without the use of chemical pesticides. Simply grow the kinds of plants that the good insects find attractive, such as yarrow, Queen Anne's lace, and marigolds.

Green gardening requires a bit of research, planning, and experimentation to get it right. The idea is to get to the point where you have the garden you want without having to take drastic action with chemicals, power-generated tools, and so on.



## Designing the Layout of Your Outdoor Living Space

Devoting some time to planning your outdoor space helps you create the most efficient, pleasant, and useful layout while ensuring that you reduce your need for resources such as water. *Xeriscaping*, which means landscaping for water conservation, can provide a very effective framework for the planning process. Essentially, the idea is to use plants that require less water, but xeriscaping also encompasses seven principles that walk you through garden planning and maintenance in a logical way. They are as follows:

- ✓ **Planning the general layout:** Whether you're designing a brand new space or renovating an existing yard, this is your opportunity to take into account how much sun, shade, and rain your yard receives, how you want to use the space (for entertaining, children's play areas, pet-friendly areas, and so on), and any existing structures such as fences.

Think carefully about what you want from the space you have. Even if you only have room for a few small pots, you have a choice of growing flowers or herbs. With more space, you can opt for shrubs, bushes, trees, flowers, fruit, vegetables, or a mixture of all sorts. In a bigger garden, you may want a patio, pond, or other water feature.

Also think carefully about the environmental impact of deck or seating areas. Check with the retailer before you buy wood for decking or slabs for a patio; the materials should come from renewable, sustainable — even recycled and recyclable — sources.

Keep in mind that if you pour concrete over part of your garden to make a patio, water will run off that area and may cause drainage problems in other parts of the garden. Water also may run off into the streets and head down the storm sewers. Keep this precious resource on your property, where it can be used by your garden, by using materials such as mulch and gravel in your patio plans.

- ✓ **Deciding how much lawn you'll have (if any):** Lawns can require a lot of water to keep them green and lush. Grass is much better for wildlife than concrete, but your grass doesn't have to be all manicured lawn. To reduce the amount of water you use in the garden, cut down on the area of lawn and grow plants instead that need less water. Or consider laying down a grass variety that resists drought. Established trees and shrubs, for example, don't usually need to be watered if they're varieties that suit your local climate conditions; after you baby them through their first few years, you can just let them be.

Instead of plants, use *hardscape* items such as rocks, bricks, benches, and gravel for decorative effect. Using different colors of gravel, for example, can create a flowing effect through the yard. And if you're okay with some hardscaping but can't imagine your yard completely without a lawn, reduce the grassy areas gradually. Perhaps replace one corner



with a garden bed one year, add a winding gravel path the next year, and create a seating area the next. Before you know it, you'll be looking forward to the moment when you can retire your lawn mower!

- ✓ **Analyzing the soil:** Test your soil to determine whether it needs any improvements in order to support your new landscaping plan. You can buy do-it-yourself analysis kits at garden centers, where staff can also suggest effective soil amendments for your area.
- ✓ **Evaluating irrigation:** Although it would be ideal to eliminate the need to irrigate, that's not always an option. Instead, consider installing an automatic sprinkler system. In order for it to be as efficient as possible, you need to design it so that it waters only the areas that need the water (not sidewalks or driveways), and you need to know how to set and adjust the watering schedule. A rain sensor that shuts off the system to avoid overwatering is essential.

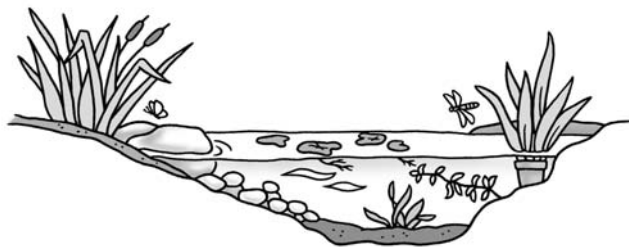
You may want to incorporate a water feature into your garden to help attract beneficial wildlife such as insects, frogs, birds, and butterflies. Many gardens aren't big enough for large ponds or relaxing waterfalls, but you may have room for a small water feature like a fountain, tub, or small pond (see Figure 7-1) that recirculates its water (this recirculation keeps it from stagnating and also reuses the water rather than using new water all the time). Whatever you choose to install, make sure that it uses solar power rather than electricity. Anything that needs electricity to make it function isn't as green as an alternative that can be powered by the sun.

Take care that children and wildlife won't be harmed by irrigation or water features, avoid using chemicals in the water, and provide shelter and a way out for any frogs, toads, or other critters that find their way into your garden water feature.

- ✓ **Choosing plants carefully:** Take a look at the plants you want in your garden, and choose varieties that suit the conditions you already have — this makes it much easier for them to thrive. See “Nurturing plants” later in this chapter for more information.



**Figure 7-1:**  
This  
wildlife-  
friendly  
pond adds  
a mini-  
wetland to  
your garden.



- ✓ **Adding mulch:** Use gravel or organic mulching materials such as compost, wood chips, grass cuttings, straw, or rotted manure to cover areas between plants. It keeps the soil cooler, helps to retain moisture and limit evaporation, and keeps weeds in check so that you don't have to use chemical weed killers. Organic mulches also add organic content and nutrients to the soil.
- ✓ **Taking care of maintenance:** Keep in mind that you need to continually weed, prune, fertilize, and otherwise care for your garden — that is, unless you're going for that overgrown, wild look. . . . Jump to the section "Maintaining Your Outdoor Habitat" later in this chapter for specific garden maintenance advice.



When planning your garden, leave space to set up a drying line or a clothes rack so that you can cut down on the amount of electricity you use running the clothes dryer.

## *Filling in the Framework with Life and Color*

After you plan your garden layout and irrigation, it's time to get your hands good and dirty by adding plants. (Of course, you could wear gloves, but there's nothing like digging your fingers into healthy loam to help you feel connected to the earth.) Choosing plants that are native or well-suited to your local climate and ones that will attract beneficial wildlife is a great way to fill in the framework — and amenities such as lighting and cooking areas add a lovely finishing touch.

### *Nurturing plants*

The ideal green garden has native plants and shrubs that thrive in your local climate. Native plants don't need additional water and can withstand the bugs and insects that your yard is likely to attract, so you'll have fewer reasons to even consider using toxic chemicals to keep the plants free of weeds and diseases.

Native plants also attract native species of butterflies and birds, which are key parts of your ecosystem. Grow as many varieties of native plants as possible to support the wildlife in your garden, and do a little research to find out if some of them can be grown together to naturally ward off each other's pests.

Talk to experts at your local garden center about the native plants that grow best in the climate and soil where you live. Other sources of information about native gardens include American Beauties at [www.abnativeplants.com](http://www.abnativeplants.com) and the National Wildlife Federation at [www.nwf.org/backyard/food.cfm](http://www.nwf.org/backyard/food.cfm).



The plant you think is a weed may be just a wild plant. You may not want it in your nicely cultivated flowerbed, but if it's a native plant, you can relocate it to grow in another part of your garden.

Keeping a garden that supports native plants and shrubs takes some work, but it's definitely worth it. When it comes to deciding what to grow in the garden, it's impossible to generalize. You can go for trees, shrubs, fruit trees, vegetables, potted plants, or flowers depending on how much space you have, how much sunlight your garden gets, the soil quality, how much rainfall your area gets, how much time you have to spend working in the garden — the variables are almost endless. The best thing is to choose plant varieties that suit the conditions you already have; this makes it much easier for them to thrive. Group plants with similar needs together. For example, ask experts at your local garden center about how much water different plants need; some thrive in drier conditions, so you don't want to plant them in a low spot that collects water or next to flowers that may get watered often.



*Gardening All-in-One For Dummies* by the National Gardening Association (Wiley) gives plenty of additional advice on gardening basics and garden design as well as on growing roses, perennials, annuals, bulbs, vegetables, and herbs. In addition, the American Horticultural Society's SMARTGARDEN program establishes guidelines for planning and maintaining a better garden, including assessing your lifestyle and checking your plants often. You can find the full list of guidelines online at [www.ahs.org/gardening\\_q\\_and\\_a/10\\_tenants.htm](http://www.ahs.org/gardening_q_and_a/10_tenants.htm); you also can find other valuable gardening information on the society's Web site, but you should note that some information is available only to society members.

## *Encouraging wildlife*

Even if you feel that you can't go green in the garden by growing fruits and vegetables, you can still make a big contribution by creating an environment that attracts and supports wildlife. Many species of garden birds, insects, mammals, and amphibians that were once very common are now thin on the ground due to changes in farming methods and disappearing natural habitat. By turning your garden into a place where they can make homes, feed, and breed safely without danger from pesticides and other chemicals, you help their numbers to recover.

What you plant has an impact on the kinds of wildlife that choose to live in your garden. Think carefully about the species you want to see, and grow the appropriate plants to attract them (fuchsia and geraniums, for example, to encourage hummingbirds to visit). If you grow the wrong plants, you may attract unwanted species like ants, slugs, and moles that may make it impossible for other plants to survive.

Wildlife isn't limited to furry critters. You may think all insects are unwanted visitors to your garden, but that's not the case at all. A bug is your friend if it helps pollinate your plants or controls the population of bad bugs. For example, honey bees are nature's great pollinators; dragonflies eat mosquito larvae and adults; and ground beetles feed on root maggots, caterpillars, and slugs, among other things. For more information on beneficial insects and ways to attract them to your garden, visit [www.wcsv.org/Education/Garden/Beneficial\\_Insects.htm](http://www.wcsv.org/Education/Garden/Beneficial_Insects.htm).

Make your garden as varied as possible to attract as many species as possible. Here are some ideas:

- ✔ **Plants** like roses, honeysuckle, and lavender each attract different insects like bees and butterflies.
- ✔ **A woodpile** encourages another set of garden dwellers. You may find frogs in the woodpile if it's damp, and if it's big enough to offer a safe place, a rabbit may move in.
- ✔ **A wildflower patch** can encourage native insects (including butterflies) and birds to linger in your garden. Growing a wildflower patch can be as simple as planting a wildflower mix seed packet that's available at garden stores — just make sure that the packet notes the climate zone and area for which the flowers are intended so that you know the flowers are well-suited for your area. Garden center staff also can help you choose wildflower seeds and plants to get you started.
- ✔ **A pond** created from an old bath or basin draws everything from dragonflies and frogs to birds and snails.



Change the water in your pond regularly to prevent it from becoming a mosquito breeding ground, or use a mosquito dunk, which is a small tablet that you drop into the water to kill mosquito larvae. The biological control versions of the dunks contain bacteria that destroy the larvae and are much better for the environment than chemical versions.

- ✔ **Hedges** are great for attracting birds and insects and providing protected space for small animals to make their homes. Grow as many different hedge plants as possible together in your hedge because each different plant attracts different species.
- ✔ **Trees and shrubs** that produce fruit, berries, and seeds are sources of food for your furry and feathered friends.
- ✔ **Boxes and feeders** attract birds, bats, and bugs galore.

Visit [www.nwf.org/backyard](http://www.nwf.org/backyard) for a little inspiration from the National Wildlife Federation. The site also walks you through the exact steps to create a Certified Wildlife Habitat.



After you spend the time and money to make your yard welcoming to wildlife, you don't want to sabotage your efforts by using pesticides to control weeds. You may target weeds, but other species in the ecosystem also may be adversely affected.

## *Adding amenities*

After you work out the plants and wildlife-attracting elements that you're including in your garden, you can turn your thoughts to other garden amenities. After all, one of the great benefits of an environmentally friendly garden is spending time in it simply relaxing and enjoying the chair-side view of nature. Seating, cooking, and entertaining areas are all possibilities to consider.

Sketch out the remaining open space in your garden and note where you want to put vital other items — most importantly your compost heap or bin, which we cover in Chapter 8. The following list includes some of the garden items you may want to include in your design and issues to consider in using them:

✔ **Furnishings:** If you see your yard as another room of your home, it needs some kind of furniture. If you opt for wooden tables and chairs, make sure that the wood is from sustainable sources and not from tropical hardwood. Consider buying wooden furniture that has the Forest Stewardship Council's ([www.fscus.org](http://www.fscus.org)) stamp on it, certifying that it's made from wood from sustainable, responsibly managed forests. Also keep in mind that wooden furniture needs to be treated to keep it from rotting when it's left out in the rain, and often the treatment involves toxic chemicals; make sure that the furniture you buy has been treated with nontoxic preservatives such as linseed oil, and use such products for future retreatment.

If you decide to go with plastic furniture, check that it's made from recycled plastic. Metal garden furniture is more likely to be made from new materials, but you may be able to recycle it when the time comes to buy something new. Check with your local recycling service provider for more information on recycling metal garden furniture.

✔ **Lighting:** Candles are very effective in the garden. Put them into glass containers to shield them from wind and rain; you can make your own lanterns from glass bottles or jars.

A green alternative is to install lights with solar-powered bulbs that build up energy from the sun during the day and then release it at night to light your garden.

✔ **Outdoor cooking:** Use the greenest material possible for your barbecue. Check that the charcoal comes from renewable wood, and don't buy barbecue material treated to make it light more easily. It's likely to have an oil- or gas-based fuel in it, which doesn't do much good for the environment or for your food.



Whether you burn wood, natural gas, electricity, or propane in your outdoor stove or barbecue, you create greenhouse gas emissions. Go with the greenest possible fuel source: electricity from renewable sources such as wind, solar, or hydro power or wood (which itself is renewable).

✓ **Outdoor heaters:** Outdoor heaters mean that you can spend time in your outdoor living space later into the evening and for more of the year. As pleasant as heating the outdoors may be, though, using an outdoor heater that burns gas or uses electricity not only sends your bills skyward but also adds to the amount of carbon dioxide you release into the atmosphere. Think carefully before you decide to opt for one of these heaters. The same goes for wood-burning fire pits, chimineas, and outdoor chimneys because the wood also releases carbon dioxide when it burns. Talk to your supplier about whether you can burn *eco-logs* (manufactured fireplace logs that release far fewer emissions) in the appliances.



If you do decide to buy a gas or electric patio heater, don't leave it on when you're not using it, and make sure that if you're heating the outside space, your lights and heat are turned off inside your home to reduce your energy use as much as possible.

## *Maintaining Your Outdoor Habitat*

After you design and plant your garden, you have the job of caring for it. (You didn't think you were done, did you?) A neat lawn with healthy plants, shrubs, trees, and an abundance of wildlife is a joy to behold. The aim is to be as green as possible in an environmental sense as well as to have a green and pleasant garden to admire and enjoy.

In the following sections, we help you figure out how best to maintain the garden oasis that you've created. From managing water usage to easing up on over-maintenance, and from cutting back on chemicals to evaluating the garden tools you use, these sections ensure that your garden stays green . . . in more ways than one.

### *Making the most of your watering*

Water is a big issue for most gardeners. Depending on where you live, you're likely to complain about having too little or too much of it at certain times of the year. If you're in the former category, you need to safeguard your garden from drying out; if you're in the latter, you need to use plants in your yard that love getting their feet wet!

If you live in an area where rain doesn't flow like water, you have two primary goals to attain if your aim is to live greenly:

- ✔ **Water your garden as infrequently as possible.** By using native plants (refer to the earlier section “Flourishing plants”), you can design the sort of garden that can stay green without a lot of water in the first place.
- ✔ **Be mindful of your water source.** You don't have to rely on the tap if you incorporate alternative water sources (see the next list in this section).

Several practices can help you attain these goals and water more greenly and efficiently:

- ✔ **Collect rainwater that runs off your roof in rain barrels.** Drainpipes can empty directly into barrels, which should have faucets near the bottom to make it easy to get the water out (see Figure 7-2). Be sure to cover the top of the barrel with a screen or some other covering to prevent debris (such as leaves) and insects (such as breeding mosquitoes) from getting into the water.

If your yard is big enough, consider installing a cistern, or large water-storage container. If you're renovating or building, this is a great option, especially if you can direct greywater from the house into it. Talk to your contractor about your options, and check out Chapter 4 for an illustration of a greywater system.

Even if you don't have a rain barrel or cistern, you can use basins or buckets to carry used dishwater or bathwater outside to water your plants.

- ✔ **Water your garden during the coolest part of the day to reduce evaporation.** Stick to watering in the early morning or late evening, and water only the areas and plants that need it.
- ✔ **Use a trigger nozzle or soaker hose instead of a sprinkler.** A sprinkler can use as much water in an hour as a family of four uses in a day! Trigger nozzles or soaker hoses work better for specific areas such as garden beds. If you just can't give up your sprinkler, remember that it doesn't take long for a sprinkler to soak your lawn thoroughly. When you set up the sprinkler, set out an upside-down Frisbee, too; when the Frisbee's filled with water, turn off the sprinkler.
- ✔ **Resist the temptation to reach for the garden hose at the first appearance of a brown patch.** Once a week is all the watering your lawn needs — even in the hottest weather. Overwatering can actually damage your lawn, weakening it by encouraging roots to seek the surface.







**Figure 7-2:**  
This rain barrel collects water from the building's roof.

© Rain Water Solutions

## *Letting your lawn go — just a bit*

If you decide that some lawn is essential in your garden plan, make it as green as possible by using environmentally friendly ways of keeping it healthy. Follow these suggestions:

- ✓ **Leave grass cuttings on the lawn to feed the soil.** If there are too many cuttings, put the excess in the compost heap.
- ✓ **Use native grass seeds.** They'll grow better in your local climate than other varieties.
- ✓ **If your lawn turned brown in the sun the last time you cut it, let the grass grow a little longer between cuttings and don't cut it so short next time.** Longer grass (2½ to 3½ inches, depending on the grass variety) stays greener than a close-mown lawn, is less likely to scorch, and needs less watering.
- ✓ **Leave some of the lawn to grow wild with flowers and decorative grasses, or plant some trees and shrubs.** Those areas will attract wildlife and reduce the amount of effort needed to care for the lawn.

## Trading chemicals for natural alternatives

Although some natural alternatives to garden chemicals are still under development, you may be surprised at the number of options you have to deal with problems in your yard. Keep in mind that in many cases it takes more of a commitment to go natural rather than chemical: It may take seasons rather than days to eliminate weeds, for example. But it's worth it to give your yard a life free of toxic and harmful chemicals. Not only do you want to limit your children's exposure to these chemicals when they're out in the yard, but you also don't want to track the chemicals indoors on your feet or let them blow in through the windows.



When you're out in the garden, you no doubt encounter biting insects such as mosquitoes and ticks. Not only is their bite unpleasant, but they also may transmit illnesses such as West Nile virus and Lyme disease. Protect yourself by wearing long pants and long sleeves, especially at times of day when the insects are most active. Although insect repellants containing DEET are suggested for warding off mosquitoes, natural alternatives are available that contain essential oils or citronella (look for them wherever mosquito repellants are sold). Experiment to find one that works for you and your family, and be prepared to apply it more often than the chemical-based version.

Rather than use chemicals to treat your lawn and garden, consider doing the following:

- ✔ **Dethatch and aerate your lawn.** *Dethatching* means removing the woody parts of the grass plant that build up on the surface of the lawn; do this when the thatch gets more than about ½ inch thick and therefore restricts water and air getting to the grass root. A dethatching rake works well for this task. *Aerating* removes plugs of grass from your lawn using an aerating machine (which you can rent) to encourage air and water to reach the roots. Both practices keep your lawn healthy in a greener way than relying on broadcast chemicals that deliver fertilizer and herbicide in combination. (The herbicide ends up in areas that don't need it and can run off into groundwater sources.)
- ✔ **Use natural or organic herbicide alternatives for killing weeds.** Some new products available at garden centers are vinegar-based, for example. In addition, using a hoe to break up the dirt area around plants stimulates the growth of plants, reduces water loss from the soil surface, and removes weeds that take up valuable water and nutrients.
- ✔ **Use natural fertilizers such as compost, bone meal, and blood meal, all of which are available at garden centers.**
- ✔ **Use organic garden products such as those that contain sulfur as a fungicide and insecticidal soaps containing pyrethrum, which comes from chrysanthemums.**

- ✔ **Pour boiling water on ant nests, or buy sticky strips (similar to flypaper) to capture them.**
- ✔ **Attract wildlife that feasts on pesky bugs.** For example, put in plants that attract birds and ladybugs, and fill a bird bath (change the water regularly to discourage mosquitoes). You can also use this *biocontrol* approach by purchasing beneficial insects such as ladybugs at garden centers and through the mail and releasing them in your garden.
- ✔ **When the soil is damp, use a digging tool to remove the whole roots of dandelions and other weeds; then fill in the hole, and sprinkle corn-gluten meal (available at garden centers) around it to suppress stray seeds.** Remove annual weeds with a hoe when they're small, and spread mulch around trees and shrubs to suffocate any remaining weeds.
- ✔ **Pick insects off plants using your finger and thumb, wash them off with a garden hose, or use organic insecticidal soaps (with care).**
- ✔ **Attract and trap slugs on the bottom of a piece of wood or in empty grapefruit shells or beer-filled plastic tubs.**
- ✔ **Shake bushes or branches vigorously to dislodge caterpillars onto a surface such as a plastic or canvas tarpaulin; then dispose of the caterpillars in the trash.**



One more-involved way to control pests in your yard is by using Integrated Pest Management (IPM) methods. Created by the U.S. Environmental Protection Agency, IPM involves taking the following actions:

- ✔ Monitoring and identifying the pests in your yard to determine what they are and whether their numbers present a problem
- ✔ Preventing pests from taking hold using methods such as plant rotation and pest-resistant plant varieties
- ✔ Dealing with pest outbreaks using the least risky type of pest control first

You can find more information on IPM and how to implement it in your yard at [www.epa.gov/pesticides/factsheets/ipm.htm](http://www.epa.gov/pesticides/factsheets/ipm.htm) and in Chapter 8.



If you have garden chemicals to dispose of, call your local waste management department to find out where you can take them to get rid of them safely.

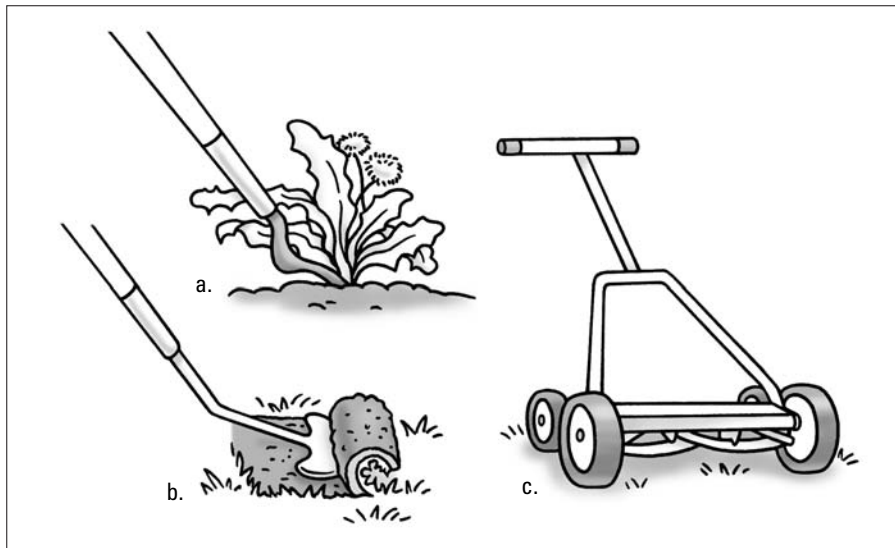
## *Replacing power tools with the manual kind*

A peek at the contents of the average garden shed reveals no laughing matter. Most tool sheds or garages harbor some of the least green garden products on the market; in addition to chemicals for killing weeds and pests, you're likely to find gas-powered lawn mowers and electric tools. Gasp!

Cut down the energy you use in the garden by replacing your power tools with manual alternatives (see Figure 7-3). Sure it involves more manual labor and elbow grease, but think of all the energy and pollution you're saving! You can also opt for cordless electric or solar-powered alternatives for items such as lawn mowers; they have the best of both worlds: reducing emissions and saving labor. You should find an increasing selection of cordless electric or solar-powered tools wherever conventional lawn mowers and other garden machines are sold. Table 7-2 offers suggestions.

<b>Table 7-2 Green and Non-Green Garden Tools</b>	
<i>Replace This . . .</i>	<i>With This . . .</i>
Electric or gas lawn mower	Push reel mower, also known as a hand mower
Electric lawn edger	Foot-powered lawn edger
Electric trimmer	Long-necked grass shears
Electric or gas chainsaw	Manual pocket chainsaw
Electric or gas leaf blower	Garden rake
Electric drill	Drill with rechargeable batteries

**Figure 7-3:** Handy hand tools include a dandelion digger (a), sod-remover (b), and push reel mower (c).





If your lawn is too large to tackle with a push reel mower, get a battery-powered mower that charges using solar power, or use green electricity, which is electricity that has been generated by renewable sources such as wind, solar, or hydro power (check out Chapter 3 for information on switching to a green energy supplier).



If you live in an area where livestock is allowed, replace your lawn mower with a couple of goats (yes, you read that right). The goats will keep the grass down, fertilize it, *and* give you milk!

When you start looking in garden centers and catalogs, you'll find tons of cool hand tools to try. Look for long-handled tools to give your back a break and knee pads or kneeling stools to ease the strain on these vulnerable joints. Sell or give away the electrical and gas-powered tools so that they're reused.



## Chapter 8

# Growing Your Own Food

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### *In This Chapter*

- ▶ Figuring out what edibles to plant and when
  - ▶ Growing food in containers or in plots of land
  - ▶ Sharing space in community gardens
- 

**E**ating locally grown food in season is the greenest way to eat because you get the freshest and therefore most vitamin-packed food. Eating locally also significantly reduces the resources needed to transport the food to you — and what could be more local than your own garden? It offers maximum convenience (it's right outside your door), reduces waste (you pick only what you need), and provides you with a nutrient boost (nutrients can disappear as fruits and vegetables age in stores).

If your food is organically produced, even better! You ingest fewer chemicals and help to protect the environment, too. Growing your own food using organic methods checks off all the green boxes — plus you have the satisfaction of having done it all yourself.

You can grow your own food just about anywhere as long as you have a bit of sun and a water supply. Even if you live in an apartment with only a windowsill, you'll find that herbs and small veggies, such as some lettuce varieties, can thrive. In this chapter, we cover food gardening from top to bottom. We help you figure out what to plant, where to plant it, and how to keep it organic and earth-friendly.

## *Planning Your Food Garden: Easy Crops for Everyone*

You can successfully nurture a wide range of fruits and vegetables in your own garden simply by matching your local growing conditions with the conditions that the plants like best. This task is easier than ever because many varieties have been developed specifically for differing climate conditions across the United States.



What's most important when you're deciding which fruits and vegetables to grow and how to grow them (whether in containers or garden plots) is that you plant the items that you and your family enjoy the most. Also, grow as wide a variety as possible to prevent family members from getting so tired of carrots or eggplants that they flee to the grocery store to find something — anything — different.

## *Taking your space and preferences into account*

When planning your food garden, you need to consider how much space you have, what your climate conditions are (including rainfall), and how much time you have to spend maintaining it. Keep in mind that most fruits and vegetables have the following essential needs:

- ✓ **Loose, well-drained, fertile soil:** Nutrient-rich soil that gives roots room to grow leads to larger, healthier plants.
- ✓ **Full sun:** Six to eight hours of sunlight daily helps plants grow more quickly.
- ✓ **Shelter from the wind:** Exposed locations allow wind to damage or dry out plants.
- ✓ **Consistent water source:** Water is critical for the optimal health, size, and juiciness of fruits and vegetables.
- ✓ **Protection from competitors:** Plants should be positioned away from nearby trees or hedges that would shade them or rob their root systems of moisture.

If you're dealing with a small space such as a patio or balcony (or even a windowsill), or if your yard is landscaped in a way that doesn't encourage a vegetable patch (such as with gravel and seating areas), consider gardening in containers. You can choose container sizes depending on the needs of your preferred plants (the planting instructions on seed packets or plant labels indicate how deep to plant the item and how large it's likely to grow). We talk more about container gardening later in this chapter, in the section "Creating big flavor in containers."



Plants with descriptions such as *bush*, *compact*, *space saver*, or *patio* indicate that they're specifically designed to grow in smaller spaces; tomatoes are a good example. Also look for plants that are designed to grow upwards, such as pole or runner beans, or that can be trained to grow up trellises, such as cucumbers, in order to save space.

In general, the easiest items to grow in any garden, including container gardens, include the following:



- ✓ All kinds of lettuce-type greens
- ✓ Beets
- ✓ Carrots
- ✓ Cucumbers
- ✓ Eggplant
- ✓ Green beans
- ✓ Herbs such as chives and mint
- ✓ Hot and sweet peppers
- ✓ Onions
- ✓ Peas
- ✓ Radishes
- ✓ Raspberries
- ✓ Strawberries
- ✓ Summer squash
- ✓ Tomatoes



Consider planting unusual varieties of fruits and vegetables — especially ones that you can't usually find in your supermarket — in your garden. For example, yellow tomatoes and blue-fleshed potatoes can be stunning additions to your dinner plate. Many of these are considered *heirloom* varieties, meaning that they were once common but have largely been replaced by more commercially viable types. Choosing heirloom seeds and plants helps to preserve the diversity of the vegetable and fruit gene pool.

Have some fun with your plantings, too, by planting fresh items that you need for your favorite meals together. For example, if you enjoy pasta dishes, you can plant common ingredients such as tomatoes, basil, and peppers together.

## Following the seasons

Gardening in the dry climate of Arizona is very different from gardening in the moist conditions of the Pacific Northwest. And then there's the issue of winter: In southern states, you can grow many plants year-round, whereas in more northern locations, you have to work around the issue of frosts, frozen ground, and mounds of snow. Understanding the way the climate and seasons work in your area can help you choose plant varieties that will thrive.

The best way to navigate your climate is with the U.S. Department of Agriculture's Hardiness Zone map, which you can see online at [www.usna.usda.gov/Hardzone/ushzmap.html](http://www.usna.usda.gov/Hardzone/ushzmap.html). It divides the nation into a series of zones labeled 1 through 11, with 1 being the coldest and 11 being the warmest.

*Perennial plants* are those that, when planted in one place, come back year after year on their own. Examples are fruit trees and rhubarb. Check out your zone on the Hardiness Zone map to be sure that you choose perennial plants that thrive in your zone. To help you out, perennials and their seed packets are usually labeled with their zones.



To artificially boost your garden or just parts of it into a warmer zone, look for *microclimates*, or areas of your property that are warmer than others. These include areas that are up against heat-radiating surfaces such as the house, a shed, or a wooden fence. You may be able to grow plants there that wouldn't thrive a few feet away in a more exposed spot.

*Annual plants* are those that you have to plant new each year as seeds or plants. When choosing annual fruits and vegetables for your garden, you need to know the following important dates, which mark the start and end of the *growing season*:

- ✓ **The average last frost of the spring:** Many seeds should be planted after this date.
- ✓ **The average first frost of the fall:** This frost will damage or kill tender plants and marks the end of the growing season.

Check the seed packet or plant label of the variety that you're interested in growing. As long as your growing season is long enough to let the vegetables mature, you can try growing it. It's also a good idea to talk to employees at your local garden center or nursery about the best kinds of plants to grow in the conditions you have.

## *Food Gardening Basics for Containers and Garden Plots*

Whether you're gardening in small containers or a large garden plot, paying attention to the basics of good soil, sun, and water will make all the difference to the success of your fruits and vegetables. In this section, we address the "where" of food gardening — containers and garden plots. Your decision about where to plant your fruits and vegetables may be determined by your available space or simply by the time and effort you're willing to put into your garden. The following sections cover both options.

You can find plenty of excellent fruit and vegetable gardening information in *Organic Gardening For Dummies* by Ann Whitman and the National Gardening Association and *Container Gardening For Dummies* by Bill Marken and the National Gardening Association (both from Wiley). The compendium *Gardening All-in-One For Dummies* is also full of great tips for planting and caring for your garden.

## *Creating big flavor in containers*

Even if you don't have space for a conventional garden, you can grow a surprising amount in containers such as pots and window boxes on a balcony, on windowsills, or even on a small concrete patio. Container gardening offers the advantages of fewer insects and weeds than a regularly planted garden, and it can be placed right outside your door or on your kitchen counter, so it's very handy. But containers do require more frequent care: Regular watering and fertilizing are very important because the plants don't get that stuff directly from the earth.

You can grow almost any plant in a container as long as the container is large enough to accommodate its root system. Tomatoes, peppers, and eggplants grow particularly well in containers, as do leafy greens such as lettuce and spinach, herbs, and fruits such as strawberries. Even if there's only enough space for a few herbs or salad leaves, that's a start. And it takes surprisingly little space to grow a few tomatoes.

Keep growing in a confined space simple by following these steps:

**1. Buy clay or terra-cotta pots, which are the most naturally made pots on the market.**

If your pots are locally made, they're even greener. Make sure that they're deep enough to allow adequate root growth (about 20 to 25 cm) and that they have holes in the bottom for water drainage. (Water that sits in the pot can create root rot, which is bad news for your plant.)

**2. Buy organically grown seeds or small plants, which are available from garden centers, nurseries, natural food stores, many hardware stores, and mail-order growers.**

**3. Plant the seeds or plants in prepackaged or homemade organic potting mix, which contains natural ingredients such as soil, plant mulch, compost, manure, and sand, until your own compost is ready to use (see the later section "Fertilizing naturally" for compost coverage).**

Line the bottom of the pot with broken pieces of terra cotta or small stones to encourage drainage while preventing the dirt from escaping through the drainage hole in the bottom of the pot. Then simply fill the pot with the potting mix, and plant the seeds or plants at the depth recommended on the seed or plant packaging.

**4. Place the pots in the best position to make the most of sunlight and rain.**

If your containers are inside, place them near windows for sunlight, but obviously don't worry about the rainfall.

As your tiny garden grows, use the following tips to keep it growing greenly:

- ✓ **Water as recommended on the seed package or plant label.** In general, when the soil begins drying out, add more water, but avoid soaking the seed or plant. Too much water can be as damaging as too little.
- ✓ **Feed your plants organic fertilizer that contains rock minerals and animal manure produced from sustainable farming methods.** You also can use the liquid from the bottom of a worm farm (see the later section “Letting a worm farm create compost for you”).
- ✓ **Use organically made insecticides such as those made from a mix of garlic, chilies, and dried *pyrethrum* (a plant of the daisy family).**



One of our favorite resources for container gardening information and supplies is [www.windowbox.com](http://www.windowbox.com). At this site, you can search advice articles for a particular issue, or if you don't see your question already answered, you can send an e-mail to receive an answer directly.

## *Planting your seedlings in Mother Earth*

A spare area of sod or bare earth in your yard has wonderful potential to be turned into a source of the freshest produce possible for you and your family. To get the most from your garden, spend some time planning your design (see Figure 8-1) and preparing the soil before you start to plant. Then, as seedlings turn into fruit- and vegetable-producing plants over the growing season, you'll gain not only food but also the benefits that come from spending time tending the garden: relaxation and a stronger connection to the earth.

Choose your garden size based on how much time you have to devote to it. It's often best to start with a small plot — 25 to 50 square feet, for example — and expand it gradually rather than overwhelming yourself at first with an area that you can't water and weed regularly.



If you want to be completely self-sufficient when it comes to fruits and vegetables, plan a plot that's between 600 and 2,400 square feet. A garden this size should produce enough food for a family of four for a year, as long as you're willing to devote time to canning, freezing, or otherwise preserving your harvest.

Prime your garden for best results using these steps:

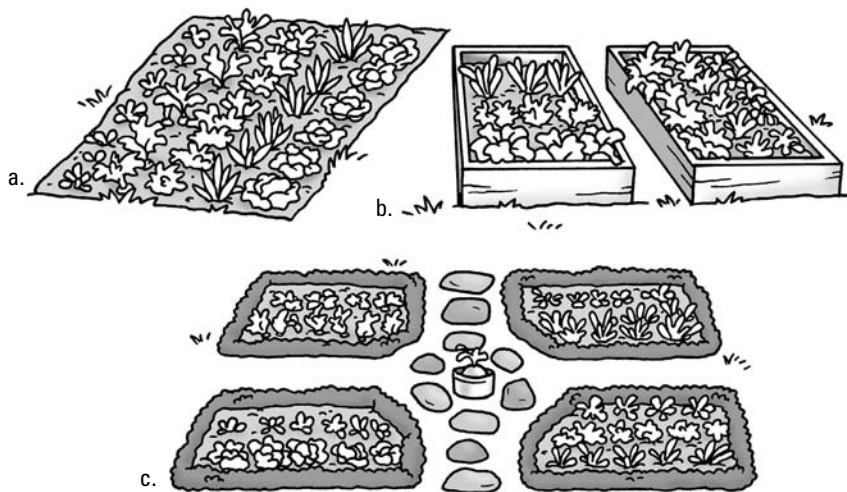
- 1. Decide whether you want to grow plants in raised beds.** These are beds that are built up generally about 8 to 12 inches high, filled with a mix of soil and compost, and surrounded by borders of wood, bricks, or even rocks to keep the soil in place (see Figure 8-1b). They should be no more than 5 feet long or wide to make it easy to reach into the center of the bed without stepping into the bed. The soil in raised beds warms faster in the spring; other benefits of raised beds are improved drainage and attractive design possibilities for the garden.



2. **Plan your garden to scale on graph paper to experiment with different layouts and to find the one that best utilizes your space.** Traditional vegetable gardens orient the plants in rows, but there's no reason why you can't do something different. You can lay out beds of any shape and group plants in a variety of ways as long as you allow sufficient room for each plant to grow. Consider orienting rows north–south to expose the plants to maximum sunshine, and plan to put taller or climbing plants against fences or at the garden's north end to avoid having them shade smaller plants.

If you have room in your garden, consider planting an extra row of produce for donation to a local food bank or other community organization. The Garden Writers Association has more information about its Plant a Row for the Hungry program at [www.gwaa.org/par](http://www.gwaa.org/par).

3. **Analyze your soil (buy testing kits from local garden centers) to find out what you're working with and whether it needs amending.** Pick up a handful of soil and squeeze: It should feel moist and stick together but should also be easy to crumble apart again. Sandy soil that doesn't stick together can be too dry and often drains too fast, so you need to add richness (compost, for example); clay sticks together too much because it often retains too much water, so you need to add drainage material (coarse sand and compost, for example). Consult your garden center for the best options.
4. **Dig the bed over, breaking up the compacted soil using a hand tiller or rototiller for large areas.** Remove rocks, and take out weeds by their roots.



**Figure 8-1:**

These sample produce garden layouts include (a) traditional, (b) raised bed, and (c) potager (grouped).



## Extending the growing season with a greenhouse

If you have the space, money, and time to build and maintain a greenhouse, you may want to consider doing so because a greenhouse can extend your growing season, allowing you to produce plants that would be too tender to grow outside in harsh weather. Many greenhouse models are now quite compact, and the use of plastic products instead of glass has brought prices down (although of course the trade-off there is that you may prefer to avoid plastic given its environmental impact).

A greenhouse protects your plants from both scorching and freezing weather in the following ways:

- ✓ **In summer**, the glass (or plastic) makes the interior temperature warmer so that plants that wouldn't thrive in the outside climate can flourish. You can take advantage of the heat to grow more exotic plants, fruits, and vegetables than you can grow in the garden. You may also be able to grow varieties that don't ordinarily suit your growing zone. If you live in an area with a
- short growing season that often limits your harvest of items such as strawberries and tomatoes, a greenhouse lets you get plants started early and finished late. And if it gets too hot inside the greenhouse, you can simply open vents or windows to cool things down (some greenhouses even have vents that operate automatically).
- ✓ **In winter**, especially in warmer parts of the country, a greenhouse lets you keep alive fragile plants that would otherwise die in the cold garden because it traps the warmth from the sun inside, thus moderating cooler overnight temperatures. Depending on where you live, you may be able to grow new young plants from seeds, seedlings, or bulbs in your greenhouse and then plant them out in the garden in the spring. By heating the greenhouse, you can grow a whole range of plants, but heating isn't very green given that it requires energy and produces carbon emissions.



Give your garden soil a head start for spring by digging over the bed and adding compost in the fall.

5. **Start seeds indoors about six weeks before planting time.** (In northern climates, time your planting for after the last frost danger.) Take planting and growing directions from seed packages, including thinning the seedlings so that the mature plants don't crowd each other.
6. **Sow or plant your garden according to the plan you created in Step 2.** To make the harvest manageable, especially if you're not canning or freezing, divide up your plantings and sow or plant in successive weeks so that produce doesn't ripen all at once.



Keep a journal from year to year tracking which plants grow well and how various factors such as weather and insects affect your garden.

7. **Water your garden regularly, and fertilize according to the plant's requirements.** When watering, it's best to use a soaker hose or irrigation system that gradually and consistently delivers water to root systems

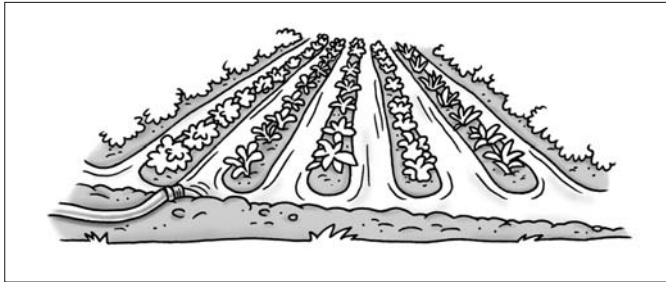
without wetting the plants' leaves, which can cause mold growth. You can see examples of irrigation systems in Figure 8-2 (which shows a furrow system in which plants are grown in slightly raised beds, allowing the water to flood the furrows between the beds and seep into the ground) and Figure 8-3 (which shows an irrigation pipe or soaker hose that puts water right at the plants' roots).

If your growing season is short, consider using *cold frames* to give your plants a chance to start growing before the season officially begins by protecting them from cool overnight temperatures. The frames work in a similar way to greenhouses except that they're a lot smaller. Cold frames are essentially boxes with glass tops that cover individual groups of plants (see Figure 8-4). The glass warms the plants underneath it when it's closed and can be propped open to prevent warming the plants too much on warmer days.

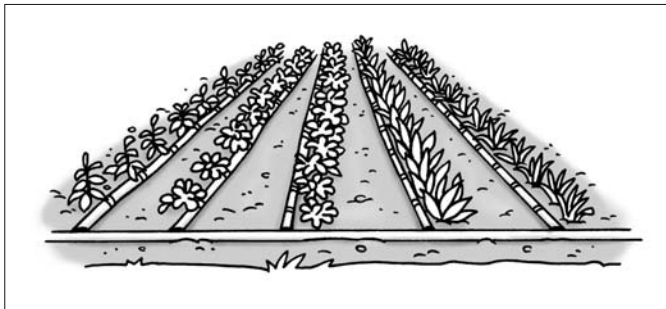


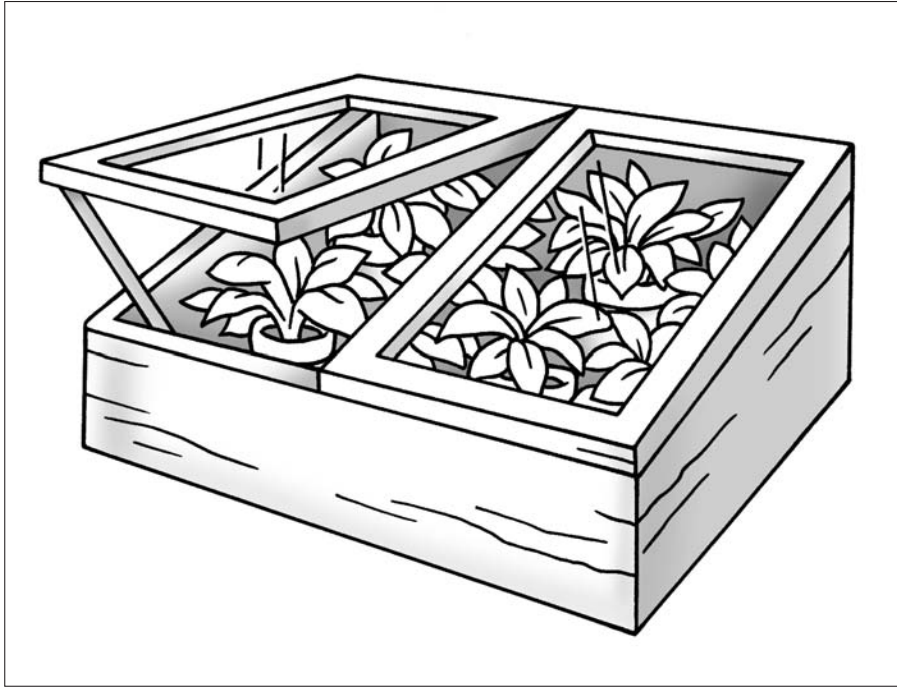
You can buy cold frames at garden centers and many hardware stores or make your own by fitting an old window pane or shower door over a basic wooden frame.

**Figure 8-2:**  
A furrow-based  
irrigation  
system.



**Figure 8-3:**  
A soaker  
hose or  
irrigation  
pipe system.





**Figure 8-4:**  
Cold frames  
are easy to  
either buy or  
make.

## *Putting the “Green” in Green Gardening: Incorporating Organic Principles*

Choosing to garden organically is a great way to help protect your health and that of the soil around you. It means that no chemical fertilizers or pesticides have been used to produce the fruits and vegetables that you’re eating. When you garden organically, you can be confident that the only growing boosts have been sunlight, water (preferably from water-conserving sources such as rain barrels), and possibly some organic fertilizer.

Organic growing is about more than what’s not in the food, however. The U.S. Department of Agriculture’s National Organic Program certifies as organic those foods that are produced without using synthetic chemical pesticides or that come from animals that haven’t been given antibiotics or growth hormones. However, the program also emphasizes using renewable resources and conserving soil and water to enhance environmental quality in the future. It’s also about building the health of the soil to feed the plants rather than simply feeding the plants. For more information on the National Organic Program, visit [www.ams.usda.gov/nop/indexIE.htm](http://www.ams.usda.gov/nop/indexIE.htm).



If you don't sell your produce as organic, you don't have to comply with the standards, of course, but the closer you can get to them, the more organic your home-produced food will be.



If your home's previous occupants used your garden to grow fruit and vegetables, it may contain a whole range of chemicals. It takes time to get those chemicals out of the soil so that your produce is organic — usually at least three years. To figure out where you're starting from, it's very important to obtain a soil test (contact your local agriculture extension office) to determine what your soil may be lacking. You can get more information on reclaiming your garden and making it organic from [www.vegetablegardeningguru.com](http://www.vegetablegardeningguru.com). Other helpful sites include the National Gardening Association at [www.garden.org](http://www.garden.org) and the American Horticultural Society at [www.ahs.org](http://www.ahs.org). Also talk to your local nursery or garden center staff about the types of plants and seeds you need for organic production.

Fruit and vegetable gardening is great for the environment in a number of ways, but it's even better if you employ organic gardening principles. This section guides you through those principles, touching on crop rotation to preserve soil integrity and nutrients, ways to use and even make your own natural fertilizer, and strategies for getting a hand from Mother Nature's creatures.

## *Rotating your crops*

Rotating annual crops, which means making sure that you don't grow the same produce in one area more than once every four years, helps to enrich the soil and prevent diseases and pests that attack specific plants from taking hold. Different crops take different nutrients from the soil (with the exception of legumes such as peas and beans, which add nutrients back to the soil), so rotating crops and leaving part of the land unplanted gives the soil time to recover and replenish depleted nutrients.



Crop rotation applies to annual plants only; perennial plants that come back every spring on their own shouldn't be rotated. (For more on growing annuals and perennials, refer to the earlier section "Following the seasons.")

Here's a simple way to rotate your crops:

- 1. Divide your garden into four beds (in a small space, divide your bed into four areas).**
- 2. Plant produce from the same family together in each bed.** Families include the following:
  - Alliums such as onions and shallots
  - Brassicas such as broccoli, cauliflowers, and cabbages
  - Crucifers such as turnips and radishes

- Cucurbits such as cucumbers, squashes, and melons
- Legumes such as peas and beans
- Mescluns such as arugula, Swiss chard, and endive
- Solanaceae such as tomatoes, peppers, and eggplant

**3. Rotate your crops so that whatever you plant in bed one in the first year goes in bed two the second year, bed three the third year, and bed four the fourth year.**



Don't plant potatoes near tomatoes or squash, beans near onions, broccoli near tomatoes, or carrots near dill because they actually interfere with the growth of the other plants.

## *Fertilizing naturally*

Fertilizer has long been used to provide plants with the nutrients they need, such as nitrogen, potassium, and phosphorus, to grow more quickly, which is of course a strong benefit when you're growing food crops. It's important, though, to keep the fertilizers natural in order to avoid introducing potentially harmful chemicals into the environment. Compost is one of the best fertilizers — and if you make it yourself, it's even free!

If your soil is a bit low on nutrients, you can add them using blood and bone meal (which is crushed or ground blood and bone); rock potash, compost, or liquid fertilizer from nature; seaweed or fish emulsion; or a wormery. Your local garden center or nursery can advise you about your soil type and how to enrich it.

Rely on natural fertilizers rather than artificial chemicals that can get into your food and into nearby streams. One of the most natural fertilizers is organic compost. *Compost* is decayed organic material that you use as a fertilizer for your garden soil and growing plants. It's made from anything that can rot naturally and break down with the help of the microscopic organisms that live in it; materials include leaves, grass cuttings, sheets of newspaper, wood chips, household waste such as fruit and vegetable scraps and coffee grounds, and straw-based manure. If you pile your organic material for composting into a heap in the garden or put it into a composting bin (which you can get from a garden center), it eventually decays and becomes brown and crumbly. When you dig it into your garden soil, it adds nutrients and makes the soil richer and easier to work with. If you don't have enough of your own compost to start, you can buy compost, preferably the organic variety if you're growing organic fruits and vegetables.

Whether homemade or store-bought, compost puts back into the soil some of the nutrients that plants take out. It helps your soil do a better job for the growing plants by

- ✓ Allowing the soil to hold moisture (which also means that you can do less watering)
- ✓ Stopping nutrients leaching out of the soil, which means plants get more of the nutrients they need
- ✓ Keeping the soil healthy and reducing the likelihood of soilborne disease



When fertilizing your garden, resist the temptation to use any materials based on peat. Peat can't be replanted and regrown quickly, so it's not considered sustainable. Ask your garden center for green alternatives or make your own compost.

### *Creating compost out of household waste*

Between one-third and half of all household waste can be turned into compost for use in the garden rather than put in the trash to end up in the landfill. Anything in your home that eventually decomposes can go into your compost, including banana skins, eggshells, paper and cardboard, vegetable peelings, and tea bags. Avoid tossing in meat, fish, newspapers, weeds, and cooked food, though, and make sure that no cat or dog waste, glossy magazines, or disposable diapers get into the mix.

The two key ingredients of compost are carbon (think of this as “brown”) and nitrogen (think of this as “green”). You can find the carbon in your household recycling bin in the form of paper and cardboard, for example, and you can find the nitrogen in your kitchen in the form of fruit and vegetable peelings. Add some grass cuttings, manure (farmyard animal or chicken manure with straw in it is best), and plants (which produce nitrogen) to the mix, and with a little time you have some great compost.



The key to good homemade compost is balancing the “brown” and “green” ingredients. Overdoing it with any one ingredient will oversupply some of the nutrients, which can sometimes do as much harm as good.



With proper food waste, chop everything into small pieces so that the composting process can work more quickly and effectively. The bigger the pieces are, the longer it takes for the material to break down into compost.

Put the whole lot into a composting bin (see Figure 8-5), which you can get from your local garden center, hardware store, or municipality; some towns and cities provide them for free or at a discount. If you want to forego the bin, devote an area of your garden to a composting heap that you can keep adding material to.



**Figure 8-5:**  
This popular  
model of  
composter  
keeps your  
compost  
pile out of  
sight.

*Photo courtesy of Yvonne Jeffery*

In order for the waste material to turn into compost, it needs air and water. Follow this advice:

- ✓ **Keep the compost moist to allow the thousands of bacteria and fungi to do their work.** If there's too much moisture, the heap will be fairly smelly; add dry ingredients such as grass clippings to correct it. If the heap is too dry, nothing will break down; add water to correct it.
- ✓ **Turn the compost over regularly with a garden fork to allow as much oxygen to enter as possible.** The more often you turn it, the quicker the compost will be ready. Adding sticks into the compost mix also can help facilitate air circulation in the compost.

As composting materials rot, they produce heat and micro-organisms that speed up the rotting process. Larger organisms such as flies, worms, and other insects will call your compost home and contribute to the rotting process as well.



Eventually, you get broken-down material that looks like dark earth. It can take up to a year for small-scale composting of household material to produce compost that you can use in the garden, but covering the compost heap with old carpet or using a compost bin keeps the heat in and speeds up the process.



If you live in an apartment and don't have anywhere to keep a compost bin, find out if there's a community composting project near you (your local government office should know) or if your town offers compost (cities that collect composting materials as part of recycling efforts sometimes make the finished compost available to local residents). You can even start your own indoor worm composting system (see the following section for instructions).

For more information on composting or to find answers to specific questions, visit [www.compostguide.com](http://www.compostguide.com). You also can find facts and advice on composting at [www.compostingcouncil.org/pdf/home\\_composting\\_faq.pdf](http://www.compostingcouncil.org/pdf/home_composting_faq.pdf), maintained by the U.S. Composting Council.

### *Letting a worm farm create compost for you*

Worm farms are an ideal way to deal with small amounts of household waste and are perfect for creating compost if you don't have much outside space. A *worm farm* is basically an aerated bin in which you combine worms, paper bedding, and compostable food and paper scraps. The worms munch the vegetable and fruit peelings, paper, and cardboard that you put in the top of the worm farm, and they process it through their digestive systems to come out the other end as worm castings — very effective compost.

Follow these steps to create your worm composting system:

**1. Buy a worm farm kit or box from your local municipality or garden center or from a supplier over the Internet.**

The farm often resembles a household plastic storage bin with holes punched in the top and a lid.

**2. Follow the kit's instructions to create a bed for the worms, usually from a mix of shredded newspaper, leaves, cardboard, dry grass, and straw.**

The bedding needs to be moist, but not wet. If it feels like a well-wrung sponge, it's right.

**3. Gather the necessary start-up material: red earthworms.**

Your kit probably comes with the worms; if not, buy them from a worm supplier, which you can find at garden centers and via the Internet. For a worm farm to work properly you need the right type of worms; most experts recommend red earthworms because the average garden worm isn't right for the job.

**4. Add food scraps to feed your worms every few days or as your kit's instructions indicate.**

Compostable material such as vegetable and fruit scraps, tea leaves, and coffee grounds are great worm food. Chop up the larger scraps to make the worms' job easier. Add the material to the bins (you usually need to bury it slightly in the bedding).

**5. Harvest your compost after three to six months.**

When you notice that the food and bedding has become quite a bit darker and you can see that it's being converted to compost, it's time to harvest. If you shine a light into the bin, the worms will move away from it, allowing you to scoop out the compost in the top layers. Many kits also provide a way to collect the liquid produced in the composting

process, which is known as *tea* and can be used as liquid fertilizer for plants. After the harvest, start your composting again by adding fresh bedding and food to the bin.



Always follow the instructions for your worm farm kit carefully.

You can find more information about worm composting, also known as *vermicomposting*, as well as links to purchase worm composting bins at [www.compostguide.com/composting\\_worms.html](http://www.compostguide.com/composting_worms.html).

## *Enlisting the evolutionary food chain to care for your crops*

You don't necessarily have to reach for a chemical pesticide to protect your fruits and vegetables from insects — especially because not every insect is actually a pest. Organic gardening avoids the use of chemical pesticides, so it's important to understand which insects and diseases can be damaging to the plant, how to prevent them, and how to safely deal with them if you see signs of trouble in the garden. This is known officially as *integrated pest management*, or IPM.

The most important pest prevention method is to keep your food garden healthy: Make sure that you're growing plants well-suited to local conditions (refer to the earlier section "Following the seasons"), watering sufficiently, and using natural fertilizers as recommended for your specific plants (refer to the earlier section "Fertilizing naturally").



Natural ways to repel pests and promote garden health include

- ✓ Planting strong-smelling plants such as onions, garlic, or marigolds in the vegetable patch
- ✓ Planting flowers in the vegetable patch to attract beneficial critters such as bees (which are pollinators) and birds (which eat insects)

If you spy a potential pest or disease on your beloved garden plants, use this IPM strategy to solve the problem:

### **1. Identify the insect or disease.**

Put a sample in a plastic bag, seal it firmly, and take it your local garden center for identification if you aren't able to find it online or in a gardening book or magazine.

### **2. Determine if the pest or disease is a threat to your plant.**

If you're not sure, monitor the situation to assess whether the problem is intensifying or spreading.

**3. Research natural alternatives for dealing with the specific problem.**

For more information on beneficial insects and ways to attract them to your garden, turn to Chapter 7.

**4. Select the least toxic of the alternatives, and implement it.**

**5. Evaluate the situation to determine whether the solution has worked. If it hasn't, try a different method.**

## Getting Involved with Community Gardens

If you don't have access to any space of your own but like the idea of gardening and growing some of your own food, consider joining a community gardening project or even setting up one in your area if one doesn't exist. A *community garden* is essentially any plot of land that a group of people garden together. Many are volunteer-run, perhaps located on land that belongs to a housing association, city council, church, school, or healthcare facility. There's often a team that manages the project, with people agreeing to contribute their time and energy to running the garden as well as growing the plants within it.

In general, you don't have to become part of the team that manages the community garden; you can simply participate in tending the garden if that's where your passion lies. Each garden runs by its own rules, however, so you may find that, in some cases, people sign up for specific duties, whereas in others, the team assigns workers weekly to keep the garden healthy. Part of the community garden team may include members who take responsibility for areas such as volunteer management, fundraising, obtaining plants, garden maintenance, and harvesting.

Many community gardens support a specific project, such as a nearby senior's facility, a family resource center, or a local food bank. If the garden isn't in support of a specific organization, the team or the volunteers as a whole may choose where the food goes in order to offer the community the most appropriate support.

In other situations, a community garden is simply a place where individual gardeners can rent a piece of a larger garden in order to grow their own food (see Figure 8-6). (Rents may be anywhere from \$10 per year and up; it depends entirely on the specific garden.) There's likely to be central facilities such as irrigation or at least water faucets, and you'll have to agree to abide by a set of rules that everyone follows. Some gardens may be organic, for example, or have specific opening hours.



**Figure 8-6:**  
A community garden often includes individual plots.

© Mark Bolton/Corbis



If there's no central compost in the community garden, set aside an area for a compost heap in your own plot, and use organic production methods to keep your area super-green.



Community gardens are sometimes abandoned simply because they're hard work and because they're not on everyone's doorstep — it's easier to skip gardening chores if you're not looking out the window everyday at what needs to be done. If you decide to get involved with a community garden, pick a regular gardening date (at least weekly) when you spend a few hours or less on your garden rather than trying to do all the work in one visit, catching up with chores and ending up exhausted with a sore back.

To find a community garden in your area or to find out how to set one up, visit the American Community Gardening Association's Web site at [www.communitygarden.org](http://www.communitygarden.org). You also can find local gardens by searching the Internet using the keywords "community garden" and your town or city.

## *Helping Your Harvest Last*

Particularly if you live in a climate where you have a distinct growing season, you may find that you also have a distinct harvest season. Set some time aside to bring in the fruits and vegetables that your garden has produced and to preserve them so that they'll contribute to your table for as long as possible.



Here are a few ideas for prolonging your harvest:

- ✔ **Preserving:** Turn berries and other fruit into jams and jellies, vegetables into pickles, and tomatoes into sauces — you get the idea! Store preserved foods in carefully sterilized and sealed glass jars to prevent spoilage.
- ✔ **Freezing:** If you have an energy-efficient chest freezer, you can freeze a lot of fruits and vegetables to enjoy throughout the year. To preserve color and freshness, you may need to *blanch* some vegetables first by plunging them into boiling water for a couple of minutes and then into cold water. You can even preserve items such as fruit pies by filling uncooked pastry with the fruit mixture and freezing the whole uncooked pie. Just thaw, bake, and serve!
- ✔ **Drying:** Some fruits and vegetables can be dried for use in cooking later on.
- ✔ **Cold storing:** Some foods, such as apples and potatoes, keep for weeks or even months if they're stored in a cool, dark place such as a basement.



You can find freezing and preserving tips and techniques in *Canning & Preserving For Dummies* by Karen Ward (Wiley). The National Center for Home Food Preservation ([www.uga.edu/nchfp](http://www.uga.edu/nchfp)) also has excellent background information.

If you find that you have extra food that you don't have time to preserve or room to store, offer it to friends, family, colleagues, and neighbors. They'll likely welcome the opportunity to enjoy items fresh from the garden. If they have their own gardens, you may even be able to trade a few crops with them; for example, perhaps they grew too much corn and you have extra beets — just swap.



Also consider donating your extra produce to a local food bank or community-based organization that prepares meals for those who need extra help. Phone the organization first to find out if they have any special needs.



## Chapter 9

# Raising Green Kids

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### *In This Chapter*

- ▶ Finding ways to make your nursery and baby's life green
  - ▶ Bringing up children in an eco-friendly home environment
  - ▶ Getting involved in making schools greener
  - ▶ Helping your child carry green practices into college
- 

**T**he earlier you encourage your children to become interested in green choices and issues, the more likely they are to carry that interest through the rest of their lives. With that kind of head start, imagine how much better off the planet will be when they're done with it!

Setting a great green example for your children is an excellent beginning. Then add fun green activities and get involved to encourage your children's schools to be as green as possible. What you do in your own home to live a greener lifestyle can translate to the school environment, and what your children learn at school can be put to good use at home — everyone benefits. This chapter shows you how to best instill green values in your youngsters as well as how to live greenly with a baby, who likely values only milk, mushy foods, and snuggling.

## *Greening Your Baby*

There's nothing like starting the green lifestyle immediately — even before your children arrive in the world. From the items you surround them with to the items you dress them in, you have plenty of opportunities to keep the materials as natural and organic as possible. You may want to encourage friends and family who may buy baby gifts for you to go green as well — providing hints about where they can find greener items can help. The increasing number of stores that carry environmentally friendly goods for babies is making this much easier.



Opting for the most organic and/or local food possible (including breastfeeding if possible) for your baby is not only environmentally friendly but also healthy. (You can find general information on eating green in Chapter 10.)

## *Equipping the green nursery*

When going green in the nursery, you can take a variety of approaches. Using natural and organic materials whenever possible is one way to reduce the amount of potentially harmful substances that your baby comes in contact with. Another way to focus on ecological protection is simply to reduce the number of items that you buy.

The list of baby paraphernalia, from clothing to furniture and everything in between, can appear endless at first, and if you're having your first child, it's difficult to know what you really need. Get recommendations from other parents: Find out what they used a lot and what they hardly used at all. For example, you may be able to forego a changing table in favor of a low dresser with a pad on top. Your child can keep the dresser and get more use out of it over the years than a changing table. It's important to stay true to your own lifestyle, however. If you love to jog and find that it's an excellent stress reliever, go ahead and invest in a good quality wheeled baby carrier that you can jog behind in comfort. (Look for one that's secondhand rather than buying new.) You'll be happier and healthier, which helps your baby to be happy and healthy.



Consider obtaining just these essentials before the baby is born, and add to your list gradually as you find out whether you really need other items:

- ✓ **Diapers:** See the later section “Choosing cloth versus disposable diapers.”
- ✓ **Clothing:** Look for comfy secondhand clothes in good condition, and forget about all the fancy outfits — they're more for you than the baby anyway.
- ✓ **Blankets:** Try baby sleeping bags, which are less fuss than blankets.
- ✓ **Personal baby care:** Many experts recommend plain old olive oil for use as baby skin lotion.
- ✓ **Car seats:** Because anchoring car seats properly is a major safety issue and could mean the difference between life and death for your child, relax your green rules here and buy an extra car seat if you have more than one vehicle in which the child will be riding (this includes grandparents' cars). Buy new car seats, or ensure that secondhand car seats are in excellent condition.
- ✓ **Crib:** Look for a crib that turns into a child's bed to reduce the amount of furniture you need to buy later on.

- ✔ **Toys:** Opt for secondhand toys, soft toys made from organic cotton, and wood toys with nontoxic paints. And keep the number of toys in check.
- ✔ **High chair:** This really does make feeding so much easier.
- ✔ **Baby buggy/stroller:** Look for one that does double duty, converting from a buggy for young babies to a stroller for older babies and toddlers.

For lots more information, [treehugger.com](http://treehugger.com) has a section on greening your baby; also, you can find lots of eco-friendly baby products at [ecobaby.com](http://ecobaby.com) and information on a green nursery at [www.thegreenguide.com/doc/119/greenroomtogrow](http://www.thegreenguide.com/doc/119/greenroomtogrow).

When choosing materials such as paint, furniture, and flooring for your nursery, be aware that many new materials that have a distinctive smell (like the scent that new cars often have) are actually *offgassing*, or releasing volatile organic chemicals into the air. These chemicals, also known as VOCs, include formaldehyde and toluene and have been linked with health effects that range from breathing passage irritation to cancer. It's best to try to avoid items with VOCs, especially plywood, particleboard, and upholstered furniture or mattresses that contain formaldehyde or PBDEs (polybrominated diphenyl ethers) as flame retardants; Ikea and Select Comfort are two companies that have said they're avoiding these substances in upholstery and mattresses. You also can decorate the nursery well before the baby arrives in order to let new materials offgas or keep new items outside or in the garage for a few days to let the worst of the gases dissipate (the items release significantly more gases when they're new).

Here are some strategies for choosing the most eco-friendly items for your nursery:

- ✔ **Décor:** Choose natural materials wherever possible, including flooring of solid wood, linoleum, bamboo, cork, or organic cotton or wool carpets; water-based finishes for hardwood floors; paint that contains low or no VOCs; wooden shutters instead of curtains; and soft furnishings made from natural, organic fabrics.
- ✔ **Furniture:** Select solid wood furniture with nontoxic finishes, and ensure that the item is durable. You may have to spend a little more on quality, well-constructed furniture, but the fact that it will hold up much longer than other offerings makes it worthwhile. Further lengthen the life of nursery furniture by selecting multipurpose furniture: a crib that can later become a bed, for example, or a changing table that incorporates a chest of drawers. Look for mattresses made from natural materials such as rubber and organic wool or cotton.
- ✔ **Clothing:** Natural fibers are great, but organic natural fibers are even better: Wool, cotton, hemp, and even bamboo if it comes from sustainable and chemical-free sources are all green options that are becoming more widely available in stores and online.

- ✔ **Baby care:** Look for products made from natural, organic, and fragrance-free ingredients. Avoid antibacterial products, and minimize chemical-impregnated items such as wipes — look for biodegradable, chlorine-free wipes, for example, from Seventh Generation and other eco-friendly companies, or use washcloths instead. (Because the issue of cloth versus disposable diapers is a bigger discussion, we devote the whole next section to it.)
- ✔ **Cleaners:** Avoid antibacterial and chemical cleaners. Instead use naturally based products, from household cleaners to laundry detergents. Stay away from chemical-based fabric softeners, too. More information about natural versus chemical cleaners appears in Chapter 5, but you can look for products such as Ecover, Method's Free & Clear line, Restore, and Seventh Generation for greener alternatives to conventional cleaning and laundry products.

## *Choosing cloth versus disposable diapers*

It's *the* big question for prospective parents: Will you use cloth diapers or disposable ones? Considering that the little tykes need approximately 6,000 of the absorbent necessities before they graduate to being toilet-trained, it's a big question and an important one. Is it better to go with disposable and add to the nation's waste or go with cloth and add to the energy output required to launder them (as well as the inconvenience of having to deal with the mess post-baby-cleanup)?

On the pro side of disposables, they're easy; on the con side, they take upwards of 500 years to decompose in landfills, and the 18 billion that get thrown out in the United States annually consume approximately 100,000 tons of plastic and 800,000 tons of tree pulp every year — not exactly the greenest products. Plus, there's the question of what's hidden within them, namely dioxin, a byproduct of bleaching the pulp, which has been linked to cancer, plus other chemicals and fragrances that can cause allergic reactions.

Enter cloth diapers, which have the major disadvantage that they're not convenient — you generally have to presoak the dirty diapers and then wash them in the washing machine (or at least rinse them and have a laundry service take care of washing them). This all means that you're handling dirty diapers several times instead of once (as with disposable). Odor also may be an issue, and the time involved to deal with the dirty diapers most definitely is something to think about, too. Removable, biodegradable, flushable liners for cloth diapers can make the worst of the waste much easier to dispose of — it gets flushed away with an environmental impact far less than that of a disposable diaper (which, of course, isn't flushable at all). (One option is gDiapers, cloth diapers that use plastic-free, flushable inserts for easier cleanup; visit [www.gdiapers.com](http://www.gdiapers.com) for details.) However, the mess involved with cloth diapers is an issue for many parents, especially when the child has a tummy bug.

## Finding secondhand treasures for babies and children

Considering how quickly babies grow out of clothes and furniture, it's both green and economical to look for good-quality secondhand items. You don't pay nearly as much for the items as you would if they were new, and you reuse them, which is one of the best ways to keep them out of the trash. Check out the following places for finding secondhand items:

- ✓ Garage sales
- ✓ Swap sessions
- ✓ Friends, family members, and coworkers whose children are older than yours
- ✓ Internet sites such as [www.freecycle.org](http://www.freecycle.org), [www.kijiji.com](http://www.kijiji.com), and [www.craigslist.org](http://www.craigslist.org)
- ✓ Newspaper classifieds, especially in free papers in your town or city

✓ Thrift and consignment stores

**Remember:** When buying secondhand items for your children, pay close attention to hygiene and safety issues. Check to ensure that the item hasn't been part of a recall (the manufacturer's Web site usually notes recalls, as does the Consumer Product Safety Commission at [www.cpsc.gov](http://www.cpsc.gov); you also can enter the product name into your favorite Internet search engine to find out how other people like the item). It's best to stick to clothing, newer non-electronic toys in good condition, books, movies, and sturdy furniture, and avoid potentially dangerous items such as mattresses, cribs, car seats, strollers, baby gates, baby walkers, jewelry (which may contain lead), playpens, and older electronics — all of which may not meet current child safety standards.

The advantage is that you can use cloth diapers again and again, and some studies indicate that cloth can help if your baby's prone to diaper rash. Other studies have shown that washing diapers takes about the equivalent amount of water as flushing a toilet five times a day for the same period (which may be less than you imagined it would take) and that even when you throw in the energy that your washing machine uses, cloth diapers have half the ecological footprint of disposables (even less if you use a laundry service). (See Chapter 1 for a discussion about ecological or environmental footprints.)

So . . . the ultimate in eco-friendliness where diaper duty is concerned appears to be cloth. The good news is that cloth diapers are much more parent-friendly than they used to be. Forget about pins: The new versions come with snaps or hook-and-loop tape for easy on and easy off. They also come in organic fabric options, including hemp, bamboo, and cotton, and you can choose organic wool covers that help protect the diaper against leaks, too.



Washing cloth diapers is one occasion when you shouldn't save energy by using a cold wash cycle. Hot water kills germs, which is especially important because the clean diapers go back on your baby. (It's no good being green if it negatively affects hygiene.) Presoak cloth diapers in hot water, and then wash in hot water with a cold rinse using detergent that's free of perfumes or dyes.

Don't use fabric softener, which can reduce absorbency and cause allergic reactions or irritation.



When it comes to diapers, you don't have to go all the way in either direction. In fact, some childcare providers don't allow cloth diapers, so you may have to compromise there. Or you could use cloth at home and save disposable for when you're out and about or for when your child has a digestive upset and you could really use the extra convenience. If you choose disposable diapers, opt for chlorine-free, biodegradable versions in order to be friendlier to the environment and your baby. And whether you use cloth or disposable, change diapers regularly to help prevent diaper rash, and dump the waste down the toilet before either laundering or throwing diapers out (this puts human waste where it should be, which is in the sewer system, not the landfill).

## *Getting friends and family onboard*

Raising children is an expensive and sometimes exhausting proposition, so any help when it comes to gifts or time is always welcome. Accepting those gifts can be difficult, however, if they come with an environmental price that you'd prefer not to pay. If you're much greener than your family and friends, gently let them know the best ways to help you.

It's essential to communicate your desires clearly but without being so strident that you alienate people. In some cases, setting an example may suffice; for example, wrap gifts in reusable fabric instead of in paper that's often thrown away. You also can try creating a green gift list that offers gift suggestions with enough detail to let people know what your concerns are, such as asking for organic-cotton cloth diapers.

Check out local and online stores to see if their gift registries (which are often welcomed by people who want to give useful, practical gifts) include green items. You can also approach this in the reverse: Find a supplier of green items, and ask if it offers a gift registry.



If you discover that stores with gift registries don't have green items or suppliers of green items don't have gift registries, it's time to draw up your own list complete with item descriptions, quantities, and stores (bricks-and-mortar or online) where items can be purchased. The Web site [www.mygiftlist.com](http://www.mygiftlist.com) helps to automate the process, providing a central place for people to see and interact with your list. You set up your MyGiftList gift registry to contain items you request from a variety of stores, and you can include Internet links for convenient purchasing. Essentially, it works like the typical gift registry except that it's not limited to one store.



Even if you don't entirely agree with family and friends when it comes to their practices or preferences, compromise is never a bad thing for keeping the peace and gaining a little much-needed respite. If using disposable diapers for an afternoon means having your mom come over for a few hours so that you



can go out for a quiet cup of coffee, then go for it. Maintaining your sanity, after all, is all-important.

## *Instilling Green Values at Home*

It has been our experience that children understand green issues — sometimes even better than adults do. Children's curiosity about the world gives them a natural empathy for the state of the environment, for the plight of the animals within it, and even for the situations faced by children in developing countries. When children feel that there's something they can do to help or to make a difference, they usually go to it with enthusiasm.

The most effective way to teach your children to live a green lifestyle — with care and consideration for the environment, animals, and people with whom they share the world — is to live that lifestyle yourself and become a life-size example. When kids see you picking up trash from the park even though you weren't the one who dropped it, they see value in keeping public places clean. When they see you volunteering your time for a worthy cause, they see that giving back to society is worthwhile and important.



From walking them to school to finding ways to reduce your family's trash, every choice that you make helps your children to make green choices, too. Involving them in the decision-making — in an age-appropriate way, of course — also helps them to learn how to continue making even bigger green decisions as they get older. After all, if they grow up green, a sustainable lifestyle will come naturally to them, allowing them to pass that along to their friends, colleagues, and eventually their own children. That creates a very positive, long-lasting ripple effect.

## *Starting kids young with green behaviors and activities*

Even young children can gain an appreciation for nature and what it takes to protect it. Head outside with them whenever you can and introduce them to the wonder that's the world, from grass to caterpillars to daisies. Help them to understand that the world is theirs to enjoy and protect; their desire to safeguard it will come naturally.



When you do something at home to make your life greener, explain the change and your reasons to your children, but don't force changes on them. Lead by example, and they'll likely adopt your plans far more quickly than if you were to force them into something.

Use these suggestions to introduce your children to green living:

- ✔ **Choose an active lifestyle.** Walk, bike, and play with your children regularly.
- ✔ **Opt for public transportation.** Use the car only when necessary; otherwise, demonstrate a commitment to public transportation by taking trains and buses with your children. (Chapter 13 looks into transport.)
- ✔ **Ask for their help.** Younger children in particular may be proud and happy to contribute to grown-up activities. Have them carry a small bucket of vegetable scraps from under the sink to the compost bin, for example, and have them help you dig out the resulting soil to put on garden beds. They can even help you sort your recycling if you handle the potentially sharp edges on cans and glass, leaving them with safer items. (Turn to Chapter 8 for composting information and Chapter 6 for recycling coverage.)

Older children may want to get involved with green activities such as cleaning up their neighborhood and organizing the household recycling because they've learned about environmental issues at school. If they're not enthusiastic, however, you may need to convince them by making it a family-time activity that you do together or by making their allowance partially conditional on their help with such projects around the house.

- ✔ **Introduce them to growers.** Take kids with you to places such as farmers' markets and farms where you pick items yourself so that they understand that food doesn't just come from supermarket shelves.
- ✔ **Consider introducing them to wildlife.** Petting farms for younger kids may help them to understand that there's a whole other world beyond their community and prevent farm animals from becoming something that they see only in books or on television. Although zoos are a contentious issue within the green community — many people believe that wild animals shouldn't be kept in any kind of enclosures — they offer a valuable educational and conservation lesson (many zoos are involved in breeding programs to help support the population of threatened or endangered species, for example). If you feel that going to a zoo will help your children understand the wider global environment, look for a zoo that's actively involved in conservation, is accredited through the American Zoo and Aquarium Association ([www.aza.org/FindZoo](http://www.aza.org/FindZoo) Aquarium), and provides its animals with as natural an environment as possible along with plenty of mental stimulation.
- ✔ **Create a family garden, and get the kids involved.** Gardens are places where the whole family can practice being green. Here are some specific gardening suggestions:
  - Put each person in charge of some green aspect of your outside space. Children will probably love the compost and the worm farm (see Chapter 8).
  - Provide everyone with an area in which to grow his or her own vegetables or flowers. People of all ages can get very competitive with each other when it comes to who can grow plants most successfully!



- Suggest that the kids count all the different species that come into your garden and announce each new arrival.
- If a family member can't or doesn't want to do any of the outdoor work, put him or her in charge of researching alternative green materials and native plants that would work in the garden.

Even if you don't have space for a garden, you can involve your kids in fun tasks such as planting window boxes and pots with herbs and salad leaves or sorting out kitchen waste for composting in a compost bin or worm farm.

- ✓ **Limit consumption.** Choose well-made, durable, quality toys over quantity (see the next section for more details about quality green toys). Talk to family and friends about not overwhelming children with too many gifts and about checking with you first if they're considering a big gift. Encourage kids to donate toys they no longer use to other children.
- ✓ **Encourage conservation.** Let kids know that resource-conserving habits such as switching off lights and turning off water when brushing their teeth are expected — and even rewarded.



You don't have to become a paragon of green overnight, and you shouldn't expect your children to either. Start with the things that are easiest to change and remember that every little bit helps. Add more changes gradually, and your family will soon be living greener without even realizing it!

## *Finding green toys*

Thanks to the growing green movement and the Internet, finding toys that fit the environmentally friendly lifestyle is much easier than it used to be. Although you don't want to cut off your children from tools such as electronics that can help them learn, it's a good idea to aim for a balance between screen-oriented playthings and those that boost their imagination, especially if the latter don't expose them to harmful materials.

When looking for green toys, keep these points in mind:

- ✓ **Choose natural materials.** Toys made from solid wood and nontoxic finishes are your best bet along with those made from natural, preferably organic, fabrics. Avoid soft plastics that contain PVC, which has been linked to health hazards. For babies and toddlers, you can choose stuffed toys that are made from organic cotton and puzzles and pull-along toys that are made from solid wood and nontoxic paints.
- ✓ **Free up energy.** Choose well-made, durable toys that will last for a long time. The fewer toys that you have to replace, the more energy you save in the processes that manufacture the toys in the first place, and the fewer toys end up in the landfill. Also look for toys that don't require batteries and toys that are driven by alternative energy, such as solar power.

(You can find solar-powered frogs, robots, and cars suitable for children aged about 5 through 10 at many toy stores and online at [fatbrain.toys.com](http://fatbrain.toys.com).)

- ✔ **Boost imagination.** Ensure that your children have access to unstructured play opportunities, whether outdoors or in. Science-based kits are great sources of inspiration and cover every subject from gardening to chemistry to arts and crafts, but even a collection of eco-friendly dress-up clothes (made from natural fabrics or secondhand items from friends and family) or a collection of building blocks, Legos, or a Meccano set (as age appropriate) can provide hours of imaginative fun. See the nearby sidebar on “The necessity of unstructured play” for more explanation and ideas.
- ✔ **Go local or Fairtrade.** Find out if local artisans or manufacturers produce toys near you, and support their businesses. Buying locally helps to reduce the energy costs associated with transporting toys to your local store. If you’re considering toys that were made elsewhere, research the manufacturer to find out who made them; look for toys that are certified under Fairtrade programs to ensure that those involved in the manufacturing process were treated well and paid fairly. Local, independent toy stores may carry Fairtrade toys; if not, check out [www.tenthousandvillages.com](http://www.tenthousandvillages.com), which offers a selection of toys including rattles, puzzles, mobiles, simple musical instruments, kites, and games, all of which are Fairtrade items.

## The necessity of unstructured play

An increasing number of child development experts and studies are sounding the alarm about children who spend too much time in front of televisions, computers, and screen-based games, no matter how educational their content. In fact, 270 professionals (including psychologists) based around the world wrote a letter in September 2007 to the *Daily Telegraph* newspaper in the United Kingdom stating that children need creative play time, on their own and with other children, for healthy development of empathy for others and problem-solving skills, for example.

The American Academy of Pediatrics ([www.aap.org/pressroom/playFINAL.pdf](http://www.aap.org/pressroom/playFINAL.pdf)) agrees, stating that play — which has been recognized by the United Nations High Commission for Human Rights as a right of every child — allows children to use their creativity while developing their imagination; dexterity; and physical, cognitive, and emotional strength. In particular, the academy noted that undirected play allows children to develop new skills and resilience, along with skills related to sharing, negotiating, and resolving conflicts.

## *Involving children in green choices*

Children like to be able to teach their parents a thing or two, so give them the chance to take the lead at home. Put them in charge of various aspects of your environmental policy at home, and they'll likely love the role. You can help them take this leadership position by involving them in decision making around the house.

Ask them to come up with energy-saving changes, for example. When they decide on their own that it's better to switch off the TV when they're not using it — and to switch it off by unplugging it from the wall or turning off the power strip — they're more likely to translate that into action. Depending on their ages, you may ask them to help you do the following things:

- ✓ Plan healthy, green family menus and then turn them into a shopping list.
- ✓ Find items around the house to reuse, such as turning computer paper printed on one side only into notebooks or scrap paper for art projects.
- ✓ Sort through their toys to find items that they'd like to donate to children in need in their community.
- ✓ Save money as a family to help a charity either at home or around the world; examples include donating to a local food bank or helping a community in Africa build a well to provide a reliable source of water.
- ✓ Set up bins and a composter to make it easy to organize recycling efforts (see Chapter 6).

## *Carrying on the lifestyle when school starts*

Green education starts before children even arrive at school when you choose eco-friendly transportation such as walking or carpooling to get to and from the classroom. In some cases, of course, it's necessary for children to take big yellow school buses to school; that's actually a very green way to go, too, despite the bus color. Another simple way to keep your child green at school is to load them up with green school supplies.

### *Walking to school*

If your children's schools are close enough to walk to, leave the car in the garage. Explain to your kids that when you take short journeys in the car, it doesn't have enough time to warm up to run most efficiently and so those journeys cause the most pollution. Walking is the greenest way to travel and does the least damage to the environment.

When you decide to walk your kids to school, don't forget to get up a bit earlier in the mornings or you'll end up stressed out by trying to get everyone ready and out of the house on time — and added stress isn't the aim of green living! Start out easy by walking on mild, dry mornings and driving when the weather's rainy or freezing. Gradually work up to walking even when the weather's not so good.



Children love to hang out with their friends, so consider joining forces with the friends' parents if they travel the same path to school as you and your children. This arrangement can give you adult company to chat with, or you can split the task of walking with the children to school. If enough children in your area head in the same direction to school, consider setting up a *walking bus* in which the children all walk together with a parent at the front as the “driver” and a parent at the back. The British Web site [www.walkingbus.com](http://www.walkingbus.com) has all sorts of information about the benefits of walking to school and how the walking bus works.



Walking isn't just green. It's good exercise and saves you money. You may even get your kids to school faster than if you were navigating busy streets in the car.

When your children are old enough and competent enough on bicycles, let them cycle to school. Consider enrolling them in a cycling proficiency class so that you both feel confident that they can handle themselves safely in traffic. Check with your children's schools, the local police department, or your town's parks and recreation organization to find out about safety course offerings.

### ***Setting up a carpool***

If you have to drive your children to school, you can cut down on the number of cars all going in the same direction each morning and afternoon by sharing the school run. Organize a group of parents to pick up the number of children that can safely be transported in the smallest car, and then take it in turns.

To set up a carpool effectively, first talk to parents you know, such as the ones you see when you drop off your kids or others in your neighborhood, to find out if their children's schedules match yours. Find out which days work best (or worst) for them, and create a schedule that works for everyone, distributing the driving responsibilities evenly. If the driving can't be shared equally, suggest that a small fee be paid to help out with the drivers' fuel and maintenance bills.



Carpools are easiest to manage if they involve only two to three families.

For safety reasons, it's essential that everyone involved in the carpool have full contact information for all the children's parents, along with the children's addresses, allergy notes, and any important health information. Parents should introduce their own children to the parents who are driving so that “stranger danger” strategies can be maintained.

Have a system in place to notify the day's driver if something happens to prevent a child from taking the carpool. For example, a phone tree in which each parent calls and passes along messages to another parent may work best in these situations. Also consider making up a schedule that can be e-mailed and printed out in order to keep everyone on track. Also agree ahead of time on rules, such as everyone wears their seatbelts, appropriate behavior while in the car, and no stopping while on the carpool run.



Not only does sharing the school run save fuel and reduce the carbon emissions caused by multiple cars, but it also saves everyone time and money. Carpooling also gives you more flexibility because you don't always have to be there to pick up your children after school.

### ***Stocking up on green school supplies***

When your kids head to school, their bags should be filled with as many green school supplies as possible. Look for solar-powered calculators to save on batteries, for example, and for post-consumer recycled paper content in printed products such as loose-leaf paper and notebooks. Glue, crayons, and markers should be nontoxic, and lunches should be packed in reusable containers rather than disposable plastic and paper bags. Rather than re-using plastic water bottles, which can leach chemicals into the liquid they contain, consider using stainless steel beverage containers such as a Klean Kanteens ([www.kleankanteen.com](http://www.kleankanteen.com)), which are not only lightweight but also child-friendly (you can purchase a sippy cup version of the Klean Kanteen for younger children).

Many office supply stores now stock green paper products along with Energy Star-certified computers (that is, models that consume the least possible amount of energy; see [www.energystar.gov](http://www.energystar.gov)). An Internet search for specific items will also turn up green suppliers such as [www.thegreenoffice.com](http://www.thegreenoffice.com) and [www.greenearthofficesupply.com](http://www.greenearthofficesupply.com) from whom you can order online.



Actions often speak louder than words. If you're involved with your child's classroom as a room parent, for example, who brings in snacks for the class, consider bringing green snacks (such as fruit and veggies with lower fat dips or homemade cookies or muffins from reduced fat recipes). As long as the food is yummy, the kids will enjoy it — and if the kids enjoy it and ask for more, you can send the recipes or ideas home with them in a classroom newsletter.

## ***Partnering with Your Child's School***

Green living is a hot topic in schools throughout the U.S. Many run green projects that get students involved, and many incorporate green issues as an integral part of social studies, science, and geography classes. But there's no national policy on whether and how to teach children about being green,

so what your children learn usually depends on the individual teacher, the principal, and the local school board. Getting involved at your children's schools — and setting a great example — can make a difference to how much your child learns at school about the environment. Keep in mind, though, that teaching green issues isn't all that's important; the safety and efficiency of the school itself is something to consider. From energy efficiency to building materials, the school plays an important role in creating a positive, comfortable, and safe place for your children to learn.

One very good way to help make your child's school greener is to become a part of the parent body that supports and helps to manage the school. Whether your child's educational institution has a Parent-Teacher Association (PTA), school council, or other parent committee, sign up and get involved. You can even volunteer to head up a "green" committee. If you're not one for committees, there are other ways to make your influence felt.

## *Raising awareness about green issues*

As a member of the PTA — or even as a concerned parent — you can help the environment by (tactfully) raising awareness about all kinds of green issues at your children's school.

### *Step 1: Assessing the school's green factor*

Chances are good that your children's school is already looking at environmentally friendly initiatives, so it's best to first find out what the situation is, and then consider how your efforts could contribute to the school's efforts. To determine where green policy gaps are and why they exist, first pay attention to what your kids tell you about school. You're likely to notice green topics coming up in homework for various subjects, and you may even hear about green activities such as tree planting or classroom recycling. Supporting these efforts is a great way to get involved, and you can extend your influence by finding out where gaps exist in the school's green policies or strategies.



If you have a good working relationship with your child's teacher, and you know that he or she is interested in green issues too, you may be able to sit down over a cup of tea or coffee and simply chat about the various issues. If, however, you don't think this will be useful (the teacher is too busy, for example), try requesting a meeting with the principal or vice-principal. The administrative assistants in the school's office will be able to tell you who's responsible for school infrastructure and programs — you may find that someone has already been assigned to manage environmental issues. In some cases, you'll probably want to talk to more than one person; school programs, for example, may be handled at the principal level, and the decisions about where to source cleaning supplies and building maintenance may be handled at the school district level.



To assess how environmentally aware your child's school is, seek answers to the following questions, keeping in mind that when you sit down with a school representative, it's best to keep the conversation focused on positives (for example, noting that you're trying to find out where parents can help provide solutions rather than taking an accusatory "the school's not doing enough" tone):

- ✔ **Energy sources:** How does the school obtain its heat and power: from carbon-based utility providers or from renewable sources such as solar or geothermal heat?
- ✔ **Energy efficiency:** Are programs in place to encourage staff and students to reduce energy use? Has the school initiated a building operation and maintenance policy that includes energy efficiency?
- ✔ **Sourcing:** When furnishing classrooms and buying everyday supplies, does the school have an environmentally friendly policy that ensures the purchase of healthy materials (avoiding particleboard, for example) and as much recycled content as possible (particularly in paper)? Are cleaning, art, and chemistry supplies environmentally friendly?
- ✔ **Waste reduction:** Are programs for reuse (for items such as paper) and recycling (for items such as newspapers, metal cans, glass, and plastics) in place?
- ✔ **Food:** Are healthy food choices such as vegetables and fruit more readily available to students than junk foods? Are cafeteria foods sourced from organic and/or local growers?
- ✔ **Classroom content:** Are green topics covered in social studies, English, second language, and math classes?
- ✔ **Outdoor spaces:** Do students and staff have access to pleasant, natural outdoor areas? Are outdoor areas maintained without the use of chemical fertilizers, pesticides, and herbicides?
- ✔ **Building health:** Does the school have a fragrance-free policy to help people who have allergies or asthma? Is the school checked on at least a semiannual basis for mold growth (which has been linked to health issues, especially respiratory illnesses)?
- ✔ **Transportation:** Do schools actively promote the safe and effective use of public transportation or busing systems if children can't walk to school?

### *Step 2: Proposing ideas*

After you gather information and insight from school leaders, you may decide to approach them with ideas for improvements. Start by suggesting ways to make things greener that won't cost the school much money or that parents and students can support through fundraising. Consider the following ideas:

- ✔ **Recycling initiatives:** Offer to provide recycling and composting bins, for example, along with presentations to students and teachers about how recycling works.

- **Paper:** Encourage the school to use recycled paper and to install a large recycling container for discarded paper, magazines, and cardboard. In more than 20 U.S. cities, the Abitibi Paper Retriever program ([www.paperretriever.com](http://www.paperretriever.com)) provides paper recycling facilities such as containers at schools and then rewards the schools with money toward fundraising programs based on the amount of paper recycled. If there isn't a Paper Retriever or similar program operating in your city, check [www.recycling-revolution.com/recycle-newspaper.html](http://www.recycling-revolution.com/recycle-newspaper.html) for tips about organizing a local newspaper recycling drive.
  - **Ink:** Ask your child's teacher or principal to set up a recycling program for printer cartridges or to give you permission to set one up (many schools would love to do this, but their personnel simply don't have the time to manage it). Several ink cartridge recycling programs operate as school fundraising programs, including [www.kartridgesforkidz.com](http://www.kartridgesforkidz.com) and [www.earthtonesolutions.com](http://www.earthtonesolutions.com). Refilling the cartridges also may be an option if the printer warranties allow this; many office supply stores offer this service for a nominal fee. The important thing is to make sure that the school doesn't just put ink cartridges in the trash when they run out.
  - **Food and compost containers:** If the school doesn't have recycling containers in the dining hall or cafeteria, talk to the principal about getting some for cans, bottles, and plastics. Waste food should be turned into compost, so you should ask about designating a container for that, too.
- ✔ **Energy efficiency improvements:** The Alliance to Save Energy says that schools spend more on energy than on computers and textbooks combined and that saving money on energy can free up funds for use in other school programs. The organization has launched a Green Schools Program that gets 5 to 15 schools in a district involved at a time, with a team of teachers, custodial staff, administrators, and students carrying out hands-on projects within the school to save energy through operations, maintenance, and behavior changes. You can find out where the project is operating or how to bring it to your district at [www.ase.org/section/program/greenschl/aboutgs](http://www.ase.org/section/program/greenschl/aboutgs). See the sidebar "Tips from the Green Schools Program" for more tips from the alliance.
- ✔ **Carpool Web site:** If you're handy with technology (or know someone who is — including students at the school), design a Web site that helps parents connect for carpooling. The site also can incorporate walking and bus route information and other public transportation tips if appropriate.

✔ **Green school lunches:** School lunches can be a controversial issue as the government worries about the rising levels of childhood obesity and schools worry about funding for meals. If you're concerned about the quality of food your child gets in the cafeteria, make a presentation to the principal and possibly the local school board in order to persuade them that the food should be as green as possible.

- **Step 1: Start by outlining the health issues involved.** Cutting down on fat and sugar content and boosting fresh fruit and vegetables, for example, can help children maintain healthy weight levels and boost their attention span and energy. Much seasonal food can be bought locally rather than imported, thereby promoting green living on a number of fronts. You can find evidence to support your case in Chapter 10, which addresses eating green.
- **Step 2: Take a look at current costs compared to the costs of supplying healthier options.** You may need to do quite a bit of research here, but your school's annual report or administration should be a good starting point for current costs and suppliers. Local catering companies operating healthy lunch programs in other schools may be able to help in terms of providing costing alternatives in your school.
- **Step 3: Offer ideas for additional funding if necessary.** If your school isn't already part of the National School Lunch Program ([www.healthyschoollunches.org](http://www.healthyschoollunches.org)), a federally assisted school lunch program that provides funding for schools that follow the U.S. Department of Agriculture's Dietary Guidelines for child nutrition, you can suggest that this may be a source of funding. The program is especially applicable if the school has a number of children who receive free or reduced-price lunches due to their family financial or other circumstances. Alternatively, consider fundraising efforts to cover additional costs, or suggest a vote by parents on the issue of raising fees to cover the costs.



School administrators have limited budgets to spend on school meals, so they may be resistant to changes that cost more money. One of the best resources to help you help the school to change is celebrity chef Jamie Oliver, specifically his Web site at [www.channel4.com/life/microsites/J/jamies\\_school\\_dinners](http://www.channel4.com/life/microsites/J/jamies_school_dinners). Although Oliver focuses on the United Kingdom and uses some terminology that may be unfamiliar (“school governors” instead of “school boards,” for example, and “head teachers” instead of “principals”), his campaign to get British schools serving healthy, greener school lunches (also known as “school dinners”) offers lots of background information about why this issue is important, along with detailed instructions on how you can get involved with change as a parent.

If the school can't go green in terms of food, suggest a vegetable garden on school grounds. If you can only make a change on the small, personal level, send your children to school with green packed lunches.

## Tips from the Green Schools Program

The Alliance to Save Energy ([www.ase.org/section/program/greenschl](http://www.ase.org/section/program/greenschl)) offers these ten excellent tips from their Green Schools Program to help you implement a school-wide energy efficiency program:

- 1. Identify a Green Schools “champion” who knows the school system well and can provide the vision and initial drive to get the program started.** The champion finds internal support for the program, identifies and convenes partners, promotes activities, and troubleshoots problems.
- 2. Establish a Green Schools team within the school building.** Involving students, teachers, principals, custodians, and even parents will enhance the program’s reach and effectiveness.
- 3. Build partnerships within your school and with local organizations and businesses.** These partnerships can be a great source of technical, educational, and financial resources.
- 4. Adapt the project to your school’s priorities and curriculum.** Making the program your own will help energy efficiency become a regular part of your school’s culture and will likely result in greater long-term savings.
- 5. Identify curriculum tie-ins.** There are many ways that the Green Schools program can support your school’s curriculum. It focuses on education through hands-on experience — key concepts tie in with science, math, social studies, and economics curricula.
- 6. Develop an agreement with the school district administration to return a percentage of savings to the individual schools that achieved them, to involve both facilities and instructional staff, and to establish their criteria for energy-efficient retrofits.**
- 7. Establish a strong link between energy and the environment.** Protection of the environment is a strong motivator. The project helps students and adults understand that more than 80 percent of pollution results from the production, consumption, and disposal of energy and that actions they take really do make a difference.
- 8. Establish a baseline of energy use, which makes it possible to measure the project’s success and to identify problem areas.** Local utilities may be willing to assist you in this effort.
- 9. Determine the need for retrofits.** Consider what new equipment and/or energy-efficient technology your school may need. Before recommending the purchase of new equipment, be sure to identify the criteria that decision makers need in order to invest in new equipment, such as payback period and legally mandated requirements. A good resource here is the U.S. Department of Energy’s Rebuild America Program ([www.eere.energy.gov/buildings/program\\_areas/rebuild.html](http://www.eere.energy.gov/buildings/program_areas/rebuild.html)), which offers technical resources to school districts.
- 10. Maintain high visibility for the program to encourage participation.** The program is most successful when the whole school and others in the district are involved. An effective strategy is to communicate plans and achievements with key stakeholders in the school community.

Encourage the school to register with an environmental program that provides information and tips for making the school a greener place, such as the Alliance to Save Energy’s Green Schools program at

[www.ase.org/section/program/greenschl](http://www.ase.org/section/program/greenschl). Oakley and Contra Costa County in California use the Environmental Action Program for Schools, [www.co.contra-costa.ca.us/depart/cd/recycle/eaps/index.htm](http://www.co.contra-costa.ca.us/depart/cd/recycle/eaps/index.htm); the information available at this Web site is specific to the California schools, but you can still use it as a general guide.



If you're concerned that environmental issues aren't talked about in classrooms, turn to the National Energy Education Development project ([www.need.org](http://www.need.org)). It provides a wealth of teaching aids for a range of grade levels about all kinds of energy subjects, from the types of fuel that can power vehicles to how solar energy can be harnessed in homes.

## *Initiating green projects*

Schools have a role to play in the wider community, leading by example when it comes to being environmentally conscious and friendly. The ultimate goal of greening schools is to get the children involved in projects that help build a greener community. If the school uses renewable energy, recycles, and composts food waste, it demonstrates green living in action to children, parents, and other people in the community.

The best projects are ones that everyone in the school, from the youngest and most academically minded to the oldest and most practically minded, can get interested and involved in. A range of projects is ideal in order to allow everyone the chance to play their part.



Green project ideas can come from the things you do at home or from looking at what other schools are doing. Check out the "Getting advice on green school buildings" sidebar for some examples, and browse the Internet for more suggestions. Don't forget to ask students for their ideas as well.

The kinds of projects being run around the country range from recycling and composting plans to worm farming and vegetable production for the school cafeteria. They also include mentoring schemes in which older students teach younger ones about the environment. The following sections focus on ways to make any school greener.

### *Digging the students' vegetable plot*

Suggest to the principal or teachers that spare land on school grounds be devoted to a vegetable plot. Students can grow organic vegetables (organic gardening is covered in Chapter 8) to use in the school cafeteria or to donate to local nonprofit organizations. In the process of planting, monitoring, and caring for an organic garden, students learn about organic production, local and seasonal food, and the link between the land and what ends up on their plates.



## Getting advice on green school buildings

School should be a healthy place for your children to be. Improving indoor air quality in schools can reduce sick days for both teachers and students and improve the energy efficiency of school systems. The U.S. Environmental Protection Agency, or EPA, offers an Indoor Air Quality “Tools for Schools” program that provides schools with a practical plan to improve the air inside their buildings. The suggestions require little or no cost, focusing instead on common-sense activities that in-house staff can carry out. Check out the program at [www.epa.gov/iaq/schools](http://www.epa.gov/iaq/schools).

Much of the information in Chapters 4 and 5 about how to build or renovate homes and how to live within them in a green way can be applied to schools, too. If your children’s school is building or renovating its facilities, the U.S. Green Building Council has a LEED (Leadership in Energy and Environmental Design) program just for schools. Along with energy efficiency and green building features, it also takes into account issues such as classroom acoustics, mold prevention, and environmental site assessment. You can find more information at [www.usgbc.org](http://www.usgbc.org). On the home page, click LEED, then LEED Rating Systems, and then Schools.

Schools around the U.S. are implementing these green changes and others in a variety of ways. Here are some examples:

- ✓ Sidwell Friends Middle School in Washington, D.C., is the U.S. Green Building Council’s first

LEED platinum-rated secondary school. It was built to be as sustainable as possible, using reclaimed wood, low-VOC materials, and renewable materials such as cork, gypsum, linoleum, bamboo, and wheatboard. The school also features photovoltaic roof panels, wetlands that recycle wastewater back to the school, a green roof, and maximum use of natural daylight.

- ✓ Students at Sonoji Sakai Intermediate School on Bainbridge Island, Washington, learn about their environment, which includes a stream used by spawning salmon, through lessons on water quality monitoring, stream health, sustainable site development, integrated pest management, and green building techniques. The school building design includes careful protection of the stream and surrounding wetlands.
- ✓ Outdoor sustainable practices at Desert Edge High School in Goodyear, Arizona, include drip irrigation and xeriscaping (low water-use gardening with plants suited to local growing conditions — see Chapter 7 for more information on xeriscaping). Indoors, the school uses motion and daylight sensors to reduce the time that lights are on, an Energy Star-certified roof, and an energy-efficient building envelope. The result is a school that’s 28 percent more efficient than conventional schools.

The school saves money if the food is used in the school cafeteria, and if the food is donated to local organizations, a relationship is established between the school and community leadership. Children and teachers benefit from getting exercise outdoors, and everyone is more likely to eat their veggies because they’re proud of having grown some themselves.

The Alvin S. Hatch Elementary School in Half Moon Bay, California, has created a Healthy Eating Active Living, or HEAL, program: Students work in the school garden, enjoying hands-on science, math, and social studies activities

that are linked to state academic standards. The project aims to improve the nutrition and health of children in the community, including providing increased fitness activities.

If funding is an issue, consider seeking sponsorship opportunities from the local community. Garden centers may be interested in providing tools, seeds, and expert advice, for example, or community organizations may be happy to provide funds for the purchase of fencing to go around the garden to protect it from rabbits and other wildlife eager to sample the produce.



You can find a lesson plan that teachers can use to help students plan and plant their vegetable garden at [www.wccusd.k12.ca.us/stc/2000les/garden.htm](http://www.wccusd.k12.ca.us/stc/2000les/garden.htm).

### *Visiting the local landfill site and recycling facility*

It may seem like a strange way to spend a day out, but taking children to a *landfill site*, which is basically a big hole in the ground, to see the reality of waste management can have a big impact on their habits. If children see how much waste is produced in their own small area and get a concept of how waste piles up in all the similar sites around the country, they're more likely to see why the U.S. can't go on managing its waste in that way.

While on a landfill field trip, do the following activities to get children involved and thinking about waste management:

- ✓ Ask them to identify things that could have been reused, repaired, or recycled.
- ✓ Explain how long it takes various items they see to decompose.
- ✓ Explain how toxic chemicals have to be prevented from getting into the ground and local water supplies during the decomposition process.
- ✓ Discuss the various other options for getting rid of and reducing the waste to a minimum in the first place.

From the landfill site, go to a local recycling facility if there's one in your area that's open to visitors, and show the children what happens to the items that are sorted and processed there. Being on-site gives children a much clearer picture, which they can then take home and discuss with parents and friends.

If local landfills don't allow visitors, or if your school's staff feel there are too many health and safety concerns, explore other field trip options, including

- ✓ Alternative technology centers if they're nearby, including power facilities generated by solar, hydro, geothermal, or wind energy
- ✓ Community composting schemes
- ✓ Community gardens
- ✓ Urban farms

Other green projects in your area also may be willing to help you educate students at your children's school. Inquire at your local municipality, and use your favorite Internet search engine to find other opportunities in your area.

### *Planting trees*

You can plant trees anywhere as long as the owner of the land doesn't object. If the school has no land of its own on which to grow these oxygen-producers and carbon dioxide-consumers, find somewhere else, such as a local park or playground, to plant a few trees for the children to monitor regularly as they grow. Planting trees is an important element of being carbon neutral, as we explain in Chapter 1.



Portable, slow-release irrigation bags for trees, such as the Tregator ([www.tregatordirect.com](http://www.tregatordirect.com)) shown in Figure 9-1, are useful in school applications where people may not be able to water young, tender trees as often as the trees need it. You simply fill the automatic watering system and then hide it under mulch or whatever material surrounds the tree base to help protect against theft.

People who fly are asked to plant trees or pay for trees to be planted so that they can absorb the carbon pumped into the atmosphere as a result of that aircraft's engine emissions. The same goes for other kinds of travel and for energy use around both home and school. You can attempt to make your whole lifestyle as close to carbon neutral as possible by planting trees or making financial contributions to other carbon offsetting schemes as explained in Chapter 1.



**Figure 9-1:**  
The  
Tregator  
tree-  
watering  
system.

*Photo courtesy of Spectrum Products, Inc. (Available at [www.tregator.com](http://www.tregator.com).)*



## Participating in green initiatives at the college level

Many universities and colleges now operate some kind of green project, either as research or as a community program involving local people and students. In addition, the Alliance to Save Energy offers a Green Campus Program that helps design and implement student-led campaigns to save

energy. The program also helps to build effective partnerships between student and staff for the sake of energy efficiency. You and your college student can find more information about this program at [www.ase.org/section/program/greencampus](http://www.ase.org/section/program/greencampus).

Explain the carbon offsetting principle to the children at school, and help them create a plan for getting involved in a program to offset the carbon emissions from some project or element of school life, for example, the carbon emissions from buses that took the kids on a recent field trip. If you link a particular event to the planting of the trees, the whole concept of carbon offsetting will be much easier for children to grasp.



Plant fast-growing trees to give the children the joy and benefit of seeing them grow. Talk to your local garden center about the best species to plant given your growing conditions.

### *Launching a green competition*

Friendly competitions give children incentives to work, and green projects are an ideal opportunity to provide a little extra incentive for extra effort. Prizes can come from you if you can afford them, or you may ask local green companies to donate either goods or funds for the prizes. In fact, it's best if the prizes contribute to green living, too.



Be very clear about what the prizes will be awarded for so that students who enter the competition know what's expected. The competition may be to find the students who come up with the best green project of the year or who write the best essays on a specific green issue, for example. You also could base a competition on fundraising for a charity or nonprofit organization; part of the educational bonus would be that the children choose the charity they want to help (each classroom could choose a different one, or the school as a whole could choose one or several that they want to help). Every aspect of the competition — including letting the kids and their parents know about it — should help to raise awareness about green living and green schools.

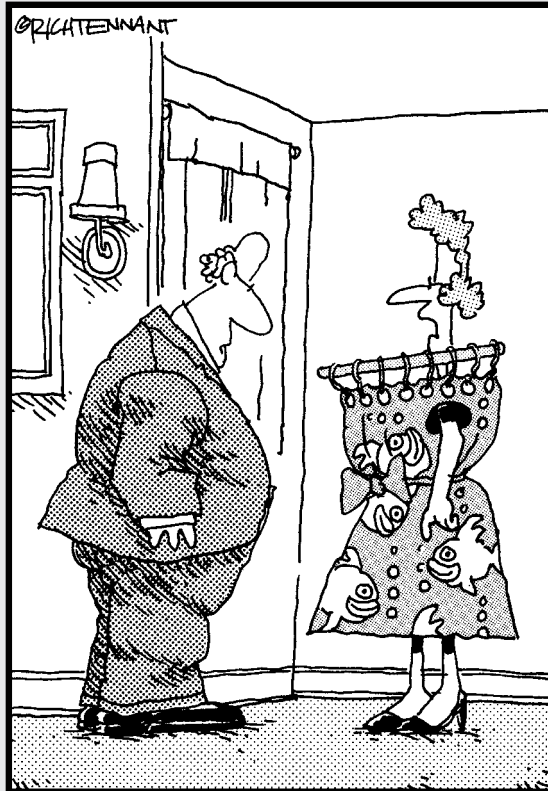


# Part III

## Spending and Investing Your Green (Money)

The 5<sup>th</sup> Wave

By Rich Tennant



"Maybe a shower curtain wasn't the best thing to try and make into an evening dress."

## *In this part . . .*

**Y**ou can only reduce the number of products you buy to a certain point, so this part helps you to choose the greenest possible options when shopping for food and clothes. We tell you how to consider where the products have come from, what's gone into them, and how they may affect you and the environment. We also cover the benefits of shopping locally and ethically.

This part also contains green tips for saving your money, whether you prefer a savings account or an investment product. We also help you give to charity in an informed and ethical manner.

## Chapter 10

# Making Great Green Diet Decisions

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### *In This Chapter*

- ▶ Being selective about where your food comes from
  - ▶ Defining organic, genetically modified, and Fairtrade food
  - ▶ Getting important info from food labels
- 

**C**hoosing what to eat is one of the most important and sometimes the most difficult green decisions you have to make because it's not just about the environment; it's also about your health. Luckily, the right thing for the planet may also be the right thing for your body.

Eating green means knowing where your food comes from, and that involves two issues: how the food was produced, and how it got to you (including what happened to it along the way). To be sure that your food is as green as possible, you need the answers to these questions. Some scientists advise that if you were to buy locally produced foodstuff — especially from within 12 miles of your home — you would do more for the environment than if you simply bought organic foods from farther afield. Most significantly, you'd save all the greenhouse gas emissions from the transportation of the foods from those distant places. So, if you follow the philosophy of shopping locally and eating organically if possible, you're well on the way to adopting a sustainable diet. The decision is far from simple, but both choices make your lifestyle greener than if you were buying nonorganic products not produced locally.

The packaging your food comes in is also a green issue. Even if the food is organically produced, if it travels any distance to get to you, it usually needs packaging to protect it. Whether that packaging is recyclable or not, it would be greener if the packaging weren't needed at all (which it often isn't for locally produced food) because it takes energy to produce the packaging and then to either recycle or dispose of it. This chapter is all about the food itself, but we discuss packaging in Chapter 6.

Many factors are important when it comes to making decisions about what you buy and eat. Of course, it's not always possible to eat local produce, especially in cold climates. Cost also may be an issue: Local and/or organic food can be more expensive than the alternatives that you find at grocery stores. It's possible, however, to make practical, reasonably priced decisions that improve your green eating habits.

## *The Most Popular Question: Is Vegetarianism Essential for Green Living?*

People become *vegetarians*, meaning that they don't eat meat, and even *vegans*, meaning that they eschew meat, dairy, and other animal byproducts, for health reasons, philosophical reasons, or both. When you ask people why they choose to be vegetarians, you often find that they're protesting against the meat industry's production methods. Others give up meat in favor of vegetarianism because they're alarmed by the health issues that we explain the "Explaining Organic" section, later in this chapter. Still others are concerned about the resources that go into the production of meat. Grain-feeding animals in a factory farm uses up a lot of resources — lots of power is used for lighting and machinery, and it takes a lot of water to flush away effluent. Even though many farmers keep their cattle and sheep out in the fields, their diets often are supplemented with grain at times when there's not enough grass.

Researchers now use the word *foodprint* to indicate the amount of land that various diets require to sustain them; the idea is linked closely with the idea of a person's ecological footprint (see Chapter 1 for information about calculating yours). The diet footprint is a handy way to visualize the environmental impact that your diet has; the bottom line is that a more sustainable diet requires less land per person. The popular notion is that a meat-free diet uses the least land per person and is thus the greenest, most sustainable way of eating. This is in part because animals consume feed grown on land that could otherwise be used to grow vegetable or fruit crops for humans.

However, researchers at Cornell University recently added a new twist to this argument when they explained that, depending on the specific type of land that surrounds you, a diet that contains a small amount of meat and dairy actually can be more efficient than a straight vegetarian diet. That's because vegetarian crops require higher quality land than the pasture land that animals need. So if your geographic area and climate offer more pasture land than crop land, it can be more efficient to eat a small amount of meat. (The Cornell researchers suggested an annual meat and egg intake that averaged out to approximately 2 cooked ounces per day.)



This argument over the greenest use of land for food, which is particularly applicable given the current emphasis on eating local food in order to reduce greenhouse gas emissions, demonstrates why green issues are rarely black and white and why one solution doesn't necessarily fit all situations. So if you lust for a lamb shank and pine for a pork chop, you can still pursue a green eating strategy. Meat can be, and is, produced in the same organic and sustainable way that many fruits and vegetables are farmed. You can cut down your impact on the planet's resources by reducing the amount of meat you eat and choosing green meat whenever possible.

## Choosing Your Food Source Wisely

Despite all the arguments about what food is best in terms of health, there's agreement from an environmental point of view that it's best to buy local food. At the heart of all the arguments for eating locally grown produce is the need to cut down on what have become known as *food miles*, the distance food travels from where it's produced to your plate. Transportation (by plane, truck, ship, or train) over what can be thousands of miles results in a lot of carbon emissions. It's estimated that the food eaten by Americans travels an average of 1,500 miles before it gets to the plate. In addition, food that travels a long distance and spends time in storage has fewer nutrients than locally produced food because the sooner you eat something after it's harvested, the more nutrients you get.

However, sometimes buying locally isn't an option, particularly when you're talking about foods that aren't grown in the U.S. Enter *Fairtrade*, a trade program that works to make sure that

- ✓ Producers in the developing world get fair prices for what they produce
- ✓ Producers have reasonable working conditions
- ✓ The processes used in the developing world are sustainable

Buying Fairtrade items raises the issue of how far the food has traveled to get to you. Is it "greener" to buy the Fairtrade item that may have been transported from the other side of the world but that supports the developing world, or the local item that isn't benefiting the developing world's economy but that contributed far fewer greenhouse gases to the atmosphere? There's room for both in a green lifestyle: Buy local when you can, and buy Fairtrade when you can't buy local.

### *Your best bet: Buying locally*

Food that flies thousands of miles to the U.S. from other countries is just part of the food miles problem. Even American produce can travel many hundreds

of miles before it gets to your plate. Retailers buy from producers and often transport the food over the road to big packaging plants, to huge storage facilities, to distribution centers, and finally to the stores from which you drive it home. To cut down on those miles, you have to buy locally rather than just buy items made in the U.S. The conundrum? The choice of food retailers is almost as great as the choice of food products.



If you have the time, energy, space, and desire, the greenest option is to grow some of your food yourself using organic methods. It's not only the most local food you can possibly get, but it also contributes to sustainability. You can find more information about what to grow and how to grow it in Chapter 8. Because it's unlikely that you have the time and resources to grow *all* your food, we discuss your options for retailers in this section.

### ***From locally owned and operated grocery stores***

Because of concerns for animal welfare, and because eating food produced using pesticides and other chemicals may cause health problems, the demand for organic food has increased to such an extent that big businesses are interested in its money-making potential. Most people have limited time to shop, so large grocery stores are the convenient option. They allow you to get everything under one roof and do a big shop every once in a while, reducing the miles you travel to get groceries.

Keep in mind, though, that many large grocery stores tend to treat food grown throughout the U.S. as if it's locally produced. Even if a cow starts its life in a farm just one mile away from you, the meat will travel to storage and distribution centers miles from home and will have traveled a large distance before it gets back to your grocery store. Big businesses have greater buying power than small competitors, but they also transport food farther to storage and distribution facilities, increasing factory and transport emissions and reducing the nutritional value of the stored food. Also take into account the impact that big business has on local business, particularly small, locally owned specialty grocery stores and farmers' markets.

It may sound like we're advising against large grocery stores, but what we're really doing is suggesting that you take a careful look at where you shop. If your local (and large) grocery store brings in as much local and organic produce as possible, then by all means, support it. But if it doesn't do that, look for other options. The larger stores' buying power may translate into lower food costs on the shelves, but do what you can — within your budget — to purchase more locally and/or organically produced food.

If you're unable to buy food from a farmers' market or directly from a local farmer (see the next two sections), head for smaller specialty stores and co-ops, many of which sell organic and/or local products.





Co-ops are exactly what they sound like: cooperative organizations in which people come together as members to take advantage of the buying power that results from being more than just one individual or one family. Members usually pool money in some way and thus become member-owners of the organization, with a say in how it runs and a share in dividends if there's money left over at the end of the year. Co-ops can be informal, such as when several families pool funds in order to buy from a co-op food warehouse, or they can be more formal with hundreds or even thousands of members. When it comes to food, many have a mandate to support local, organic, or natural food producers. You can find co-ops throughout the country through [www.coopdirectory.org](http://www.coopdirectory.org) and by entering "food co-op" in your favorite Internet search engine.

Some local shops or co-ops may sell only organically produced and labeled food; others combine organic food with health food, vitamin and mineral supplies, and other well-being and fitness-related products. These kinds of stores are popping up everywhere in cities and towns and are increasingly moving into many large shopping centers thanks to the demand for organic food products.

Wherever you shop, check with the store to see how local "local" is. While it's difficult to set a firm distance that experts consider local — some say 12 miles; some say 100; some say within your own watershed or climatic region — it's really up to you to decide what's practical given your geographic location. (If a label says "locally grown," it generally indicates something within 250 miles.) If you live in the northern part of the country, of course, it's very difficult to buy local agricultural products during the winter; in that case, "local" may mean produce grown within the U.S. in winter but produce grown much closer to home in summer.

### *At local farmers' markets*

Farmers' markets have increased in popularity in the last few years, with almost 4,400 operating in the U.S. That's great news for people who love to eat locally grown food and support local food growers and producers. Farmers' markets may be open one or two days a week during the growing season, or they may operate year-round. They cater to people who are interested in buying fresh, local, and sometimes organic produce. Some have even become destinations for visitors who are interested in learning about what's grown in the region.

At most farmers' markets, you're able to sample and buy local fruit and vegetables that are in season and talk to the growers about their produce — they're usually passionate about the subject — so that you know exactly what you're buying and eating. At many markets, you also find other locally produced food such as meats, cheeses, and jams and other preserves. You can find details of local farmers' markets at [www.ams.usda.gov/farmersmarkets/map.htm](http://www.ams.usda.gov/farmersmarkets/map.htm). If you don't find a market in your town or city listed

on the U.S. Department of Agriculture (USDA) Web site, inquire with [www.localharvest.org](http://www.localharvest.org) or enter “farmers’ market” and your geographical area into an Internet search engine.



Not all the produce at a farmers’ market is certified organic. Some growers use conventional growing methods, some may go through the certification process to convert to organic (see the later section “Explaining Organic”), and others simply may be keen vegetable gardeners with green fingers.

### *Straight from a local farm*

If you don’t have a local farmers’ market, you may be able to hook up with a farm not too far away from you that sells its produce straight from the farm or has its own farm store. Even if you live right in the middle of a city, you may find that farmers set up shop temporarily and sell produce straight off their own trucks. (Some farmers even deliver to established regular customers.)



Local Harvest ([www.localharvest.org](http://www.localharvest.org)) has lists of family farms and other sources of sustainably grown food; to find farms near you that sell to the public, you also can enter “farm shop” or “farm store” and your geographic area into an Internet search engine. In addition, many state government agricultural departments maintain lists of such farms.

The produce from a farm store may be somewhat more expensive because the farm doesn’t sell the volume of produce that allows it to cut prices. If you have to drive there and back, you also have to think about the fuel you’re using and the impact of your transportation on the environment. However, if you can combine a trip to the farm or farm store with other errands, you reduce your environmental impact.

Getting to know local farmers and shopping directly from farms has the added advantage of providing a fun day out for the whole family. Farms near your home may have pick-your-own operations that offer a variety of fruit and vegetables — often strawberries and raspberries, but the selection depends on the area, the climate, and the farmer.



If you pick your own fruit and vegetables, you know whether or not they’re organically grown and local, you don’t contribute to any damage to the environment from harvesting machinery, you don’t have a lot of waste from packaging, and you get the maximum possible nutrients from the produce because you can consume it right away (or at least very soon after picking). You also keep your children amused for a day and give them insight into where their food comes from and how it’s produced. Just don’t let them eat too many berries!

## Reducing water miles, too

Americans are drinking an ever-increasing amount of bottled water — some 27 gallons per person last year, in fact. The environmental resources involved in bottled water are staggering: Energy is required to produce the plastic bottles, tap the water source, fill the bottles, possibly add carbonation or flavoring, transport the bottles to the consumer, and finally dispose of or recycle the plastic bottles.

It's becoming clear that the water inside the bottles isn't necessarily healthier than the water coming out of your tap. You can reduce your water miles significantly by minimizing your purchase of bottled water and instead choosing a refillable and washable container that you can fill from the tap. If you're concerned about the taste or quality of tap water, consider installing a tap-mounted water filter or using a water filtration pitcher.

### *From food-delivery services*

Many cities are serviced by companies that deliver fresh fruit and vegetables from local growers, with some specializing in organic produce. Depending on the company, you may be able to sign up for weekly or occasional (on-demand) delivery and order exactly what you want so that you'll know what will arrive on your doorstep.

In the Seattle area, SPUD, or Small Potatoes Urban Delivery ([www.spud.com](http://www.spud.com)), offers a range of groceries delivered to your door with a promise that a fair price has been paid to growers and food producers. Door to Door Organics ([www.doortodoororganics.com](http://www.doortodoororganics.com)) offers organic food home deliveries in various communities in Colorado, Connecticut, Delaware, Pennsylvania, Maryland, New Jersey, New York, and West Virginia/Washington D.C.



To find a food delivery service in your area, run an Internet search for “food delivery service (*your town or city*).” You may want to add “organic” to the search terms.

## *The alternative option: Finding Fairtrade food*

The idea of Fairtrade is that more of the money you pay when you buy an item goes to the producers who then can pay their workers better and invest more in their businesses. It's a trading partnership that aims at sustainable development for excluded and disadvantaged producers.

## Examining the world food supply

The issue of what's happening with food around the world is part of the larger discussion of eating green. While famines often make news headlines, children in many developing nations face a more constant (and usually unreported) threat: undernourishment and malnutrition. But does this mean that the world isn't producing enough food to feed everyone? Not necessarily.

The Population Reference Bureau ([www.prb.org](http://www.prb.org)) reported in 2007 that malnutrition plays a role in the deaths of approximately 6 million young children a year, primarily in the developing world. That's 16,000 children a day.

The issue with food isn't that we can't currently produce enough to feed the world: According to the United Nations' World Food Programme (WFP),

there's plenty of food to go around. The problem is that the food isn't always grown where it's needed. Natural disasters, war, lack of infrastructure such as irrigation, overfarming practices that rob the land of its fertility, and poverty all can reduce how much food is available in specific areas. The result is an overabundance of food in some areas and a shortage in others.

Improving the green quotient of your food — buying local and organic — can help protect the environment and support producers near to you. To address issues on a global scale, you can support or get involved with nonprofit organizations that work in developing areas to improve the situation, such as the WFP ([www.wfp.org](http://www.wfp.org)).

In the U.S., you can find a range of goods with the Fairtrade logo on them, many of which are available at stores near you or via online shopping. There are approximately 300 on the list, including tea, coffee, chocolate, bananas, herbs and spices, flowers, cotton, and footballs, and the list is growing as the program extends its reach. You can even find coffee shops that distinguish themselves by selling only Fairtrade-certified coffee.

The Fairtrade label ensures that the products it appears on meet the Fairtrade standards. The goods usually cost a little more than equivalent non-Fairtrade goods, but the benefit is knowing that the producers have been treated fairly. The program aims to make sure that

- ✔ Producers are paid a fair price that covers their production and living costs so that they have some security, they have long-term contracts and therefore can plan ahead, and their businesses are sustainable.
- ✔ The extra money you pay goes toward other aspects of the producers' welfare, such as education.
- ✔ Producers and workers are allowed to join unions and other organizations that can protect their rights and ensure that they have fair working conditions.
- ✔ No child labor is used.
- ✔ Production methods are environmentally friendly and pesticide-free.

Find more information about Fairtrade on the Web site for Fairtrade Labelling Organizations International, an umbrella group that deals with a number of different certification programs around the world: [www.fairtrade.net](http://www.fairtrade.net).



When deciding whether or not to buy certain foods, consider the employment practices of the country of origin. If you want to live a truly green and ethical lifestyle, you'll avoid food from countries that exploit workers or have poor records on human rights. Do some research to determine what you want to buy and from where. Not everyone makes the same decisions, however, and you have to keep in mind that not buying produce from a particular country can affect the farmers, workers, and producers rather than the country's government.

## Explaining Organic

Although it's easy to focus on taste and convenience when you're thinking about getting supper on the table each night, a lot more goes into your food than meets the eye. If you ask many schoolchildren where bacon comes from, they're likely tell you "the grocery store." The process of breeding, rearing, feeding, and eventually killing pigs and other animals for food is something many of them know nothing about. And why should they? They live in towns and cities where they may never encounter anything related to farming. But if you want to know what you're eating, you need to know what kind of farming methods are used to get the meat you eat from the farmyard to your plate. Even a simple grilled cheese sandwich likely contains a lot more than wheat flour and milk. When eating green, you need to consider chemicals and additives along with factors such as how the chickens were raised and what went into the field of grain aside from the grain itself.

You may think it should be quite easy to explain exactly what is and isn't organic food. But it's not that straightforward. Hundreds of organizations around the world give certificates to say that products are organic, and each has slightly different criteria by which it makes its judgments.

In the U.S., farmers have to meet the USDA definition of organic through the National Organic Program. Basically, the program says that in growing crops and raising animals the organic way, natural substances are allowed and synthetic substances aren't. (There are a few exceptions, but they're clearly laid out within the program's regulations; for more information, check out [www.ams.usda.gov](http://www.ams.usda.gov).) More specifically, it means that

- ✓ Crops are grown without the use of most chemically based pesticides or petroleum- or sewage-based fertilizers.
- ✓ Animals are raised without antibiotics or growth hormones.
- ✓ Genetic engineering and ionizing radiation aren't allowed at any stage of the food creation process.

The fast pace of modern life leads to less cooking at home and more reliance on convenience foods that can be unwrapped and put straight into the oven or microwave. If you buy ready-made meals, you're less likely to know what's in them and where the ingredients came from than if you prepare a meal from scratch with fresh, raw ingredients.

It's interesting to compare the types of ingredients in an organically produced food compared to a nonorganic equivalent product. Peanut butter, for example, is a popular food and can be one of the most simply produced foods on the market.

- ✔ **Ingredients in organically produced peanut butter:** 100 percent organically grown peanuts, with salt added in some brands
- ✔ **Ingredients in nonorganically produced peanut butter:** 90 percent minimum imported and local peanuts, with many brands adding corn syrup, salt, sugar, and partially hydrogenated oils (which contain trans fats linked to heart health problems)

Although organic food is produced by greener methods and shouldn't contain pesticides and other substances that could potentially be bad for your health, it's important to note that scientists aren't in agreement about whether or not organic food is safer and more nutritious than its nonorganic equivalents. In fact, the USDA is careful to point out that the National Organic Program lets consumers know what is and isn't organic; it doesn't make any claims that organic produce is better or safer for you than nonorganic produce. What isn't disputed, however, is that conventional — and especially intensive — farming methods can be much more damaging to the environment than organic methods.

It's worth noting here that the words "organic" and "natural" are not interchangeable. Organic products have been created (or grown) using natural methods and ingredients and have not come into contact with chemicals. A product that says it's natural, however, means simply that it doesn't contain artificial ingredients — it doesn't mean that the production process has been organic. Green eating certainly means trying to avoid chemical additives that are often found in processed food, so natural products are "greener" than those that contain artificial ingredients — just keep in mind that they're not necessarily organic.



Green eating means that you may need to pay a little more to get better-quality foods and good levels of animal welfare. Organic food is generally still more expensive than conventional items, but prices are coming down as more organic producers break into the marketplace. The entrance of big grocery store chains into the organic food market as a result of increasing demand for organic food is driving the demand for more organic food supplies, and the stores can keep prices down because they have huge buying

power. Some organic foods aren't grown on a large scale, but if you think about the whole cost — such as the expense of cleaning up rivers because of agricultural pesticides leaking into them — and the welfare of the animals involved, you may decide that it's worth paying a little extra.

## *Avoiding chemicals and unnecessary medicines*

Organic farming is much friendlier for the earth and the local economy than mass production of products. Instead of using chemical-based fertilizers to create a high-yield soil, organic farming uses traditional methods of plowing the soil to break down soil compaction that can reduce water and air getting to the plants' roots, rotating the crops to prevent crop-specific diseases or pests from building up in the soil, and growing *cover crops* such as peas or clover that naturally add fertility to the soil in rotation with conventional crops.

Organic farming also emphasizes the use of physical, mechanical, or biological controls to handle weeds, insects, and plant diseases. You can pull weeds by hand or machine, for example, or introduce a beneficial insect to eat a harmful one (for example, ladybugs to eat aphids). The lack of chemicals also eliminates the risk that dangerous substances will run into nearby rivers, streams, and the water table below, affecting water quality. In turn, you're less likely to be eating any chemicals used to keep bugs at bay and the soil fertile.

When it comes to livestock, organic animals are fed only organic feed along with vitamins and minerals. Depending on the animal, there are specific rules about when and for how long the feed needs to be 100 percent organic.



Look for meats labeled *pasture-raised* or *grass-fed*, indicating that the animals were raised outdoors on pasture and that their diet consisted of grasses and hay. This diet is much more natural and environmentally supportive than grain-feeding. Some animals (especially chickens and pigs) are fed some grains to ensure that they get the nutrients they need, but the grains can be organically grown.

Growth hormones and antibiotics also are specifically banned in organic food products, although vaccines are allowed. Of course farmers are allowed — in fact, they're required — to give medication, including antibiotics, to animals that are sick to prevent suffering. However, food products that come from the animal involved may not be called "organic" if the animal has received a medication that's on the organic-prohibited list.

## *Letting nature govern production: Say no to genetic modification!*

*Genetically modified organisms* — also known as *genetically engineered organisms* — are living things whose genetic makeup (their DNA structure) has been changed by the addition of genes from another living thing. This tampering is done primarily to make plants and animals more beneficial to food production, both in terms of quantity and quality. Human intervention in this way, however, carries with it some major concerns that, for the green community, outweigh the pros.



Although cloning doesn't fit the definition of genetic modification (the DNA hasn't been added to but rather replicated), the use of cloned animals or their offspring — especially for animal products such as milk (the cloned animals themselves are currently too valuable to be used for meat) — in the food supply is something that the U.S. Food and Drug Administration (FDA) is assessing as this book goes to print. Although the FDA has stated that there's no scientific evidence to show that the meat or milk products, for example, are unsafe, groups opposing the approval point to research that indicates cloned animals may have some genetic abnormalities. It's not yet clear what effect, if any, those abnormalities may have if they enter the food chain.

### *The potential effects of genetic modification*

Depending on the type of genetic modification (GM), foods may taste better, last longer before spoiling, or contain certain types of nutrients or medicines. The primary benefit, though, is generally to food producers in terms of higher production capacities, increased disease or pest resistance, or increased herbicide resistance (which actually allows farmers to use more weed-killing herbicides). Crops, for example, can be genetically modified so that they resist insects, herbicides, and disease or so that they contain extra nutrients or even vaccines. Animals can be genetically modified to produce lower-fat meat, resist certain diseases, or create less waste.



One of the most common genetic changes to food products involves a gene that comes from a bacterium known as *Bt*. When this gene is added to plants such as corn or cotton, those plants begin to produce a protein that's toxic to insects that can otherwise prey on the crops.

Proponents of GM crops claim that nutritionally enhanced grain or rice crops could be used in developing countries to solve some of the issues of under-nourishment or malnutrition. GM crops also can be used to provide vaccines against diseases, which also would most benefit the developing world. Some scientists believe that, by boosting production efficiency, resource conservation, and nutrition, GM crops and animals could offer solutions to both world hunger and environmental degradation.



With all these potential benefits, you're probably wondering where the concern comes in. Scientists' biggest reservations lay in the unknown; genetic engineering is a relatively new concept (modern genetic engineering began with scientific discoveries in the 1950s through 1970s), so long-term consequences have yet to be determined. And given the amount of time generally needed to link cause and effect in the scientific world, you can safely assume that these consequences won't be identified in your lifetime — and perhaps not even that of your children or grandchildren.

Some short-term effects have been observed, however, including the potential for GM crops to “contaminate” non-GM crops when their seeds migrate over distances. Contamination means that GM seeds could begin growing in non-GM areas, meaning that the non-GM crops would no longer be considered free of GM material. The contaminated crops could no longer be considered non-GM, which is a huge issue especially for organic growers who — through no fault of their own — would suddenly be prevented from calling their crops organic. Other concerns include the potential for organisms, such as insects and viruses, to evolve and become more powerful and overcome the resistant GM animals and plants. Some scientists also are concerned that GM ingredients may cause toxic poisoning, allergic reactions, antibiotic resistance, and even cancer in humans. Research hasn't proven all the concerns, but there's enough evidence to warrant caution.

Health concerns aren't the only ones that have scientists troubled; the idea of manipulating living organisms at the DNA structural level raises serious ethical questions. This interference goes well beyond the ways in which humans have traditionally interfered (by cross-breeding, for example). Experience should have taught us that interfering with nature can create unforeseen results (such as when high-end predators like wolves were culled from the food chain, causing an overpopulation of deer that were then prone to starvation because there weren't enough food sources to sustain them). Genetic engineering goes well beyond that, however, by changing the fundamental building blocks of life: Researchers don't know how changing the genes of crops will affect wildlife that coexists with the crops, or how changing the genes of animals may affect them (possibly causing diseases or deformities and therefore suffering). If farmers introduce GM crops that have been designed to resist herbicides, for example, how will they be able to remove those crops if they later realize that the GM crops have unexpected and undesirable effects? Until we can answer these ethical questions, we need to err very much on the side of caution.

### ***Recognizing when food has been genetically modified***

Because of concerns about foods that contain genetically modified ingredients, GM food has become a major consumer concern in Europe, to the point where any foods that contain GM products as ingredients must be labeled as such. For the most part, consumers there avoid GM-labeled foods, so producers simply aren't growing crops or raising animals that have been genetically modified.

## The life and times of a factory-farm chicken

You only have to look at how chickens are treated on a factory farm to understand how viruses such as bird flu strains can evolve and spread quickly and why eating meat can introduce chemicals into your diet. That's not to mention the welfare issues related to treating animals with a significant lack of compassion. Here's some insight into how chickens live their lives on factory farms:

- ✔ Many hens born and raised on a factory farm can live their whole lives crammed inside cages next to other chickens, never seeing anything outside the cage in which they're housed.
- ✔ Most hens raised on a factory farm have never walked, never stretched their wings, never laid a nest, and never foraged for food.
- ✔ Because of their desire to move around, the hens can become aggressive and peck at the

other chickens around them, causing injury and disease. To avoid that, many hens' beaks are cut off when they're born.

- ✔ Chickens raised for meat (called *broilers*) spend relatively short lives in sheds with hundreds or even thousands of other birds. They're fed with growth hormones so that they grow quickly, which makes them predisposed to disease and physical abnormalities. Many of these birds die of heart attacks, dehydration, or starvation because they can't even stand or walk to feeders.

You can find more information about factory farming from the U.S. Animal Welfare Institute ([www.awionline.org](http://www.awionline.org)), which recently launched its Animal Welfare Approved certification program for family farms.

In the U.S., however, the issue hasn't captured consumers in the same way. GM crops are common in the U.S., and no labeling is required; in fact, it's believed that upwards of 70 percent of foods in U.S. supermarkets contain some element of genetic engineering. It's highly likely that you're eating GM ingredients in your food without even realizing it.

The best way to find out whether your food choices contain genetically engineered ingredients is to choose local options so that you can talk to the producers and find out from them exactly what went into the food. If you can't do that, then try talking to the managers or owners of local grocery stores — they may not be able to tell you about production methods, but the fact that you asked them may help to convince them that they should pay more attention to this issue.

If you can't buy the groceries you need from your community, try contacting food manufacturers directly. Their Web sites often contain information about production methods and a consumer telephone or e-mail hotline for questions. If companies aren't able to categorically deny that they use GM ingredients, chances are good that they use these products.

Some of the foods and ingredients currently subject to genetic modification for reasons such as increasing yield or pest resistance include

- ✔ **Soybeans:** Soy is one of the main sources of genetically modified ingredients in food and can be found in everything from chocolate to potato chips, margarine to mayonnaise, and biscuits to bread.
- ✔ **Canola:** Canola oil comes from certain types of canola plants. GM canola may be used for oils in making potato chips and animal feed.
- ✔ **Corn:** GM corn is used as cattle feed but also is used in all sorts of packaged food, such as breakfast cereal, bread, corn chips, and gravy mixes.
- ✔ **Wheat:** GM wheat has been developed, but its implementation in North America so far has been successfully opposed.
- ✔ **Milk:** Cows may be injected with a genetically engineered growth hormone to increase milk production.

## *For animals only: Freedom rules!*

Organic livestock farming takes into account both the health of the animals as well as their welfare. Factory farming concentrates many animals in a limited space, which can result in an overflow of animal waste on each farm and the need to use extra water and chemicals to assist in removing the waste. Additional chemical use can lead to chemicals leaching into the soil and the water table, and it can mean that the animals are less healthy and may often need to be treated with antibiotics and other medicines. Organically raised animals, however, must be *free-range*, which means they have access to the outdoors, including pasture. They aren't confined within buildings but may be kept in buildings temporarily for health or safety reasons.

The rules on what constitutes free range aren't always what green experts would wish; it covers a variety of conditions, from the birds being able to wander in a natural environment to the birds having access to a small outdoor enclosure that may not be very natural. It's a good idea to check with the producer if you can in order to find out what free range means in the context of a particular product.



Factory farming methods have evolved to meet the ever-growing demand for meat. The organic approach may be slower and less profitable — animals have room to move and so fewer animals can be produced from the same amount of land, for example — but it produces cleaner and healthier animals.



If you find it difficult to find organic meat, ask your local butcher to stock some organic and sustainable options; increased demand increases supply. The environment will be better off and your local butcher will have a guaranteed customer. You also can purchase food from animals that have been raised in a sustainable way through the Eat Well Guide at [www.eatwellguide.org](http://www.eatwellguide.org). The site has searchable listings of producers across the country.

## Fishing for sustainable varieties

Buying fish brings with it a whole range of ethical issues. The world's fish stocks are dwindling, which means that fishermen have to go farther afield into deeper waters to bring home their catch. Fishing in deeper waters means greater use of dragnets that catch endangered species as well as fish for the stores. Fish are taken from the sea younger, further depleting stocks because there are fewer breeding fish in the sea. Only 3 percent of the world's fish stocks are underexploited. At the same time, demand for fish is growing, doubling in the last 30 years alone.

One answer to the decrease in fish stocks has been to farm fish such as salmon. Intensive farming methods have resulted in the same sorts of problems faced in livestock farming, however. The use of chemicals, antibiotics, and disinfectants to protect the farmed fish from disease has led to worries about toxins and cancer-causing chemicals in the fish you eat, and there are concerns about escaping fish carrying contamination into wild fish stocks. All this comes at a time when nutritionists advise eating more cold-water fish species for the benefits of the heart-protecting omega-3 oils that they contain.

Various national and international quotas are in place that set the amount of fish that can be taken from the various fishing grounds by each country. These restrictions have done a lot to conserve fish stocks, but some fishermen cross into non-quota-controlled waters in order to meet demand, and many conservationists are concerned that current quotas aren't low enough.

When you go shopping for fish you need to think about

- ✔ **Whether the fish you're buying is from sustainable stock:** "Sustainable stock" means that the fish are replacing themselves at the

same rate as they're being fished. Cod, for example, used to live up to 40 years and grow up to 6 feet long, but now the stocks are so depleted that most of the fish caught are less than 2 years old and haven't bred replacement fish. People usually are advised not to buy cod in order to allow stocks to build up again.

- ✔ **What the fish's body may contain:** There's a major concern that many fish — including swordfish and Chilean sea bass — contain higher than healthy doses of substances such as mercury.
- ✔ **Whether the fish is farmed or wild:** Buying wild fish may contribute to overfishing, but the fish may be a healthier option than farmed. If you choose to buy farmed varieties, opt for farms that use sustainable and even organic practices. Wild Alaskan salmon usually are considered healthy and sustainably caught.
- ✔ **How the fish was caught:** Catching fish by line doesn't cause further damage to the marine environment, but net fishing can do a huge amount of environmental damage. For example, fishing for tuna with nets can and does kill dolphins. Fishing for shrimp often results in other unwanted species being caught and thrown back into the sea dead.

Buy fish from a store where the staff know how and where the fish were caught, where any farmed fish come from, and how they were farmed. Check out the fish facts from the Marine Conservation Society Web site at [www.fishonline.org](http://www.fishonline.org) or from the Marine Stewardship Council Web site at [www.msc.org](http://www.msc.org). Also keep on top of changing information about species that are threatened or potentially contaminated: Check [www.seafoodwatch.org](http://www.seafoodwatch.org) for the latest news.

## Applying Green Ideals When Shopping the Aisles: Reading Labels

Buying food can be confusing, particularly if you're trying to make healthy and sustainable choices. Reading the labels is important because in grocery stores, they're often the only source of information about the content of the food you buy. Food labels aren't perfect, but they do provide basic information about where the food comes from, what it contains, and what nutritional value it offers.

### *Finding food with good nutritional value and ethical production*

When buying a food product, find out if it has arrived on the shelf from a sustainable production process by checking out the following information on the label:



- ✓ **Ingredients list:** Understanding the ingredients and their nutrients gives you an excellent feel for the quality of your food. Heavily processed food is likely to have added salt to assist in preservation and taste and several chemicals for flavoring and coloring. Naturally prepared foods are usually low in added salt, sugar, and saturated fats.
- ✓ **Animals used:** Some animals and fish are protected species due to their near extinction from being over-farmed or culled or from habitat destruction. From a food point of view, you're most likely to run into threatened species of fish; you can find the latest news plus handy pocket shopping guides from [www.seafoodwatch.org](http://www.seafoodwatch.org). The site tells you the best choices for seafood, good alternatives if you can't find the best choices, and species that you should avoid.
- ✓ **Country of origin:** Somewhere on the label should be a note that says "Product of (*a country*).” Technically, this tells you the country the food comes from, which is helpful if you're not able to buy a product from local sources. The note on the label can tell you, for example, whether the product is from the U.S. or from Mexico; however, the reality is that this information sometimes can be misleading. It may indicate, for example, where the product was processed and packaged rather than where the original produce actually came from or where it traveled to during the processing. The nuances aren't apparent from the packaging, so you may have to check sources such as the manufacturer's Web site to find out where it processes its products.

## *Looking for organic and more on labels*

Organic food is much more plentiful than it used to be; demand for it continues to increase, so retailers are responding with a wider range of organic products at lower prices. Now most of the big food retailers sell organic fruit, vegetables, and meat as well as processed foods like bread and breakfast cereal and other foods. The USDA's National Organic Program has strict rules on what food manufacturers can and can't say regarding organic foods on food labels. Specifically, if a food label has the National Organic Program's seal on it (see Figure 10-1), the producer has been certified under the program. The specifics of the wording, however, are where the differences lie.

**Figure 10-1:**  
The USDA's seal confirms that a product is organic.



Here are the USDA's labeling terms, with explanations:

- ✔ **100 Percent Organic:** All ingredients in the product are organic.
- ✔ **Organic:** At least 95 percent of the product's ingredients are organic.
- ✔ **Made with Organic Ingredients:** At least 75 percent of the product's ingredients are organic.
- ✔ **Organic ingredients noted on the ingredients statement:** Less than 70 percent of the product's ingredients are organic, so the producer can only identify the actual organic ingredients within the ingredients listing on the product label.

Meat packaging has additional terminology that you should be aware of.

- ✔ **Natural:** Labels may refer to beef and lamb, in particular, as being produced naturally, but this only means that the meat may not have any artificial colors, artificial flavors, preservatives, or other artificial ingredients. Natural production doesn't necessarily mean that the animals led the life of Riley outside, gamboling in the fields.
- ✔ **Grass fed:** It's considered greener (and kinder) if cows are fed primarily on grass or hay rather than on grain because they can digest grass and hay more easily.

✔ **Free-range:** This means that chickens, for example, weren't confined to cages. There are different degrees of free-range, however — from true free-range where the chickens are allowed to wander in a fairly large space outside to more limited conditions where they may have only short periods outside in an area that's quite small. It may be difficult to tell exactly what free-range means when you see it on meat packaging, so if you're looking at a specific product, consider contacting its producer directly for clarification.



The next time you're in the produce aisle, check out the little label that's stuck on the fruit: You should see either a four- or a five-digit code on the label. A four-digit code means that the produce was produced conventionally (it's not organic). A five-digit code that starts with "9" indicates that it's organically grown, and a five-digit code that starts with "8" indicates that it's genetically engineered.



You can get more information on the regulations of food labeling from the FDA at [www.cfsan.fda.gov](http://www.cfsan.fda.gov).

Any food producer in the U.S. that wants to use the word "organic" in its labeling has to follow the National Organic Program, and any producer that's selling more than \$5,000 worth of organic food a year has to become certified under the program. In order to become certified, the land has to have been treated organically for at least three years, and an organic plan must be in place to explain production practices and substances. (It takes time to convert to organic farming mainly because it takes time for all the existing pesticides and fertilizers to disappear from the soil.) The producer then applies for certification, which involves an initial inspection and then annual inspections for as long as the producer wants to be part of the program. The program's inspectors can show up unannounced, and they can test the food for residues if they think that it may have been in contact with nonorganic substances.

## *Failsafe ways to buy locally when labels are unclear*

If you find no labels on particular foods, or if you find labels with little information — which can be the case in smaller stores and in the fruit and vegetable sections of bigger grocery stores — here are a few tips to help you make the greenest food choices:

✔ **Eat fruit and vegetables in season.** They're more likely to have been grown locally. Fruits and vegetables on the shelf that you know aren't in season are likely to have been imported or brought by road from the other end of the country.

- ✔ **Avoid exotic foods.** Some foods and ingredients, such as coffee and tea, likely can't be grown locally; the U.S. simply doesn't have the climate for them. Find out what grows near where you live by checking out local farmers' markets or by visiting the Web site of your state's department of agriculture, and make the most of it. You'll be supporting your local growers.
- ✔ **Look for local businesses.** Check out the companies close to you that produce, package, and transport things like bread, rice, milk, and so on. Buying those brands means that you're likely cutting down on the miles your food travels.

Food retailers say that customers want exotic foods from around the world, partly because people are traveling more widely and experiencing foods that they want to continue to enjoy even after they arrive home. Eating green isn't about sacrificing taste or variety or depriving yourself of a taste that you enjoy. If you're making greener choices most of the time, there's more than enough room for an occasional treat from afar.

If you try to buy local produce in order to cut down on the environmental impact of food traveling round the globe, you're likely to end up eating what's *in season*. And that's how people used to eat: lettuce in the summer and apples in the fall, for example. Quite apart from the environmental and health benefits of eating this way, there's the added pleasure of rediscovering particular foods each year. When the season is over, you can look forward to tasting something again next year instead of becoming used to it all year and taking it for granted.



Buying local produce may not be practical in areas that are especially hot or cold because there are times of the year when pretty much nothing grows. As always, you need to make compromises based on not just the greenest option but the greenest option that's available to you.

It's possible that local producers extend the growing seasons using different kinds of technology: artificial heating and lighting, for example, or growing under poly tunnels. While this isn't as perfectly green as in-season, outdoor growing, it can be done in a way that reduces the impact on the environment. Talk to the producers to find out how they manage their growing seasons.

## Eating greenly when out and about

When you go out for a meal, you have to depend on the chef when it comes to green principles. Many chefs, however, make a point of buying only truly local and/or organic produce. If you want to be sure of what you're getting, call the restaurant before you

make a reservation and ask about the ingredients used. Good restaurants are more than happy to answer your questions — and if more customers demand greener restaurant meals, chefs and managers will get the message.



## Chapter 11

# Wearing It Well

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### *In This Chapter*

- ▶ Understanding where and how your clothes are made
  - ▶ Finding the most ethically produced clothing
  - ▶ Giving new life to old clothes
  - ▶ Opting for natural materials
  - ▶ Keeping clothes in circulation
- 

**T**he only true ways to be greener when it comes to clothes is to buy fewer, better-quality items; to wear them for longer; and to repair and recycle them. Making a decision about what to buy is about weighing the pros and cons and deciding what's most important to you. By far, the best way to be green is to buy less! It also helps to make sure that what you do buy comes from naturally produced materials, such as organic cotton, that are grown without the use of pesticides and other chemicals that often contaminate water supplies in growing areas.

In this chapter, we give you a primer on the consequences of materialism in the clothing realm followed by specific advice on how you can help reverse that trend.

## *What It Means to Dress in Green*

Every season the shops fill up with new clothes. Winter coats, short and swinging last year, are dipping below the knee this year. Wedges and platform soles are so last year — this year's shoes are flat and bright. As the trends change, last season's must-have items suddenly lose their appeal. The magazines are full of the latest, hottest, most up-to-date fashions, and consumers feel the urge to keep up if they can.

This never-ending appetite for new clothes puts pressure on the textile industry to supply enough material to cater to the demand. The end result? Prices have fallen dramatically over the past decade, and clothes are now seen as disposable: Shoppers buy cheaper clothes more frequently and in

greater quantities and feel less allegiance to them when fashions change or when the clothes begin to lose their shape or wear out. As you can probably imagine, this pattern of purchasing and discarding has numerous consequences for the world and its people.

When choosing clothes, consider these three major green issues:

- ✓ **Impact on workers:** It's not exactly green or sustainable to buy clothes produced by people who earn very low wages, work in poor conditions, receive no benefits, and aren't allowed union representation. A greener solution is to support companies that treat their workers — whether they're employed in the United States or overseas — with fairness and respect. (See the nearby sidebar, "The high costs of cheap labor," for more info.)
- ✓ **Impact on the local economy:** Supporting local companies helps to create a thriving local and national economy.
- ✓ **Impact on the environment:** From commercial cotton grown using unsustainable, intensive farming practices to clothing that contains animal-based products or synthetic materials made from petrochemicals, the where and how of clothing manufacturing can have a significant negative impact on the environment. Check the labels as much as possible and if you're unsure go for the green, natural option such as organically produced cotton and wool.

So, what's the solution for the individual consumer? It may seem that you don't have much sway in the massive clothing industry, but, in fact, you do. One of the best ways to influence change is to start with your own shopping habits, which we tell you how to do throughout the sections that follow.

## *Acquiring Your Clothing from All the Green Places*

You can start making greener clothing decisions right away simply by finding out which clothing retailers support environmentally and socially conscious practices in the manufacture of their clothing. They may include retailers of new, organically sourced clothing that adhere to Fairtrade or anti-sweatshop policies, or retailers of used clothing.



The more packaging and plastic bags you bring home with your newly purchased clothes, the more of the world's resources you use up and the more waste you create. Buy clothes without packaging, and tote your own reusable shopping bag to stores.

## The high costs of cheap labor

The next time you're sorting through your closet, take a quick look at the labels on your clothes to find out where they came from (some may be even better traveled than you are!). Today, much of the clothing sold in the U.S. is imported from overseas — from countries such as Bangladesh, China, Fiji, India, Pakistan, Madagascar, Mexico, and Turkey. These countries often offer low labor costs, which in turn keep the manufacturing prices down and make it possible to sell the clothes for less in U.S. stores. The problem is that these countries often don't enforce the same labor standards as are found in the U.S. As a result, imported clothing items may have been made by people who are poorly paid and working in poor conditions; some may even be made with the help of child labor.

Even in the U.S., the situation isn't always ideal. Despite the Fair Labor Standards Act, some clothing factories operate outside the law, employing people in poor conditions and not paying them even the minimum wage. Many workers don't complain because they fear that they'll lose their jobs or because they don't have the right paperwork to allow them to stay and work legally in the U.S.

Using lower-paid labor in other countries or even in the U.S. seems so attractive to some manufacturers because it's a way to stay competitive. As a result, it's difficult for more-responsible manufacturers to compete in the industry, with the result that some have shut down completely or have moved their manufacturing processes overseas.

Some may argue that the cheaper clothes and shoes become, the more shoppers will buy, and the

more jobs will become available for people overseas who wouldn't have those jobs otherwise. And it's true that boycotting certain brands can put a firm out of business and leave workers high and dry. This is the reason many nonprofit organizations working in developing countries advise you not to boycott goods unless the workers themselves want a boycott.

It's a difficult situation without any easy answers, but you can start choosing a greener lifestyle for yourself by researching where your clothing is coming from and choosing manufacturers or retailers with policies that ensure fair treatment for workers — whether they're overseas or domestic. By doing so, you support positive social and ethical behavior rather than negative. You also can write letters to manufacturers whose policies aren't what you feel they should be, explaining why you're not buying their products.

Organizations working with suppliers and producers overseas to make sure that workers get as fair a deal as possible include provisions that

- ✔ Producers and workers are allowed to join unions and other organizations that can protect their rights and ensure that they have fair working conditions.
- ✔ Workers have fair wages and conditions that allow them to afford to feed their families.
- ✔ Child labor isn't used.
- ✔ Production methods are environmentally friendly and pesticide-free.

## *Buying new: Finding locally run, Fairtrade suppliers*

Before you head out to the mall, check out the track records of the stores that you like to shop at to find out where and how their clothes are made. If they're responsible manufacturers (or if they get their clothes from such

manufacturers), they're very likely to have space devoted to their efforts on their Web sites. You can also ask store staff or management about how the company's clothes were manufactured.

Organizations dedicated to fair working conditions for the garment industry around the world supply information on companies that follow good practices. If you're unhappy with your current clothing sources, start your search for responsible companies by visiting the following sites:

- ✔ **Clothes for a Change** ([www.organicconsumers.org/clothes/leaders.cfm](http://www.organicconsumers.org/clothes/leaders.cfm)): This organization asks clothing retailers and manufacturers to guarantee that they meet independently verified Fair Labor (non-sweatshop) standards.
- ✔ **Clean Clothes Campaign** ([www.cleanclothes.org/companies.htm](http://www.cleanclothes.org/companies.htm)): This organization aims to improve working conditions in the global garment industry, with particular attention paid to sports apparel manufacturers.
- ✔ **Fairtrade Labelling Organizations International** ([www.fairtrade.net](http://www.fairtrade.net)): This is an umbrella organization representing certified Fairtrade producers, including those who produce cotton, in Central and South America, Africa, and Asia.
- ✔ **International Fair Trade Association (IFTA)** ([catgen.com/ifat/EN](http://catgen.com/ifat/EN)): You can browse the online catalogs of Fairtrade producers around the world at this site, some of which offer clothing and accessory products such as jewelry.

If you want to know that the producers and workers who made your clothes were fairly treated, buy from manufacturers and retailers who offer guarantees that they've followed those provisions. You generally pay a bit more for Fairtrade goods, but you may feel it's money well spent.



You can find plenty of companies selling green clothes either online or in stores by typing "eco-fashion" or "organic clothes" into your favorite Internet search engine. Get started at the following sites:

- ✔ **American Apparel** ([www.americanapparel.net](http://www.americanapparel.net)) promotes itself as paying the highest wages in the U.S. garment industry as well as selling several sustainable edition lines made from organic cotton.
- ✔ **Ecomall** ([www.ecomall.com](http://www.ecomall.com)) is one of the most extensive directories of sustainable U.S. retailers. Click on Clothing to find a list of sustainable clothing choices.
- ✔ **Natural Collection** ([www.naturalcollection.com](http://www.naturalcollection.com)) offers an online catalog of ecologically considered products. The company's based in the United Kingdom but ships to the U.S.
- ✔ **The Organic Pages Online** ([www.theorganicpages.com](http://www.theorganicpages.com)) offers a list of Organic Trade Association members that manufacture and/or sell textile and apparel products.

## Avoiding counterfeit brands

If you think that the landscape of regular clothing manufacturing and materials is tricky to navigate, it's got nothing on the world of counterfeit products. These knock-offs that attempt to pass themselves off as the real thing — from purses to shoes to high-fashion clothes — are produced for the lowest possible price, which means that they're most vulnerable to being made in sweatshop conditions.

You're most likely to find counterfeit products in the market stalls when you're traveling overseas, but they're also available in the U.S., often in open-air

markets, from sidewalk vendors, and in independent bargain stores.

If you know that the price is well below what it should be and the source is questionable, the greenest decision is to keep on walking without making a purchase. Not only is the vendor stealing the intellectual property of the rightful label owner, but you have no way of knowing where or how the item was made — except for a good guess that it wasn't in a green, ethical, or sustainable way.

- ✓ **Patagonia** ([www.patagonia.com](http://www.patagonia.com)) is a global sports apparel company that offers organic cotton products as well as fleeces made from recycled plastics.
- ✓ **Terra Plana** ([www.terraplana.com](http://www.terraplana.com)) sells shoes made from vegetable-tanned leather. Based in the U.K., the company has U.S. representatives; click Contact Us for help finding retailers and making purchases.



Good clothes bought today will last long enough to be the vintage buys of the future. If you buy fewer better-quality items instead of many cheaper items, you help to reduce the amount of clothing produced in the long run. For more on vintage clothing, see the next section.

## *Buying used: Vintage and secondhand clothes*

One way to reduce the number of new clothes you cause to be manufactured is to buy clothes from the past. Lots of good-quality and barely worn clothes in secondhand, vintage, and nonprofit shops fit the bill for something different, and they're certainly better than buying new from an environmental point of view.

The great thing about becoming a vintage clothes convert is that it fits perfectly within the three Rs model of reducing, reusing, and recycling. Even though many vintage clothes may have been made from unsustainable materials, keeping these clothes in the supply-and-demand loop reduces the demand for manufacturers to supply a new stock of unsustainable clothes — and it keeps that groovy 1970s polyester shirt out of the landfill a while longer.



Raid the wardrobes of your older relatives (with their permission, of course). You may find all sorts of gems that no longer fit their owners but that you can remodel or alter to fit you — and they're free!

A quick search on the Internet shows a growing number of vintage clothes retailers operating online. Online or not, the only trouble with vintage clothes shopping is figuring out which retailers are selling authentic vintage clothes and which ones are selling clothes made to look like vintage clothes. Protect yourself by researching the style and age of clothing that you're interested in so that you're able to spot obvious fakes (plastic buttons before plastic was in wide use, for example, or fabrics that are inappropriate for the era). Start with nonprofit shops and markets and online auction sites such as [www.ebay.com](http://www.ebay.com). Enter "vintage fashion" into your favorite search engine and you'll find dozens of stores — some of which may be in your area. Then research the stores to check their reputations; don't be afraid to ask a business owner questions such as where the store sources its clothing.



When you go shopping for vintage clothes in bricks-and-mortar stores, take along clothing you want to get rid of. You may be able to arrange a trade-in or simply sell the items to the same store you buy from.

## Living in a Material World

Clothing labels tell you where clothes were made, but they also tell you what materials were used. The materials information can give you valuable clues as to how green the production process was likely to be. Look for natural fibers that come from plants and animals, such as cotton, hemp, and wool, and aim for those that are organically produced.



If you want to be as green as possible, avoid clothes that have synthetic materials in them, no matter how much of a bargain they may appear to be in the stores. Synthetic fabrics are produced using chemicals, including persistent environmental pollutants (such as fabrics with Teflon coating), and take a long time to break down in landfill sites. The most popular synthetic materials — nylon and polyester — are made from petrochemicals. Processing petrochemicals into small fibers uses a large amount of oil and energy and emits greenhouse gases. Manufacturing polyester also uses a large amount of water.

After years during which sustainable clothing materials were the territory of small, often hard-to-find specialty stores, their availability and accessibility is increasing. Purchase clothing made from the following materials:

- ✓ **Bamboo** is essentially a type of grass that grows very quickly, so it's one of the most renewable materials out there. One caveat, however, is that in some areas growers are replacing native vegetation with bamboo in order to meet the demand given bamboo's increasing popularity.

- ✔ **Hemp** is one of the greenest crops because it's resistant to pests and therefore doesn't need chemicals to maintain its quality. It's easy to grow in large quantities and enriches the soil when in the ground, both of which are big bonuses.
- ✔ **Linen** is made from flax, which is resistant to pests and grows more easily than cotton.
- ✔ **Organically grown cotton and wool** isn't genetically modified (in cotton's case), and its cultivation uses natural fertilizers and pesticides and traditional farming practices. (See the sidebar "Beware cotton and wool: Natural isn't always green!" for more on cotton and wool.)
- ✔ **Recycled materials** are a green choice for clothing material even though some chemicals and energy likely went into their production. For example, clothes and shoes for outdoor use (especially in wet weather) can be made using recycled polyester, rubber, and even car tires.
- ✔ **Silk** is made from the saliva produced by the larvae of several species of moth. (They're commonly called *silkworms*, but they're really caterpillars.) Larvae are a sustainable source of material, but it takes thousands of larvae to produce a silk tie, and some people prefer to avoid silk because it can't be produced without the death of a living creature.
- ✔ **Soy** isn't just for eating and for candles; it also creates soft, silk-like fabrics when the leftovers from oil or tofu processing are processed and spun into fiber.

If you want to buy alternatives to leather and fur (check out the sidebar "Animal-based products: To wear or not to wear"), you're in for a bit of a challenge. Cruelty-free and vegetarian clothing stores sell alternative products, but they're often made of vinyl, PVC, and other chemically produced materials that have major negative impacts on the environment, including using significant quantities of oil, water, and energy and producing high greenhouse gas emissions. The following companies, however, offer clothing and footwear products that are made from both environmentally and animal-friendly materials such as hemp, canvas, and microfiber synthetic leathers:

- ✔ **Moo Shoes:** [www.mooshoes.com](http://www.mooshoes.com)
- ✔ **Alternative Outfitters Vegan Boutique:** [www.alternativeoutfitters.com](http://www.alternativeoutfitters.com)
- ✔ **PETA (People for the Ethical Treatment of Animals) Mall:** [www.peta mall.com](http://www.peta mall.com)



Up to four barrels of oil can go into the manufacture of a fake fur jacket. So if you don't want to buy real fur, you may want to stay away from the fake stuff as well.

## Beware cotton and wool: Natural isn't always green!

Just because the two most popular natural fibers, cotton and wool, come from plants (cotton) and animals (wool) doesn't mean they're green. Like food, natural fibers are best when they come from an organic farming process, whether it's from a cotton field or from a sheep's back.

✓ **Cotton:** Cotton is one of the most natural fibers on earth but is also a crop that uses the most pesticides in order to protect the vulnerable plant from insects and fungus. Pesticides can create health problems for those who work on cotton farms, contaminate ground and surface water, and aren't good for the long-term health of the soil. The Pesticide Action Network North America ([www.panna.org](http://www.panna.org)) also suggests that pesticide residue stays in the cotton fabric after it has been manufactured.

Water is also an issue in the cotton manufacturing process: It takes hundreds of gallons of water to make a cotton T-shirt, and if you add in the dyes used and the amount of energy required to process raw cotton, it doesn't add up to a very green fabric. The manufacturing of most clothing materials involves the use of huge quantities of water, which can lead to problems for human populations in dry regions where water is in short supply.

✓ **Wool:** Wool obviously comes from sheep, which you may not associate with pesticides, but in fact chemicals are used to maintain the quality of wool. *Sheep dip*, the chemical concoction that sheep are dipped into to kill

parasites, contains organophosphates, which scientists have connected to excessive tiredness, headaches, poor concentration, and mood changes in humans exposed to it. Some scientists also believe that organophosphates could be linked to respiratory disease and possibly neurological issues in children. (And that's not to mention the effect on the sheep themselves.)

With regard to wool production, the animal welfare agency People for the Ethical Treatment of Animals (PETA) is also concerned about sheep being mistreated; the animals may be herded together in a factory farm-type situation in order to produce as much wool as possible in the shortest time possible.

Synthetic and chemical products are sometimes added to both cotton and wool clothing products, including color dyes and bleach. There's also an increasing number of poly-cotton products on the market that use chemicals; you may see them referred to as *permanent press*, *wrinkle-free*, *no ironing needed*, or *crease-resistant*.

Buy clothes made from organic cotton and wool, which are grown and processed without the use of toxic chemicals. To find them, check out the Organic Consumers Association at [www.organicconsumers.org](http://www.organicconsumers.org) and the Organic Trade Association at [www.ota.com](http://www.ota.com). You can also look for a label that says "Global Organic Textile Standard," which is an international standard for organic textiles; visit [www.global-standard.org](http://www.global-standard.org) for more information.



## Animal-based products: To wear or not to wear

Some people refuse to eat food produced from animals and extend that position to not wearing clothes made from animal products — including leather, fur, reptile skins, and even wool. The reasons cited for avoiding animal products include:

- ✔ Animal-based products involve the premature death or injury of an animal and therefore are inherently cruel.
- ✔ The global demand for some animal-based products is greater than supply, so animal populations can be threatened with disappearance in certain cases.
- ✔ Modern methods of manufacturing leather goods in factories use high levels of energy similar to other mass-produced products rather than the traditional methods that incorporate natural dyes and skins dried in the sun.

When it comes to choosing clothing materials, also check the label to find out whether the clothing is dry clean only. The U.S. EPA has linked one of the traditional chemicals used in dry cleaning (perchloroethylene, or PERC) to headaches, cancer, and environmental damage. It's best to avoid dry clean only products if you can. Otherwise, look for a dry cleaner that uses environmentally friendlier processes — and definitely not PERC.

## *Reusing and Recycling, Fashionwise*

After you purchase (or even make) your clothes, the basic principles of green living kick in: reuse, repair, reconstruct, and recycle. Don't throw anything out before you've gotten every ounce of wear out of it by fixing it, recreating it, and reusing it. When you've exhausted all possibilities, think about whether it's still fit for someone else to wear or whether it can be recycled, if not as clothing then as something else.

By following these green living principles throughout the life cycle of your clothes, you're doing the most important thing: reducing the amount of clothing you buy in the first place. And that, in turn, reduces the amount that has to be produced.

## *Encouraging your clothes to stick around for a while*

One of the most effective methods of reducing the demand for clothes is to keep all the items currently in people's closets in circulation much longer than usual. Whether it be by handing them on to other people or charities, trading them over the Internet, or keeping them for yourself, you can ensure that your clothes continue wearing on to reduce the demand for new supplies.

Try these tips for extending the life of your clothes:

- ✔ Wash clothes only when you need to, and opt for line or air drying rather than using a clothes dryer, which can shrink, stretch, or damage fabric (not to mention the electricity it guzzles!).
- ✔ Pay attention to labels that say to wash clothing inside out — it generally protects the fabric.
- ✔ Use cold water washes with detergent designed to work in cold water in order to help retain the shape and color of your clothes, especially those made from cotton.
- ✔ Pretreat stains immediately for best results.
- ✔ Refresh worn collars by carefully removing the collar, turning it around, and sewing it back on.
- ✔ Reconstruct your clothes. For those with a smidgen of crafty, sewing, or artistic talents, it's possible to take tired clothes and turn them into something unique and unforgettable. Some of the techniques are super-simple, like cutting off the sleeves of a T-shirt or converting long pants into capris or shorts (especially for kids who get holes in the knees) by cutting off the legs just above the knee and sewing a hem. You can take it much further by turning that questionable bridesmaid dress into a fashion statement and even salvaging stained clothes with artful patching. You can see some other ideas in Figures 11-1 and 11-2.

For more great reconstructing ideas and guidance on how to achieve them, look to *Reconstructing Clothes For Dummies* by Miranda Caroligne Burns (Wiley).

- ✔ Use patches either on top or behind holes in your clothes to extend the life of the garment. Sew-on patches are much more dependable and durable than iron-on patches, but either type gets the job done.



a.



b.

**Figure 11-1:**  
Reconstruct  
a sweater  
(a) by  
turning it  
into a wrap  
(b).



a.



b.

**Figure 11-2:**  
Turn old  
shorts into a  
potholder.

## *Disposing of clothing*

The last thing that you want to do with clothes that are no longer in fashion is to toss them in the trash for a quick trip to the landfill! If they don't yet look like rags, take them to a consignment clothing store. If the store accepts your items for resale, you get some of your money back along with the knowledge that your discarded clothing will go to a good home.



For select items of clothing, such as designer labels, kids clothing, or plus sizes, consider taken them to a specialty consignment store where you can get the best possible price.

If a consignment store won't take your clothing, find a nonprofit or charitable organizations that will. Gently worn office wear for women, for example, may be welcome at an organization that helps victims of domestic abuse get back on their feet and into the workforce. Kids' coats are often in demand in local clothing drives as cold weather approaches. Taking this targeted approach gives your clothes the best chance of being reused locally.

You also can donate clothing to a nonprofit or charity group that will resell or donate your clothes to those less fortunate. Drop-off points often are located in the parking lots of grocery stores and malls. The group sells or gives away what it can, but be aware that some items may end up being bought by private companies that give the designated charity a donation and then sell the clothes in developing countries.



The clothes that end up developing countries may be unsuitable for the climate or culture of the country, and they may affect the success of local textile industries in those countries. Ask your nonprofit of choice about what happens to the clothing that isn't resold or donated locally, and opt for one that keeps the clothes closer to home, if possible.

Last but not least, consider re-gifting clothing that you no longer want. Everyone's received at least one sweater that they wouldn't be seen in under any circumstances, but there may be someone you know who would like the items you don't (really!). Re-gifting is green because it reduces the amount you buy, which in turn decreases the demand for clothing production. It's still the thought that counts, however: Give the item to someone who you genuinely believe will like or appreciate it. And while you're at it, spare a thought for the person who gave you the gift in the first place; it's best not to re-gift their sweater to a mutual friend or family member.



If you simply can't use the item any longer and there's no life left in it, repurpose it. Use it as a cooking apron, cleaning cloth, cleaning rag, shoe polisher, or something similarly functional. Save any buttons, zippers, elastic, or trims for use in repairing other clothes. If you don't need extra rags and such around the house, and if the material was organically produced and the fabric wasn't dyed or treated with chemicals, it may be fodder for the compost pile, where it can recycle some nutrients back into the soil (see Chapter 8 for more on composting).



## Chapter 12

# Ethical Investments, Donations, and Banking Solutions

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### *In This Chapter*

- ▶ Turning to ethical bank account options and banking institutions
  - ▶ Making green investment choices
  - ▶ Being charitable in a green and ethical way
- 

Your money has power. If you pay for green and ethical products and services whenever possible, for example, you directly help to reduce greenhouse gases and support responsible businesses, and you indirectly bring green products within the financial reach of more people (thanks to the law of supply and demand).

Your money also makes a powerful statement when you choose what *not* to spend it on. By avoiding not-so-green products and services, for instance, and especially by letting the businesses that sell them know why you're not buying them, you (and others who do the same) may force those companies to change their practices. Although you can never bank on changing a company's ways, remember that sellers adapt to the changing marketplace, of which you are a part.

The same principles apply to your banking, savings, and investment accounts. As more people choose green or ethical financial products, they send a message to the entire industry that these products are important and that there's a growing number of options, from banks that are conscious of their supplies or work environments to credit cards that offer carbon offsets to mutual funds that invest only in companies or organizations that fit specific socially responsible criteria.

## *Choosing a Green Home for Your Cash*

There are two elements that you can consider when it comes to green homes for your money: accounts and institutions. It's important to remember that when you deposit money into an account, the money doesn't sit in your account in your financial institution. Instead, the institution lends out the money to other people and businesses or places it into investments that will be profitable for the financial institution. In other words, it puts your money to work, returning some of the profit to you in the form of interest and using the rest of the profit to help fund its operations.

A financial institution that's concerned with the environment and with social issues such as poverty or homelessness places a strong emphasis on lending or investing funds in ways that help the planet and its people. These institutions may not be available in your area, however; in that case, you can at least look for individual accounts that help the environment. In this section, we provide some insight into all these issues.

### *Demystifying ethical checking and savings accounts*

When you examine how your finances can help the planet, start with your checking and savings accounts. Some financial institutions have realized that their clients are concerned about the planet and the good of the people, creatures, and plants living on it, so they offer accounts that are linked to environmental or community-building efforts. *Ethical* or *green banking* is growing in popularity and so more accounts are being offered.

A financial institution's account-greening options may include the following (or other similar options):

- ✓ Donating a set amount or part of the interest on your savings account each month to a green cause
- ✓ Giving you the option to purchase checks made from 100 percent post-consumer recycled paper
- ✓ Using the money in your savings account as leverage to provide funding for loans to energy-efficient real estate projects or clean energy and eco-friendly businesses (this is the case with the Capital Green Account from Five Star Bank, [www.fivestarbank.com](http://www.fivestarbank.com))
- ✓ Working with environmental or conservation groups to help them purchase property in order to protect it
- ✓ Offering free or low-cost online Internet banking in order to reduce paper statements sent through the mail



As with any other kind of accounts, shop around to get the checking and savings accounts that best suit both your banking needs and your ethical concerns. Because green ethics aren't always black-and-white choices, and because implementation of green investing varies with each financial institution, you may find that you need to prioritize what matters most to you in a green account. (And by the way, be cautious about the word "green"; some banks use it simply as an account name, like "gold" or "classic," without any link to environmental causes.)

When you begin researching the green options available at various financial institutions, keep the following questions in mind:

- ✔ What service charges does the account carry?
- ✔ What interest or other profits or dividends does the account return to you?
- ✔ What are the account's specific eco-friendly, ethical, or sustainable features?
- ✔ Does the account require a minimum deposit?

If your own bank or building society can't give you a green version of the kind of account you're looking for, move your money to one that can. Make it clear to the previous bank that you're moving your money because you want a green account. If you're having trouble finding green accounts, check the options at [www.socialinvest.org/directory](http://www.socialinvest.org/directory), a listing of various green or socially responsible financial services.

## ***Backing an ethical banking institution***

You may decide that it's not enough simply to have a green account — perhaps you want to do more by ensuring that you're banking with a financial institution that embraces green and ethical action in every facet of its operations. In this case, it's important to match the institution — whether it's a bank, credit union, or other entity — with the standards that you personally have for what's socially and environmentally responsible.

### ***Understanding what you can expect***

To assess where your banking institution falls on world standards, take a look at the United Nations Global Compact, a voluntary initiative that gives businesses a framework for acting within well-accepted principles. The compact provides an excellent guideline when you're considering which standards to ask of your financial institution.

The Global Compact asks businesses to follow these principles, divided into four main areas:

- ✔ **Human rights:** Businesses should support and respect human rights and ensure that they're not complicit in human rights abuses.
- ✔ **Labor standards:** Business should uphold the right of freedom of association and collective bargaining and should eliminate all forms of forced labor, child labor, and discrimination.
- ✔ **Environment:** Business should take a precautionary approach to environmental challenges and support initiatives that encourage greater environmental responsibility and environmentally friendly technologies.
- ✔ **Corruption:** Businesses should work against corruption in all forms.

In other words, you may be looking for a financial institution that doesn't lend money to or invest in companies that use factories overseas or at home that don't provide reasonable working conditions for workers; that has proactive antidiscrimination policies for its own operation; that fully supports as many environmentally friendly measures as possible in its own operation and in its funding of other businesses or organizations; and that has a written code of ethics that it abides by.

You may have specific requirements that you want your financial institution to meet regarding environmentally friendly practices, but keep in mind that a truly green organization can have positive influences well beyond its own operations. In practical terms, your financial institution may not support businesses that use child labor or that pollute or damage the environment, or perhaps it focuses on investing in your community to help with affordable housing programs or energy-efficient renovations. Create a list of issues that are important to you, and then research what's available to you in terms of financial institutions that tackle them (see the next section, "Getting the information you seek").



Some banks may offer one or two ethically sound accounts but ignore green and ethical issues in the rest of their business dealings. If you want to know that your bank is behaving ethically as well as using your money ethically, ask about its code of business ethics and its social and environmental policies.

The following financial institutions are just a few examples of the green- and community-focused options increasingly being found across the United States:

- ✔ **ShoreBank Pacific:** Based in the Pacific Northwest, ShoreBank Pacific ([www.eco-bank.com](http://www.eco-bank.com)) supports sustainable development in many ways, even employing an environmental scientist to advise customers on green issues from wetlands development to energy efficiency. The bank offers options such as using online banking and a check card instead of paper checks to reduce paper use.

- ✔ **Chittenden:** A Vermont-based bank, Chittenden ([www.chittenden.com](http://www.chittenden.com)) places a high priority on community development initiatives, including socially responsible banking. Customers can opt for a lower interest rate on savings, for example, to provide interest rate discounts for borrowers such as community groups, small family farms, and conservation groups.
- ✔ **Permaculture Credit Union:** Headquartered in Santa Fe, New Mexico, Permaculture ([pcuonline.org](http://pcuonline.org)) brings together customer-members who support the concept of *permaculture*, which includes care of the Earth, care of people, and the reinvestment of surplus to benefit the Earth and its people. The credit union supports the local community, including offering loans for fuel-efficient vehicles and energy conservation measures at home.
- ✔ **Wainwright Bank & Trust:** Based in Boston, the Wainwright Bank & Trust Company ([www.wainwrightbank.com](http://www.wainwrightbank.com)) focuses on social justice and community development issues, including supporting affordable housing, the environment, women's issues, health services, hunger and homelessness, diversity and non-discrimination, and social activism.

The fact that we list them here doesn't mean that we recommend these institutions specifically; they're simply examples of how green banking works.

*Credit unions* are your main option aside from banks (you may find some mortgage companies or loan providers that are green as well, but banks and credit unions tend to offer a full range of financial services rather than just one or two); they're financial cooperatives owned and controlled by their members, who often have some sort of common bond that determines who can join. For example, members may work for the same company, live in the same area, or belong to the same club, church, or trade union. Credit unions offer savings, loans, and all kinds of financial investments, but because they're member-owned, they're often more likely to know and respond to what members want.

### ***Getting the information you seek***

To find institutions that you'll be happy banking at, first talk to your current financial institution about its practices. If they're not green enough, a quick Internet search of different local options may turn up a good alternative. Look for community-based institutions, which are often more focused on what's important to local residents than larger nationwide organizations. Read through their Web sites thoroughly to find out about the programs and accounts that they offer. Most also have an information line that you can call to ask questions; if the customer service representative doesn't have the answers, he or she can schedule an appointment for you to talk to someone who does.

When researching various banking institutions, consider asking about their practices in these areas:

- ✔ **What's the institution's lending policy?** The lending policy is one of the biggest impacts that any financial institution makes, so finding out the kinds of customers that it provides money to is one way to determine how green a bank or credit union is. For example, does the company ensure that loan recipients don't trade arms, harm the environment, or exploit workers? If the policy doesn't clarify something such as this in writing, you can assume that it may not be concerned about what it's funding.
- ✔ **Is the institution a member of the Social Investment Forum?** Many financial institutions in the U.S. that follow environmentally and socially responsible practices are members of the Social Investment Forum, which focuses on socially and environmentally responsible investing. You can find a member listing by state at [www.socialinvest.org](http://www.socialinvest.org).
- ✔ **Does the institution provide an annual social or environmental report about its activities?** If it doesn't, its annual financial report should have sections devoted to its eco-friendly or social investment actions.
- ✔ **What amount does the institution donate to environmental or social nonprofit organizations each year?** This isn't about lending money; it's about giving money, no strings attached.

After investigating your local options for green banking, you may realize that you want to work with a particular institution even if it doesn't measure up on every front. If it's committed to change and gives you an opportunity to have a voice in those coming changes, that may be enough.

## *Greening Your Investment Portfolio*

Whether you have a complex portfolio of stocks and investment products, an investment-linked insurance policy, or just a few mutual funds tucked away in a retirement account, you have an increasing number of green choices, or at least choices that are greener than they once were. In fact, out of the \$24 trillion that currently makes up the U.S. investment marketplace, the Social Investment Forum reports that \$2.3 trillion — almost 10 percent — is invested in socially responsible financial products.

The decisions that you make about ethical investing are completely up to you. The most important thing to keep in mind when it comes to investing is that you may not be able to find one investment that's environmentally or socially perfect for you. You should be prepared to make compromises if it comes down to that, and you shouldn't forget that it's perfectly acceptable to make money to protect your own financial health. In this section, we help you navigate the market so that you know just what you're looking for as well as what you're getting.



Whether the products or companies involved are ethical, green, or socially responsible, investments that are outside of Federal Deposit Insurance Corporation (FDIC) protection can gain and, more importantly, lose value. The FDIC covers deposits (at insured banks) including checking, NOW, savings, money market accounts, and certificates of deposit, up to \$100,000. It doesn't cover money invested in stocks, bonds, mutual funds, life insurance policies, annuities, or municipal securities. You can find out more about all this at [www.fdic.gov](http://www.fdic.gov).

When it comes to green investing, you have myriad options, including buying stocks, buying shares in mutual funds, investing in your pension fund, and investing in life insurance. This section looks at green options for all these investments but doesn't cover how to invest because that's a topic for a whole other book. In short, however, you can invest directly in companies by buying their shares (either setting yourself up with your own trading account and buying the shares yourself or buying through a stockbroker or financial advisor). Or you can invest indirectly in a number of companies at the same time by buying shares of a mutual fund. (Mutual funds work by pooling together the money from many different investors and putting it toward shares in a number of different companies — the advantages are that you don't need a lot of money to invest in most mutual funds and they can be easier to access than buying individual stocks.)



When it comes to investing your money responsibly, it's essential to obtain advice from a knowledgeable, qualified financial advisor, preferably one who specializes in socially responsible, ethical, or green investments. Specialist advisors offer all the services of a mainstream adviser but also can advise you on aligning your financial plans with your values and beliefs. If you're investing in stocks, working with a stockbroker who understands the ethical markets is particularly crucial.

To find a financial planner in your area who can advise you on green investments, search the online directories at the Social Investment Forum ([www.socialinvest.org](http://www.socialinvest.org)) or Co-op America ([www.coopamerica.org](http://www.coopamerica.org)). You also can search online through the Certified Financial Planner Board of Standards, Inc. at [www.cfp.net](http://www.cfp.net).

## *Identifying your options for investing directly*

To invest directly, you can buy shares from specific companies. When you invest in companies with strong corporate social responsibility, you encourage and support them in their efforts. Don't be shy about asking those companies about their business ethics and finding out if they produce a social or environmental report. You also can check their annual financial reports, stock prospectuses, company brochures, and Web sites for information about their activities.

When investing directly in a particular company, choose companies that

- ✓ Are developing solar or wind power or are encouraging alternative energy technologies or energy efficiency
- ✓ Offer micro-loans in developing areas of the world (micro-loans are very small loans given to small-scale entrepreneurs who wouldn't usually qualify for credit; loans are designed to allow them to develop businesses that can support them and their families)
- ✓ Provide healthcare to a wide audience
- ✓ Follow a principled code of ethics

Another way to get involved with a company directly is to invest a small amount in an environmentally *unfriendly* company in order to vote or bring up motions at shareholder meetings that could influence the company operations. Of course, you should check with your financial advisor about the process of buying stocks and any responsibility that may come with your purchase, but this can be an effective way to add your voice to those opposing the company's practices. Your involvement may spur other shareholders to add their voices to yours and may even make the company think twice about some of its actions and attempt to find greener alternatives. There's really no way to gauge how responsive a company will be ahead of time, but this is an option to consider.

## *Investing indirectly in a mutual fund or index fund*

If you want to invest indirectly, choose a mutual fund or a stock index fund that demonstrates green ethics. For example, in efforts to preserve natural resources and encourage the use of alternative fuels, stay away from a fund with oil companies in its portfolio, and opt for one pursuing technology that uses energy more efficiently.

Ethical or socially responsible funds operate on the principle of not investing money in enterprises that would harm the environment, people around the world, or animals and wildlife, and some actively encourage progressive green companies. These fund managers generally choose the investments based on three different strategies:

- ✓ **Screening:** The fund's rules include specific criteria about what is and isn't allowed as an investment.
- ✓ **Preference:** The fund's rules include guidelines about company operations so that if a number of different companies have similar share performance, the ones with the best environmental or social policies and records are chosen.

- ✓ **Engagement:** The fund's rules don't necessarily exclude or include specific investments but instead aim for companies that could be influenced by the fund manager to improve their practices.

The Sierra Club Stock Fund ([sierraclubfunds.com](http://sierraclubfunds.com)), for example, says that it invests in the top candidates among the most environmentally and socially progressive mid- and large-cap U.S. companies based on a number of different screening processes. The Winslow Green Growth Fund ([www.winslowgreen.com](http://www.winslowgreen.com)) says that it invests at least 80 percent of its net assets in domestic companies that are either environmentally proactive or sensitive. These two funds are examples only, not recommendations for investment.



Although ethical funds once had a reputation for lower financial returns than general funds, many ethically or socially responsible funds now provide consistent and healthy growth on an annual basis. Your money can have a positive impact on both your financial health and that of the environment. Remember, though, that the value of your investments can go up or down — there are no guarantees. Even if a company or a mutual fund has performed well in the past, that doesn't mean its share values will go up in the future. You're taking a gamble, so don't gamble with money you can't afford to lose. That goes for any stock market investment — ethical or not.

## *Other investments: Pension funds and life insurance policies*

As part of your green investment portfolio you can consider a couple of other financial products, including pension funds that are managed by your employer (some employers provide this as a benefit) and investment-linked life insurance. (Life insurance may be offered as a benefit by an employer, but often it isn't, leaving you responsible for finding a policy that will cover your debts and protect your family in case of your death; if you choose an investment-linked policy, you can look for one that invests in green or socially sustainable options.)

If you have an employer-based pension fund, research its background information to find out how ethical or socially responsible it is. If you'd like to see it improve in this regard, talk to the fund manager or your employer about ways to invest in more acceptable products. If the pension fund is part of a union contract agreement, you also may be able to ask the union to help convince management to go greener.

Many life insurance policies have an investment component as well, and these investments can be just as socially or ethically responsible as any other. If you already have a policy in place, you may not be able to change it (to a greener one, for example) without incurring a significant financial penalty. In this case, you may have to settle for letting the insurance company know that ethical or

environmental issues and investments are important to you as a consumer. On the other hand, if you're looking for investment-linked insurance policies, research the ones available to you by working with a broker, by calling insurance companies directly, and by researching them online, including at [www.socialinvest.org](http://www.socialinvest.org).

## Giving Ethically

If you're looking to give away some of your hard-earned income, thousands of charities and nonprofit organizations are only too eager to accept it. Give to local housing projects or to clean-water projects in remote parts of the world — whatever your principles, there's sure to be a charity to match.



It's absolutely critical to understand who you're giving your money to and how they operate. Some organizations that call themselves charities or nonprofits may in fact not be as charitable or nonprofit as you would want them to be. You need to make sure that as much of your money as possible goes to the cause that you're supporting rather than other costs, such as the administration or salary costs of the charitable organization. You also need to make sure that your aid gets to the people it's designed to help — that food aid for developing nations is reaching those who are starving, for example, and not being siphoned off by officials or middlemen in those nations.

Giving is a wonderful action — giving mindfully and responsibly is even better.

### The indirect gift that keeps on giving

When it comes to giving gifts to friends and relatives, go green! Consider giving money in your friend's name to a project or a cause that benefits someone in need elsewhere in the world.

Recent years have seen a big increase in this kind of ethical giving. You can donate money for the purchase of goats, donkeys, chickens, sheep, trees, guide dogs, wheelchairs, bicycles, school equipment, and water filters. In many cases, the donation goes well beyond the immediate gift, offering a chance for people to develop independence and to support themselves and their families, helping to lift themselves out of poverty or dependence. A wheelchair, for example, may allow someone the mobility

to go to work. A cow may offer milk and related products that will feed a family for years.

The charity running the program usually gives you a card or certificate showing that money has been donated on behalf of your family member or friend, and you give that person the card showing what has been donated in their name. A gift of this sort checks all the boxes: It helps someone, is green, and doesn't damage the environment, and there's no need to worry for weeks about what to buy someone. It's appropriate for nearly every occasion: holidays, birthdays, weddings, graduations, and so on. And there's no wasteful wrapping paper either!



## *Making sure you know where your money will go*

Sometimes choosing which cause to donate to is difficult because you can't guarantee that your money will get where you intend it to. This is a significant problem that you need to be aware of when considering where you put your money. In some cases, food and blankets for victims of natural disasters end up in warehouses because roads are too dangerous for transporting items to where they're needed. In other cases, the charitable organizations require so much money in order to support their administration that you're in effect funding the organization, not the cause.

To make sure that the charity you're interested in is legitimate and worthwhile, do the following:

- ✔ **Call the charity or nonprofit's head office to find out how much of the money you give ends up invested in the project you pick and how much goes to administrative or fundraising costs.** The Better Business Bureau's Wise Giving Alliance recommends that at least 65 percent of total charity expenses should go to program service activities rather than administration. Charities regularly report this information in annual reports and to potential donors; if a charity isn't willing to share this information with you, don't donate to it.
- ✔ **Search news stories about a charity's work.** Try Internet searches for the organization's name to find possible news stories about its work.
- ✔ **Seek independent advice about the charity.** Turn to the Charity Navigator ([www.charitynavigator.org](http://www.charitynavigator.org)) and your local Better Business Bureau (including the BBB's Wise Giving Alliance at [www.give.org](http://www.give.org)).
- ✔ **Check whether your contribution is tax-deductible.** Just because an organization is a registered charity with the IRS doesn't mean that every donation is tax-deductible. Always ask before you donate.

## *Considering your options*

After you decide on a charity that you'd like to support, you have a number of different ways to make your donation — it could be a one-time thing or something that you commit to for the long term. Small amounts given regularly can be very effective: They're relatively painless for you, but because the charitable organization knows they're coming, they're able to budget and plan more effectively. This section looks at how to go about making your donation.

If you want to make a one-time donation to a green charity or nonprofit organization, you can always make a direct payment to the charity. Other handy ways include purchasing charity greeting cards. You usually can find the cards for sale on the charity's Web site or during the Christmas season in supermarkets, department stores, and gift shops. Also, some credit cards give you points for dollars spent and sometimes include the option of charity donation for point exchanges.

If you want to donate on a regular basis, you have a few options to make it more convenient (in case you don't feel like writing out a check every month):

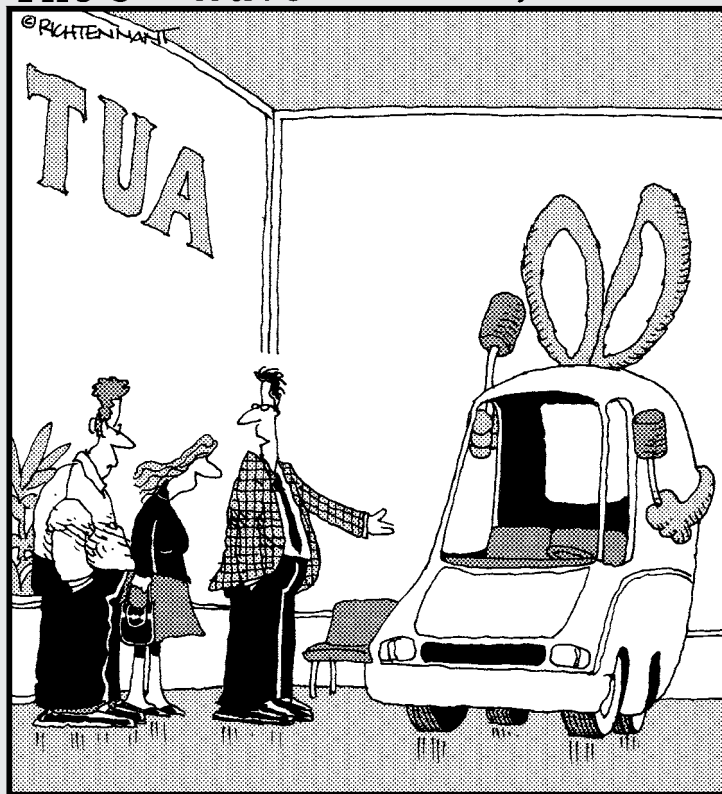
- ✔ **A direct debit program** transfers the amount you designate from your bank account to the charity of your choice each month. You also may be able to give through work; your donation is taken directly from your paycheck and paid straight to the charity.
- ✔ **Regular (such as monthly) credit card charges** work similarly to direct debit programs, except that the amount is charged against your credit card rather than coming from your bank account.
- ✔ **Affinity or charity credit cards** give a small percentage of your spending to charitable or nonprofit causes. For example, General Electric offers a credit card that provides \$1 in carbon offsets for every \$100 that you spend on the card, and every Earth Day (April 22), the company purchases the appropriate amount of offsets of greenhouse gas emissions. Find out more about this particular card at [www.myearthrewards.com](http://www.myearthrewards.com). In addition, numerous organizations have affinity agreements with credit card providers, allowing their members to use credit cards that support their programs.

# Part IV

## Thinking Greenly on the Road

The 5<sup>th</sup> Wave

By Rich Tennant



"This hybrid comes with only one battery if you don't mind the pounding."

## *In this part . . .*

**B**ecause vehicles and airplanes are some of the biggest sources of carbon emissions and other pollutants, this part covers what you can do when traveling (or planning a trip) to reduce your contribution to the problem. This includes alternatives to using your vehicle in all kinds of situations, but we also understand that sometimes you just can't do without the drive. That's why we also cover energy-efficient and cleaner fuel options and technologies that either are available now or are on the horizon.

This part also looks at greening your travel plans — finding great vacations that reduce your need to fly, benefit local communities, and still meet your needs to get away, have fun, and maybe even do something you've never done before.

## Chapter 13

# Choosing and Using Your Transportation Wisely

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### *In This Chapter*

- ▶ Driving with others
  - ▶ Getting onboard public transportation
  - ▶ Deciding to walk or ride instead of drive
  - ▶ Softening the impact of vehicle use
- 

**I**t's often said that North Americans have a love affair with their vehicles — and there's a lot of truth to that. From the daily commute to the annual family road trip, it's second nature to hop into the vehicle and head out on the open road. But this romance comes with a price: rapidly decreasing supplies of oil, increased pollution in the form of smog and acid rain, and growing global warming on account of the emission of climate-changing greenhouse gases.

According to the U.S. Department of Transportation, American adults use vehicles to travel  $\frac{1}{2}$  mile or less to the tune of 15 million miles every single day. That distance would take ten minutes or less to walk and would be even quicker by bicycle. Skipping these quickie car trips and either walking or biking instead would save 1.2 million gallons of gas and \$3.9 million in gas costs! In addition, almost a quarter of all U.S. carbon dioxide emissions come from vehicles. In 2003, traffic congestion in the U.S. spewed 23 million tons of carbon dioxide into the air; in terms of climate change, that's like putting 3.8 million more vehicles on the road.

Vehicles that use alternatives to gas and diesel fuel (discussed in detail in Chapter 14) offer some energy relief, but alternative fuel alone isn't the answer. Rather than wait for the development of more-efficient vehicles (by which time oil and gas reserves may have dwindled even further), environmentalists agree that making significant decreases in vehicle use is the way to go. Because the continued high level of vehicle usage is dependent on unsustainable fuel sources, the logical alternative is to turn to sustainable options such as walking, cycling, public transportation, and carpooling or car-sharing programs.

You may wonder how realistic it is to reduce your driving. Not all the sustainable options that we cover in this chapter will be practical for you and your family every time you go somewhere. But do you need to use a vehicle for every trip, every day? Can you maintain your traveling freedom by owning and using a vehicle while ensuring the sustainability of urban areas? The answer is yes, if you're willing to balance your vehicle use with other transportation options — some of which you may even really appreciate. This chapter discusses some of those sustainable transportation options, along with various initiatives aimed at helping you to leave your vehicle in the garage more often (or get rid of it altogether, if you prefer!).



## The rewards of mindful transport

Changing your traveling habits benefits the environment, your peace of mind, and your wallet. The relative cost savings can be substantial: When you take into account all the expenses that go into a vehicle, the American Automobile Association (AAA) estimates that the average cost is approximately 52 cents per mile. In comparison, the average cost of riding public transportation is estimated to be 20.7 cents per mile. And in 2001, American households drove an average 21,187 miles, up from 12,423 in 1969.

If you need more incentive to change the way you get around, imagine better air quality resulting in fewer cases of asthma, fewer deaths and injuries due to traffic accidents, and safer walking and cycling spaces. The greenhouse gases and other pollutants that vehicles produce contribute to problems with air quality such as particle pollution, especially in cities. The U.S. Environmental Protection Agency (EPA) has estimated that particle pollution in nine cities across the U.S. is responsible for more than 4,700 people dying early deaths each year.

Greenhouse gases such as carbon dioxide aren't the only emissions that vehicles produce (see Chapter 1 for the full definition of greenhouse gases). Add into the mix hydrocarbons, nitrogen oxides, and particulate matter and you get the full,

unhealthy picture. A number of these contaminants have been linked to cancer, birth defects, brain and nerve damage, and long-term injury to the lungs and breathing passages.

Car emissions are especially unhealthy for the increasing number of asthma sufferers in the world. Vehicle emissions that cause smog and soot have been proven to worsen asthma and trigger attacks. Some evidence suggests that ozone, which is a main ingredient in smog, and exhaust particles combine to cause asthma in some people. According to the American Lung Association's State of the Air Report for 2007, nearly half of the U.S. population lives in counties that have unhealthy levels of either ozone or particle pollution.

One of the additional benefits of reducing your vehicle use is that it eases pressure on the demand for fossil fuels, especially oil. Oil is a non-renewable source of energy that's quickly being depleted, with some forecasts estimating that only a 40-year supply remains. To make things more challenging, most of the oil that was easy to get to has already been accessed, so it's becoming more expensive for oil companies to access the oil, and they're beginning to look at areas that haven't yet been drilled, including some previously untouched environments where drilling would seriously affect natural habitats.

## Sharing the Driving — And the Car!

Car-sharing programs are becoming increasingly popular in many cities in the U.S. Although they operate in different ways, they come in these two basic flavors:

- ✓ **Carpooling:** How often do you drive somewhere alone and see hundreds of other drivers going in the same direction as you — also alone? Arrange to drive to the office with a colleague or to take neighbors' children to and from school. Tried-and-true carpooling has been around for years, encouraged in part by cities with dedicated carpool travel lanes on major highways for use solely by vehicles with passengers (the number varies, but it's always more than just the driver). In most cases, carpoolers take turns being the driver and using their own vehicles.

You don't have to carpool with fellow employees, however. If you're looking for someone with whom to travel to work — or even across the country — visit [www.erideshare.com](http://www.erideshare.com). This free service connects people all over the country who are willing to share long distance or commuter journeys.

**Warning:** If you're carpooling with someone you don't know, always be extremely careful. Eridesshare offers safety tips, but the bottom line is that you should never share a vehicle with someone you don't trust.

- ✓ **Car-sharing:** This arrangement operates differently from carpooling in that it replaces the need for your own vehicle. You pay a fee that gives you access to a vehicle (or a pool of vehicles), usually parked nearby or in an easily accessible location. When you need a vehicle for something (a shopping trip, perhaps), you make a reservation and then pick up the vehicle, make the trip, and return the vehicle.

Typical car-sharing costs are \$10 an hour, but many programs allow you to rent by the day or longer if needed (although it's worth checking to see if conventional rental agencies are more economical for longer-term rentals, especially if they offer low-emissions vehicles).

Several car-sharing programs operate in the U.S., but the two most popular are Zipcar ([www.zipcar.com](http://www.zipcar.com)) and Flexcar ([www.flexcar.com](http://www.flexcar.com)). Check your local options too by searching the Internet — try “car sharing” and your community name; cities such as Austin, Chicago, Philadelphia, and Madison also have car-sharing programs, and some communities have created their own.



The greatest impact of car-sharing is that it reduces the number of single-vehicle trips and therefore the number of vehicles on the road.

## *The Ins and Outs of Public Transportation*

Using buses and trains is greener because there's strength in numbers: The amount of polluting gases emitted by a bus or train divided by the number of passengers means that each individual is responsible for much less pollution than an individual in a vehicle. (Buses and trains also cut down on traffic congestion, which otherwise wastes your time and money.) All told, using public transport reduces the carbon footprint of your journey (see Chapter 1 for more information about carbon footprints).

People give several standard reasons for not using public transport, but others give just as many reasons for loving it. Those against trains and buses often refer to safety and security concerns, unreliability, the extra travel time involved, and lack of services near where they live. Advocates for public transport argue that trains and buses can be safer and more secure than vehicles; passengers benefit from becoming part of a community with other passengers; they have time to read the papers, do the daily crossword puzzle, and complete paperwork; and they arrive at their destinations feeling more relaxed.

The reality is somewhere in between: Realistically, there may be times and places when safety is a concern, and reading a full-sized newspaper in a packed subway car can be challenging. But many objections to public transportation can be alleviated or even overcome by choosing your routes and times carefully: Leaving 30 minutes earlier for your commute to work, for example, may give you some much-appreciated elbow room.

### **The sustainability of public transport**

Many buses and trains run on diesel or electrical energy, which aren't necessarily the cleanest sources, but because they carry so many people at one time, they still fall into the sustainable category. Automobiles can only take a limited number of people, and they regularly take only one or two. In contrast, most buses easily carry upwards of 60 passengers, especially if they're articulated (long) models. Depending on the time of day and how many

coaches used, subway and commuter train services can carry hundreds of passengers in each train.

Now, many bus fleets are being upgraded to more environmentally friendly fuels, including compressed natural gas, hybrid-electric, and ultra-low sulfur diesel, and new regulations for diesel locomotives are being phased in, too.



If public transportation is reasonably effective at getting you where you need to go, think seriously about switching — if even for just a few days a week — from your vehicle to your local options: buses, commuter trains, even ferries. If you don't have reasonable access to public transport from where you live, consider driving to the nearest train station or bus stop and leaving your vehicle there.

To find the best option, check your local transport service provider's Web site to see whether you can get from home to work (and other destinations for that matter). Most providers have excellent Web sites that can help you plan your journey; you can find timetable information, route maps, fare information, ticketing options, and destination information. Some of the larger agencies even provide you with trip planners and detailed directions. On these sites, you enter your home address, the address of your destination, and the time you want to leave, and you're provided with the quickest transport options, route information, the bus stop or train station to get off at, and even walking routes and distances to your selected destination. You also can call your local transport offices for more information.



Check [www.hopstop.com](http://www.hopstop.com) to see if it services your city. If it does, use the site to navigate public transit more easily. The site gives you all kinds of options for combining different forms of transportation, including walking.

## Encouraging your employer's contribution

The most obvious trip to consider ditching your vehicle for is your journey from home to work. Many initiatives that encourage a more balanced approach to vehicle use rely on a major player in society — the workplace. Employers are becoming more interested in encouraging their employees to leave their vehicles at home, too.

Many companies have become burdened by employees expecting vehicles with their salary packages. But if businesses push alternatives instead, they benefit along with the environment. Cutting down on the number of company vehicles means employers need less parking provision and can use the additional space for more productive purposes.

Talk to your employer about changing your start and finish times so that you can travel on public

transportation when it isn't so busy. If you're the boss, think about whether you really need all your staff to start work at the same time and especially at the same time as all the other workplaces in your area. If not, institute staggered or flexible schedules for your employees.

Encourage your employer to provide benefits or work options that make it easier for staff to choose more sustainable transportation. Incentives that encourage employees to reduce their vehicle use include the following:

- ✓ **Public transit fare subsidies and passes:** These can be an affordable alternative to providing company vehicles, and they're an incentive for employees to choose public transport over operating a vehicle with its fuel, parking, and maintenance costs.

*(continued)*

(continued)

- ✔ **Personalized travel information:** Working with local public transportation and municipal authorities to make transit, walking, and cycling route information available helps staff plan their commutes.
  - ✔ **Better workplace bus shelter facilities:** If bus shelters are an issue, the company may be able to work with the municipal and transit authorities to find a solution.
  - ✔ **Premium parking space for carpools:** Allocating parking spaces in favorable locations for those who carpool to work is an added incentive for those programs.
  - ✔ **Flexible work arrangements:** Flexible schedules and telecommuting make it possible to leave the vehicle at home some of the time, to drive at times of least congestion, or to use public transport at a more convenient time of day.
  - ✔ **Mileage programs:** These programs keep track of miles saved thanks to public transportation, carpooling, or other sustainable choices in order to reward those who reduce their vehicle usage.
  - ✔ **Bicycle pools:** Providing bikes for use to and from home could be a real plus for staff.
  - ✔ **Low-emission vehicles:** If staff need vehicles to do their jobs, companies can provide low-emission vehicles or give incentives, such as a premium mileage rate, for staff to choose them for themselves.
  - ✔ **Real-time news:** Public transit service announcements and other real-time information can help staff plan their journeys home in case of unexpected problems on transit routes.
  - ✔ **Special events:** Public transport, walking, and cycling events (such as breakfasts, lunches, seminars, and so on) can encourage staff to get onboard.
  - ✔ **Web site links:** Timetables and links to interactive trip planners from the company's Web site make things easier when it comes to route planning.
- If your workplace doesn't have sustainable travel options or incentives in place, ask some of your colleagues to join you in lobbying for them. If you can gather support, go to your manager with a report that outlines the benefits for the company in developing them, such as:
- ✔ **Team building:** Understanding staff needs (such as public transit incentives) facilitates better relationships between staff and management.
  - ✔ **Turnover reduction:** Adding sustainable options to employee benefit packages enhances the company's ability to retain and attract staff.
  - ✔ **Image enhancement:** Adopting sustainable approaches helps to boost the company's image in the community.
  - ✔ **Expense reduction:** Subsidizing employee public transport instead of providing vehicles as part of salary packages can help to reduce company expenses.

## Manual Transport: These Legs Were Made for Walking (And Pedaling)

The greenest alternative to vehicle use is to walk or ride a bicycle to your destination; you also get all the health benefits of active living. Although many people live too far from work, stores, or entertainment facilities to walk or cycle all the way, an increasing trend in many cities around the world is living close to the workplace and social attractions. This is a reversal of the *donut effect* that had people moving out of the inner cities to the suburbs; as city governments place more emphasis on redeveloping downtowns, people are moving back.

Even if it's too far to walk or cycle from your home to your destination, walking or cycling to a nearby train or bus stop is still much healthier and less expensive than driving. In fact, cycling is becoming an increasingly popular mode of transport, largely as a result of many cities and towns investing in good, safe, and direct cycling paths that don't compete with road traffic. In some cases, using a bicycle may be quicker than dealing with traffic congestion (and you can even buy or convert an electric bicycle; see the later section "Variations on Manual Transport: Bikes with a Boost").



If you plan to cycle to and from destinations, you need to do some planning. Consider the following recommendations:

- ✓ **Make route plans.** Research the route you'll use, looking for roads or paths that are well-surfaced and wide enough to avoid conflicts with vehicles.
- ✓ **Inquire about bike storage at your destination.** Before you roll up, make sure that your destination has good bicycle parking, ensuring that no one will take off with your two-wheeled transportation investment. If you're headed for the train or bus station, inquire at the transit company about whether the trains or buses permit you to take the bike onboard with you (some buses also have racks on the front of them to hold bikes), or whether there's secure storage available at bus or train stations. If secure storage isn't available, lobby for it.
- ✓ **Seek out shower facilities (if needed).** If you're riding or walking and know that you'll work up a sweat, check that you have access to shower and changing facilities. If your workplace doesn't have these kinds of facilities, talk to your boss about making them available and why you think they'd make a difference to the work environment as well as the wider environment.



If you take up cycling to become a greener traveler, don't forget to stay safe. Make sure you have good lights and a bell or horn on the bike, and wear a helmet and highly visible, reflective clothing. Motorists need to be able to see you easily in the dark or in poor visibility. You also can make yourself comfortable on the bike with the right gear: padded shorts, gloves, windbreakers, riding pants, and bike shoes, for example.

You may not have to buy your own bicycle if cities such as San Francisco, Portland, and Chicago go forward with bike-sharing programs currently at various stages of planning. The idea is that bicycles are available in racks in certain locations, and you simply pick one up, cycle to your destination, and drop it off at another designated rack. Early bike-sharing programs have run into problems with theft, but deposit systems and electronic tracking are helping to solve those issues.



Why not form a bike-sharing club of your own? Chip in with friends to buy a bicycle, and take turns using it. Even if you only ride to work once a week, you'll be a greener traveler.

## Improving your health with active transport

An overreliance on vehicular travel encourages a couch-potato kind of lifestyle. Think about how many times you could have walked or cycled in the last week but chose to drive. Many of your short trips, such as to the local park or school or stores, may be within easy walking or cycling distance, and walking is one of the best ways to lose a spare tire (the one that your vehicle isn't equipped with!).

Vehicles are non-active forms of transport. *Active transport* choices — such as walking and cycling, using buses and trains, or even trams and ferries in some parts of the country — can have extremely positive health benefits. If you walk a little bit as part of the journey to and from work, you not only add valuable exercise to your day but also do your part to reduce the cost of maintaining the health system.

As you increase your physical activity every time you decide not to use your vehicle, you go a long way toward preventing cardiovascular disease and reducing the risk of adult-onset

diabetes, osteoporosis, and obesity. People who walk, cycle, or use public transport are on average seven pounds lighter than those who travel everywhere by vehicle. And the recent phenomenon of road rage suggests that driving your vehicle less may also have psychological benefits.

The risks involved in driving everywhere are particularly important when children are involved because children who grow up inactive are more likely to be overweight and have corresponding health problems. Apart from the negative health aspects from physical inactivity, children who are accustomed to being driven to school miss out on important life skills: They may be less motivated to get out and find their own way around; they may be unaccustomed to navigating and feel uncomfortable in public places; they may be less street-wise; and, having less experience in personal road safety, they may be at risk of severe accidents.

## Variations on Manual Transport: Bikes with a Boost

Mopeds and small motorcycles are catching on, especially in cities, because they're so much easier to maneuver through heavy traffic and to park. They're well-suited to people who don't have to travel far to work, shop, meet friends and family, or who don't need to transport any large, fragile objects.

When properly maintained, a motorcycle or scooter running on gas produces far fewer greenhouse gases than a vehicle. So an increase in moped and motorcycle use and a corresponding decrease in vehicle use is good news for the environment.

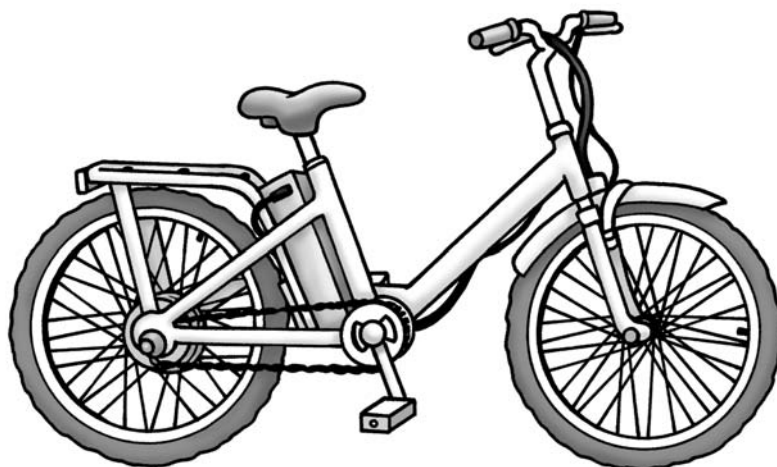


Rain and snow can definitely put a damper on manual transport. You can invest in wet-weather tops and bottoms to help you out if it's raining (especially if you run into an unexpected shower), but for really bad weather or slippery conditions, you may consider using public transportation as your backup plan.

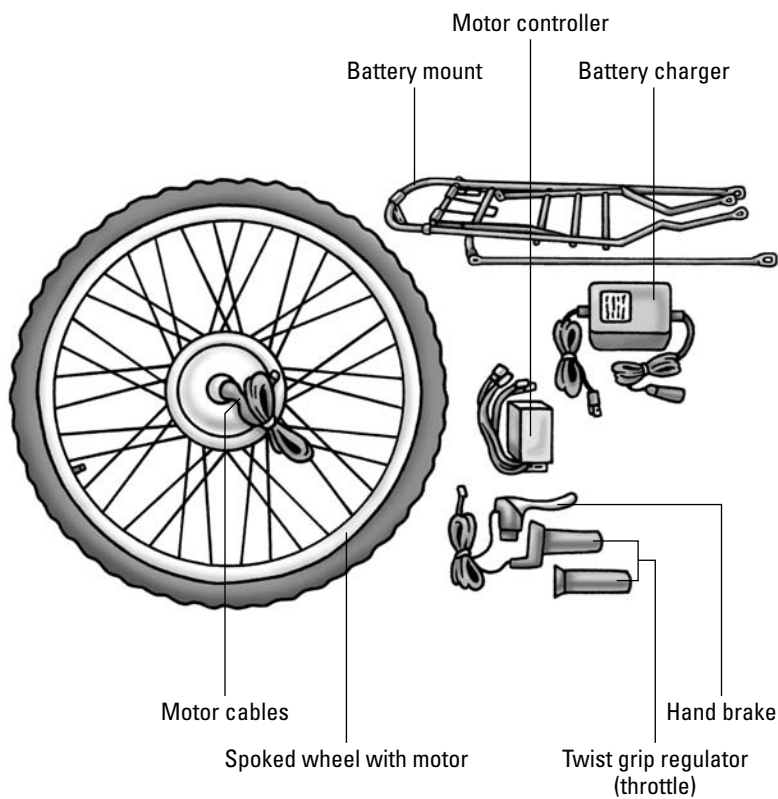
A step up from the everyday bicycle is the electric bicycle (you can see one example in Figure 13-1), which provides the best of both worlds: You provide the pedal power and the electric motor provides help up to 20 miles per hour (it's great for hills!). The electricity comes from a battery that can be recharged for just pennies per charge by plugging into a regular wall outlet. Depending on the model, the power assist either comes on demand (you use a throttle on the handlebar to trigger it) or automatically (the bike gives you power whenever you pedal). Brakes and gearing usually look very similar to those on standard bikes.

You don't have to buy an electric bike — you can convert a standard bicycle to be electric powered with the purchase and installation of a conversion kit (see Figure 13-2), which usually includes the battery, motor, mounting hardware, and charger. If you're handy, understand how your bike works already, and don't mind investing a few hours of your time, you can probably install the kit yourself; otherwise, take everything to a bike shop or mechanic who's familiar with electric conversion kits like these.

Costs vary depending on the power of the motor and the model, but you can expect to pay about \$500 for a conversion kit and upwards of \$1,000 for a bike already equipped with a motor.



**Figure 13-1:**  
An electric  
bicycle.



**Figure 13-2:**  
A conversion  
kit  
transforms a  
standard  
bicycle into  
the electric  
version.

## Avoiding travel altogether by shopping online

The Internet has had a major impact on transportation: You can shop online at your convenience for many of the goods that you don't need to go and see in a store, thus curtailing trips to shopping centers. This is especially important because most shopping trips are made by vehicle.

Although shopping online can increase the number of commercial deliveries by planes, trains, and courier vehicles, the environmental impact is lessened because vehicles deliver to multiple shoppers instead of everyone driving to the store individually. The other potential downside to increased online shopping is the impact on the economic and social sustainability of local stores; however, you still can shop as locally as possible on the Internet. You may be surprised to find that many of your local stores offer online shopping through their Web sites.

One potential downside of online shopping is the waste that can be generated when retailers ship their materials; however, if you're thinking green, you can reuse or recycle much of it. For example, you can reuse cardboard boxes and interior packaging material such as inflatable plastic or "peanuts," and you can also recycle cardboard and some plastic packaging films. Consider writing to or e-mailing the retailer to express your concern if you think that the items are being overpackaged, and check Chapter 6 for more waste reduction tips.

Some of the most popular online shopping categories that reduce individual transport trips include:

- ✔ **Books and music:** Amazon.com was one of the first companies to popularize buying music and books online. The attraction of ordering from home is the greater choice available online compared to what's available at your local store.
- ✔ **Perishable and nonperishable foods:** Many large supermarkets and specialist organic food stores encourage online shopping, and because most of the delivery services are local, everyone benefits.
- ✔ **Food delivery:** From pizza to Chinese or Indian food, if you're in an urban area or even a small town, you can likely have your dinner come to you.
- ✔ **Home furniture and electronics:** Most large retailers have online catalogs that enable you to order and have your bulky purchase delivered without lifting a finger.
- ✔ **Anything and everything:** Sites such as eBay and Freecycle, which give people a chance to sell or give away their own goods, have given many items a second life in new homes.

**Warning:** It's essential to be very security-conscious when shopping online. Stick to Web sites and vendors that you know and trust; ensure that you're using a secure Internet connection; never give out passwords or private information in response to e-mails; and look for the locked padlock on the bottom of the Web browser and the "s" after the "http" in the address that indicates the page is secure. Check the Federal Trade Commission's site at [www.ftc.gov/bcp/menus/consumer/tech/online.shtm](http://www.ftc.gov/bcp/menus/consumer/tech/online.shtm) for more consumer information on online shopping.

A number of companies manufacture and sell scooters, small motorcycles, and electric bicycles. Many of the most robust two-wheeled models are powered by gas, but just as with traditional vehicles, an increasing number of electric mopeds and bikes are becoming available. The Web site [www.electric-bikes.com](http://www.electric-bikes.com) is a fountain of information on green two-wheeled transport options (including bicycles, scooters, mopeds, and motorcycles) and retailers, and [www.bicycle-power.com](http://www.bicycle-power.com) has links to various sites that sell conversion kits.

## When You Need to Drive: Green-Enhancing Actions

Despite the environmental issues attached to vehicle usage, it's not practical for everyone to simply stop using them — especially if you use your vehicle as part of your job. Buying a brand new, fuel-efficient vehicle may not be within your budget, either. (If it is, though, check out Chapter 14 before you buy.)

No matter whether your vehicle has the worst or the best fuel efficiency on the block, there are ways to maximize your fuel efficiency. You can reduce your fuel use and, in turn, your carbon emissions and other pollutants by following these strategies:



- ✓ **Keep up with maintenance in order to keep your vehicle on the road.** Keep your vehicle well-maintained for as long as possible. There's no reason a vehicle can't last 10 to 15 years or even longer; holding onto a vehicle for a long time goes a long way toward reducing the number of new vehicles that need to be manufactured.

Older vehicles pollute more heavily than newer, better-performing ones, but regular maintenance and immediate repairs can reduce that pollution. Keeping the engine and the emissions system in good running order and using the right grade of oil is especially important to cut fuel consumption and reduce emissions; for example, a clean air filter can improve fuel consumption by up to 10 percent alone.

- ✓ **Pump up the tires.** Underinflated tires increase fuel consumption by as much as 3 percent, and they're more likely to blow and cause an accident. You also may want to buy tires that offer improved mileage. **Warning:** Always check the recommended pressure for your tire and don't overinflate them.
- ✓ **Travel lightly.** Take anything you don't need out of your vehicle to reduce weight, improve your fuel consumption, and reduce emissions. The same goes for roof racks and other items that increase wind resistance



and therefore decrease fuel efficiency. Take out weighty winter measures such as sandbags when better weather means you no longer need them.

- ✔ **Plan your travel.** Consolidate your errands into one big trip rather than lots of smaller ones. For example, drop the kids at school and then hit the grocery store. Also consider talking to friends and family members to see if you can combine trips or errands.
- ✔ **Plan your timing.** Avoid driving at peak times when you're more likely to run into traffic congestion that will keep you on the road for longer.
- ✔ **Don't idle.** Switch off the engine when you're stationary, and don't rev your engine when starting up the vehicle. An idling vehicle gives off 80 percent more pollution than one that's moving! The U.S. Department of Energy says that it's more economical and causes less pollution to switch off the engine and start it again if the vehicle will be stationary for 30 seconds or more. In other words, no matter what you've heard,

## Deciding when to replace your vehicle

There comes a time in every vehicle's life when it no longer fits your needs — maybe it breaks down too often or your kids are off to college and you can get by with a smaller, more fuel-efficient vehicle. But sometimes the right time to replace your vehicle isn't as obvious. Here are a few points to consider as part of your decision:

- ✔ **Mechanical condition:** Compare how much the vehicle costs, or is likely to cost, per year in repairs and maintenance given its age. Is it in great shape for its age, or is your mechanic telling you that you have seriously expensive repairs ahead? If it's the latter, or if parts are becoming hard to find, it may be time to let go.
- ✔ **Suitability:** Is it still the right vehicle for your needs or your family's needs? If you're driving a sporty coupe but you need room for car seats, replacement may be your best option.
- ✔ **Fuel efficiency:** If you could switch from a heavy drinker to a light sipper, how much money could you save each year based on

the miles you usually drive in that time period?

- ✔ **Insurance:** Check with your insurance company to find out the cost difference in insuring your older vehicle and the newer models that you're considering. Although insurance savings shouldn't be the sole factor in your decision, it could make keeping the older vehicle more economical — or if you're considering a switch from a sporty vehicle to a family-oriented one, the change may be more cost-effective.

Reducing the decision to financial nuts and bolts can remove the emotion from the choice . . . after all, you may be surprisingly attached to what others view as a straightforward combination of metal and rubber. If you decide to replace your vehicle and you're not yet ready for alternative fuels, at least choose the most fuel-efficient vehicle that you can find. Find information about fuel economy ratings at [www.fueleconomy.gov](http://www.fueleconomy.gov) and [www.consumerreports.org](http://www.consumerreports.org) (on the Consumer Reports Web site, enter "fuel economy" into the search box).

turning the vehicle engine off and then back on again uses less fuel than idling longer than 30 seconds.

- ✔ **Slow down.** You use a quarter less fuel at 50 mph than you do at 70 mph. Of course, the concept also applies to highway travel at lower speeds — it's better for fuel efficiency to drive the speed limit than to exceed it.
- ✔ **Keep it steady.** Avoid hard acceleration and heavy braking, which increase fuel consumption. If you drive a standard transmission, shift up to higher gears at about 2,500 rpm. On the highway, use cruise control (and overdrive, if you have it).
- ✔ **Go gadget free.** Use your vehicle's air conditioner and other electrical gadgets only when you need to because they can use up to 10 percent more fuel. Keep the inside of your vehicle cooler with dash-mounted fans when you're driving or with reflective window shades when you're parked.

## Thwarting assumptions about a vehicle's size and physique

It's important not to judge a book by its cover: Sport utility vehicles, or SUVs, get a ton of bad press for being hard on the environment, but they're not all bad. Some models are less harmful to the environment than others, and most are comparable to pick-up trucks and even minivans when it comes to gas consumption and emissions. Smaller vehicles, of course, are generally the most fuel efficient of all, but you

should always check the manufacturer's fuel economy rating (and check unbiased sources such as consumer associations and state or federal ratings, too, to confirm) for the vehicles that you're considering: Don't simply assume that smaller is always better. Also, look for a vehicle with a good durability record; if it's well-made and has few repair issues, it's likely to last longer than other vehicles.

## Chapter 14

# Expanding the Green Vehicle Evolution

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### *In This Chapter*

- ▶ Using fuels that reduce emissions
  - ▶ Mixing things up with hybrids
- 

**F**rom biodiesel to hydrogen fuel cells, a number of automotive technologies are currently in development in order to lessen greenhouse gases and other environmental concerns; some have already made it off the drawing board and onto the road in this process of evolution. Although it's tempting to believe that one or more of these technologies is the silver bullet needed to solve the climate change problem, the reality is that it's important to consider all the environmental implications of each — not just the emissions that they do or don't produce from vehicle exhausts.



Putting greener vehicles on the road needs to go hand in hand with reduced vehicle use in order to make a real difference. Think of the solutions to greenhouse gases and climate change in terms of layers: Applying one layer can help, but applying a series of layers together is much more powerful. Although you can't make vehicles disappear, you can at least reduce their negative impact by making green choices about how and what you drive and the fuel you use, including renewable and cleaner fuels that are gaining ground.

## *Alternative Fuel Sources for Transportation*

The United States government says that it's working on protecting the oil supply to ensure that the nation isn't at the mercy of other countries when it comes to keeping industry humming, homes heated, lights on, and vehicles on

the road. But the U.S. can't reduce greenhouse gas emissions to the necessary degree without drastically changing the fuel that it burns, and that includes the fuel that powers your vehicle. In this section, we explore the current options for vehicle fuel.

## *A new twist on an old fuel: Diesel*

Diesel is a fossil fuel that, like gasoline, is created by refining petroleum. Both diesel and gasoline engines in vehicles are known as *internal combustion engines*, but it's important to understand that there's a big difference between gas and diesel engines: The fuel in a gasoline engine is ignited by spark plugs, whereas the fuel in a diesel engine relies on compressed air to heat the fuel to the point where it ignites. This difference is the reason diesel and gasoline aren't interchangeable.

The exciting environmental twist on diesel involves options for producing the fuel from non-petroleum sources such as soybean oils, vegetable oils, used cooking oil, animal fats, and pulp and paper processing byproducts. These alternatives burn cleaner because they don't release the greenhouse gases that petroleum-based diesel does. Another step forward for the petroleum-based type of diesel is ultra-low-sulfur diesel, which drastically cuts the sulfur emissions of conventional diesel.

This section looks at your options for using biodiesel or ultra-low-sulfur diesel. Just remember that these fuels can't be used in gasoline engines — only in diesel engines that have been designed or converted to accommodate the diesel variants.

### **Getting the government to help buy your car (indirectly, that is)**

You may be able to get some government help to cover the higher purchase price of energy-efficient vehicles such as hybrid, diesel, electric, alternative fuel, and fuel cell models as they become available. The tool here is federal tax credits. Although the original tax credit program for hybrid vehicles incorporated a phasing out of the credits after the manufacturer had sold 60,000 vehicles — and some vehicles are either

on their way to reaching or have already reached that figure — the government is considering an additional program and may respond to consumer and taxpayer demand, plus it has other programs such as one for alternative fuel vehicles. Keep an eye on [www.irs.gov](http://www.irs.gov) for details about current and future tax credits on green vehicles.

### ***Burning biodiesel: Grease cars***

You may have seen news stories about people who have adapted their diesel engine vehicles so that they run on used vegetable cooking oil (often from restaurants). That's one form of biodiesel; the vehicles that use this as fuel are often referred to as *grease cars*. If your vehicle has a diesel engine, you can convert it to run on used cooking oil with an engine conversion kit, which runs about \$1,000 (installation usually costs another \$2,000 to \$3,000 if you're not mechanically inclined enough to do it yourself). Because the used cooking oil needs to burn hotter than regular diesel fuel, the kit usually includes some kind of fuel tank heater to boost the oil's temperature before it hits the engine. You can expect your engine to get about the same amount of mileage from used cooking oil as it does from regular diesel — but without the greenhouse gas emissions. As for sourcing used cooking oil, many people go to restaurants to ask for the used oil and process it themselves (it's not difficult), but services are cropping up around the country that will do this processing for you.



For instructions on making your own biodiesel from vegetable oil, visit [biodieselcommunity.org](http://biodieselcommunity.org). You also can find more information, including sources of conversion kits and services, at [www.greasecar.com](http://www.greasecar.com).

### ***Burning biodiesel: Commercially available options***

Other forms of biodiesel, refined from soybean and vegetable oils (not from waste cooking oil!), are processed and available commercially (as opposed to the do-it-yourself nature of grease cars). There are already approximately 1,500 biodiesel fuel stations around the country, with more being added all the time. These forms of biodiesel are either 100 percent biodiesel (called B100) or a mix of biodiesel and petroleum-based diesel (such as B20, in which the biodiesel constitutes 20 percent of the mix, or B5, in which the biodiesel constitutes 5 percent of the mix). Although you technically can use commercially refined biodiesel of any concentration in any diesel engine without needing a conversion kit, the reality is that many major vehicle manufacturers won't honor their engine warranties if you're running biodiesel at concentrations above B20 because of uncertainty about biodiesel's effect on parts. Plus, biodiesel needs warming or additives in cold climates because it gels at warmer temperatures than regular diesel does.

The production of commercial biodiesel isn't without its problems; one major concern is with replacing food crops with biodiesel crops. There may be ways around this concern, however, because researchers have had good success with algae-based biodiesel fuel and boosting production efficiencies. If you use biodiesel sources such as agricultural waste, of course, it becomes much more renewable.

Even when you take into account the energy and emissions involved in producing biodiesel, it's still a lot better than burning fossil fuels: 41 percent fewer emissions than diesel and 52 percent fewer emissions than gasoline.



For more information about access to biodiesel fuel, check out the state-by-state listing of stations at [www.biodiesel.org](http://www.biodiesel.org).

### *Using ultra-low-sulfur diesel*

If you're considering a diesel vehicle and you don't want to go biodiesel, then ultra-low-sulfur diesel is a reasonable option. As of 2006, federal law requires the use of ultra-low-sulfur diesel in new diesel vehicles, so if you're buying a new diesel car, this is what you're going to get. Petroleum-based diesel fuel historically has had a high sulfur content, which not only is linked to health problems but also creates problems within vehicle emission systems. The bottom line is that diesel deserved its perception as a dirtier fuel. The ultra-low-sulfur version, however, is refined to contain less than 10 percent of the sulfur of regular petroleum-based diesel. Although regular diesel and even ultra-low-sulfur diesel still come with the issues common to all fossil fuels (carbon and particle pollution, for example), going ultra-low is a step toward making the fuel a little healthier than it once was.

Ultra-low-sulfur diesel fuel is already available at many service stations around the country. In fact, many now offer both regular diesel for older vehicles and ultra-low-sulfur for new ones. If you already have a diesel vehicle, you need a retrofit in order to use the new fuel, however: Talk to your dealer or your repair shop to find out if one's available for your vehicle model and how much it costs.

## **The not-so-great idea of using natural gas**

Imagine filling up your vehicle with the same natural gas that's piped into your home for heating or operating your stove: You simply connect the vehicle to a gas tap at home (or on the road), and fill 'er up. When natural gas is compressed or cooled, it becomes a fuel that you can burn in vehicles (such as the Honda Civic GX). Because natural gas burns much more cleanly and more completely than regular gasoline, it drops greenhouse gas emissions by about a quarter.

This sounds good, but natural gas is still a fossil fuel! It's not anywhere near a renewable form of energy, although gas reserves are believed to be larger than oil reserves. Natural gas also isn't nearly as clean as using electric or hybrid vehicles, so it's not considered a really viable option for reducing greenhouse gas emissions to the point that they need to be lowered.

## *The promise and the problems: Ethanol*

Ethanol is a form of alcohol, which is produced when the sugars and starches in plants are fermented. The major controversy surrounding ethanol as fuel involves the source of those plants: Using corn as the major ingredient comes with major environmental problems, which we explain in this section. It's much better to go with cellulosic ethanol that's produced from agricultural waste or crops that don't need the kind of high-quality land that corn ethanol does.

Some petroleum-based fuels already contain a small percentage of ethanol, and these are fine to use in gasoline engines. Purer blends, such as the E85 described in this section, however, require the purchase of a *flex-fuel* car that can accommodate both conventional gasoline and ethanol fuels.

### *Growing corn ethanol*

If you want to get a good debate going between the alternative fuel industry and environmental groups, mention corn ethanol. In the U.S., this fuel is made primarily from corn (other areas of the world use sugarcane as a base instead). Essentially, the corn is fermented and the resulting alcohol (ethanol) becomes a replacement fuel for gas. One of the most common forms of ethanol currently is known as E85, which means that it's 85 percent ethanol.

Although you may think ethanol is carbon neutral because the corn absorbs carbon dioxide as it grows, research has shown that the electricity required to create ethanol seriously reduces the overall environmental benefit of burning it as vehicle fuel. And then there's the other major issue of replacing food crops with corn ethanol crops. According to Co-op America ([www.coopamerica.org](http://www.coopamerica.org)), the demand for corn ethanol increases corn prices, which creates serious affordability problems for those who rely on corn as part of their diet; plus, it's using good agricultural land for fuel instead of food. Corn in general — whether it's used for food or fuel — is also a crop that requires significant pesticide use, and a lot of it is now genetically modified. Given the costs, most environmental groups want the country to move away from corn-based ethanol rather than embrace it.



Vehicles that can burn ethanol as fuel rather than simply as an additive within the fuel are known as *flex-fuel* vehicles because they can burn whatever's available: gas or ethanol. To find stations offering corn ethanol, visit [www.e85refueling.com](http://www.e85refueling.com).

### *Calling for wasted plant matter: Cellulosic ethanol*

Like corn ethanol, *cellulosic ethanol* is produced via fermentation to create an alcohol that can be used as fuel, but it comes from biomass rather than corn. *Biomass* is plant matter that's considered waste, such as corn stalks and paper pulp, so it's automatically more environmentally friendly than corn ethanol. It's

also possible to create cellulosic ethanol from plants such as some grasses that don't require agricultural land to grow; they can be grown on marginal land, which means land that isn't in competition with food crops — again, this is far more environmentally and people-friendly than corn ethanol.

Unfortunately, cellulosic ethanol isn't yet commercially available, although some manufacturing facilities are being built. A lot of government and industry resources are being funneled into corn ethanol production, but you can help the cause for cellulosic ethanol by letting the state and federal governments know that you want resources to be focused on cellulosic ethanol as a more ecologically and socially balanced alternative fuel — do this by writing or e-mailing your government representatives.

## *A Different Means of Supplying Energy: Hybrid Electric Engines*

*Hybrid electric* vehicles work by adding an electric motor system to a gasoline engine, thereby reducing the amount of fuel needed to run the vehicle. The electric system's battery automatically recharges as you drive through energy provided by the gasoline engine and/or energy that's released when you brake. As long as there's power in the battery, the vehicle automatically uses the electric motor as power (either for extra power at higher speeds or to run the entire vehicle at lower speeds). When there's not enough electric power available, the vehicle switches back to the gas engine.

### **Laying your two cents on the table**

Increased demand for green vehicles will become one of the most powerful influences to encourage more manufacturers to create new versions of their vehicles. Directing that demand to truly renewable and practical energy sources, such as the ones we discuss in this chapter, is essential. Making available retail outlets for alternative fuels is also critical to ensure that these technologies are easy for people to adopt.

A powerful way of supporting these efforts and changes is to make your views known. Write or e-mail your state and federal representatives to let them know that this issue is important to you, to the nation, and to the planet. You'll find their addresses on state and federal government Web sites.



## Vessels for energy, waves of the future? Hydrogen fuel cells

A lot has been written about hydrogen fuel cell technology. Its advantages are huge because it releases no emissions at all. Hydrogen is a potential catalyst for energy for both utilities as well as transportation, so we cover its promises and complexities in depth in Chapter 3, where we discuss the broader applications of energy storage for mass use.

In terms of practical applications in vehicles, several problems are holding up hydrogen:

- ✔ Hydrogen fuel cells are fragile, especially at cold temperatures, which creates a problem for vehicle use on bumpy roads and in northern climates.
- ✔ Hydrogen fuel cells are a considerably more expensive technology than combus-

tion engines, which limits their affordability for a wide range for consumers.

- ✔ A larger volume of hydrogen is needed to get the same amount of energy compared to gasoline, so currently the hydrogen needs to be compressed, which in turn takes more energy, lessening its eco-friendly potential.
- ✔ Special refueling stations have to be built around the country, adding to the cost to introduce the technology.

The use of hydrogen fuel cells in vehicles is an area of development that you'll simply have to watch. Researchers are working to overcome its challenges, and it's possible that technology could reach the point where hydrogen fuel cells can be implemented in the future.

One problem with early electric vehicles was that they didn't travel very far before they needed to be plugged in and recharged. They weren't practical, and they didn't catch on with many people because there was less enthusiasm about environmental issues at the time. As technology has evolved, however, they're becoming increasingly practical. Add the growing concern for the environment, and auto manufacturers have responded with hybrid vehicles that incorporate both gas and electric technologies and don't need to be plugged in at all. The best known hybrid is probably the Toyota Prius, but a number of others exist, including the Toyota Camry Hybrid and the Honda Civic Hybrid.

Hybrids are more expensive to purchase than their non-hybrid counterparts (on average, the difference is approximately \$4,000, but it varies by model), but they reduce your gas consumption and therefore your greenhouse gas and pollution emissions. When the vehicle operates on electric power, there simply aren't any emissions. Hybrids are already a strong alternative for many drivers, and their popularity will only grow. (Take one out for a test drive and prepare to be fascinated by the dashboard display that shows where the vehicle is drawing power from and where it's being generated.)

Nowadays manufacturers are adding a twist to conventional hybrid electric vehicles with a plug-in option. These plug-in hybrids still have both the gas engine and the electric motor and battery system, but you also can plug them into a power source. Why plug the vehicle in? Because it means that more power can be stored in the battery system, increasing the amount of time that electricity powers the vehicle. These vehicles aren't yet on the road except as a few demonstration prototypes because the technology requires a bigger battery that's proving problematic; researchers are working on technology to make it more efficient.

Stay tuned to the issue of the plug-in hybrid, however, because the concept has the capacity to drop emissions even lower than they already are. One of the environmental keys to plug-in technology is ensuring that the vehicle is plugged into the cleanest possible source of electricity. Power from an older coal-fired plant isn't nearly as green as power from solar or wind energy.



Watch for the Chevy Volt, which will incorporate plug-in technology. This electric car is currently still at the concept stage and isn't available for sale, but you can find out more about it at [www.chevrolet.com/electriccar](http://www.chevrolet.com/electriccar).

## Chapter 15

# Becoming a Green Traveler

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### *In This Chapter*

- ▶ Examining the impact of tourism
  - ▶ Introducing green travel and ecotourism
  - ▶ Getting your green vacation off the ground
  - ▶ Being a good visitor
- 

**T**ourism is one of the biggest industries in the world, generating more than \$2 billion in spending every single day — it's truly a force to be reckoned with. With the Internet providing plenty of information about enticing destinations and airlines making it easier than ever to get to them, it's no surprise that Americans are traveling to every corner of the globe just as people from around the world are arriving in the United States daily.

Of course, all this travel comes with a cost to the environment. Major impacts include the amount of carbon that airplanes pump into the atmosphere and the degradation of areas and sights that are especially popular with travelers. The good news, though, is that you can travel the world while protecting it, too. A little research is all you need to make sure that you're contributing to the solution rather than the problem. And you're in luck — that's just what this chapter is for.

## *Reconciling the Economic Benefits and Environmental Costs of Tourism*

For many years in the recent past, local, regional, and national governments around the world have focused on managing the economic good fortune that visitors brings to their areas. In fact, the United Nations World Tourism Organization ([www.world-tourism.org](http://www.world-tourism.org)) says that tourism can contribute to poverty reduction, which they call an essential condition for peace, environmental conservation, and sustainable development, noting the following specific economic benefits of tourism:

✔ **It creates jobs and supports local businesses, which in turn**

- Serves travelers
- Serves the country's residents
- Generates significant tax revenues

The World Tourism Organization says that tourism is one of the major export sectors for poorer countries and a leading source of foreign exchange in 46 of the 49 countries that the United Nations considers the world's least-developed. Taking tourism away from those countries would have a devastating economic impact on them.

✔ **It can help countries support and protect their own culture and heritage.**

In some African nations, for example, wildlife conservation has become a major priority because governments have realized that visitors want to see wildlife in its natural habitat. And in Cambodia, the ancient temple complex of Angkor attracts visitors that pay an entry fee that helps to support the protection of those temples.

Tourism also has educational value for travelers. This aspect is much harder to quantify than the economical benefits of tourism, but the creation of a world that's sustainable for years to come isn't possible without global education. There's nothing like seeing the highly endangered North Atlantic right whale swimming free along the Eastern seaboard to make you want to do everything in your power to protect its ability to raise its calves and swim in safety. And when you make an effort to meet and sensitively interact with the local people in areas that you're traveling in — whether you're in Arizona's Navajo country or Egypt's Nile region — you can gain an understanding of cultures that are different from yours and contribute to a sense of peace and kinship around the planet.

Today, however, many people have realized that increasing numbers of travelers can have a potentially negative impact on both the environment and local communities. Local economies can benefit hugely from some types of tourism, and tourism provides some communities with their main source of income. But tourism that isn't managed sustainably and ethically can be very damaging, bringing pollution, cultural exploitation, environmental damage, and overdependence on tourism as a source of income. The World Wildlife Fund ([www.wwf.org](http://www.wwf.org)), for example, says that the impacts of increasing tourism in once remote parts of the world include the following:

- ✔ The ruin of coastal ecosystems, particularly plants and wildlife, due to huge resort developments
- ✔ Greatly reduced water supply in various local populations due to water use for hotels, swimming pools, and golf courses (in dry regions that don't see much rain)
- ✔ Altered nesting and migration patterns of bird and sea life as well as that of land animals due to increased numbers of people traveling in ecologically sensitive areas.

It's easy to look at the negative effects of tourism and think that everyone should just stay home. But that's not really the answer because doing so would be a huge downfall for areas that badly need the income. A better solution — reducing those negative impacts without turning travelers away from economically needy countries — is already in the works. Negative impacts such as those covered in this section are causing the tourism industry to develop standards that encourage greater responsibility by tour operators and travelers themselves.

## *Assessing What Green Travel Really Means*

Although being seen as green is becoming more and more important to businesses within the travel industry as demand for sustainable travel increases, organizations define green travel in different ways. No single certification program or standard guides the way that businesses within the travel industry describe themselves. That means that it's up to you, the traveler, to assess how green a particular business — a hotel, tour operator, or attraction, for example — really is. Just because a business calls itself *green*, *environmentally friendly*, or *eco-aware* doesn't necessarily mean that it's as green as you'd like it to be.

### *Considering others' definitions*

As you research green travel options, you'll hear destinations and trips described in a variety of ways:

- ✔ **Sustainable** vacations are careful to avoid negative impacts on the environment and may or may not include a focus on local cultures.
- ✔ **Ethical or responsible** travel is sustainable but usually includes a focus on treating the local people fairly and equitably. Much of the income generated by tourism in the developing world never reaches the local people; an ethical vacation ensures that the money you spend goes into the local economy rather than to a multinational corporation.
- ✔ **Geotourism** is a term coined by National Geographic to describe travel that encompasses natural, cultural, and economic sustainability for local cultures.
- ✔ **Ecotourism** is sustainable and ethical but in a natural environment. There's more on this increasingly popular type of travel later in this chapter in the section "Embracing Travel that Makes a Difference."



You'll likely see terms such as *eco*-, *ethical*, *green*, and *sustainable tourism* used to describe travel that's environmentally aware. It's up to you as a consumer to go beyond the words, however, and research exactly what the travel organization means by them. Ask the company about its environmental and cultural policies, and examine the trips that it offers so that you can assess whether or not the company actually lives up to its marketing materials.

## *Factoring in your own priorities*

The greenest vacations are sustainable, ethical, and eco-friendly. If you want to be truly green, make sure that your trip is as kind as possible to the environment and benefits the local community and economy at your destination.

No matter how green a tour company or destination claims to be, the most important factor is whether it meets your personal green standards. You can consider a range of issues in deciding exactly what green travel means to you — this is truly an opportunity to put your money where your heart is.

When determining green travel priorities, consider the following:

- ✓ Greenhouse gas (carbon) emissions
- ✓ Carbon offsetting programs initiated or offered by the tour company, destination, or hotel
- ✓ Contributions to the local economy
- ✓ Protection of the local environment
- ✓ Conservation of wildlife
- ✓ Support to local, indigenous cultures
- ✓ The overall impact of travel to that region and whether it's over-traveled

## *Embracing Travel that Makes a Difference*

Plenty of travel is about relaxation and taking a much-needed break from everyday work and family routines — and there's absolutely nothing wrong with that. A break in the routine can help you to recharge your batteries and return home refreshed and inspired. If you're looking for greener travel that goes the extra mile, however, you can consider ecotourism and volunteer vacations.

Both of these types of travel make a difference in the world. At its best, ecotourism helps to connect cultures and landscapes while actively working to respect the environment. Adding a volunteer element allows you to contribute to local ecosystems or people — or both. This section takes a look at ecotourism and volunteering options that are available to travelers.

## *Discovering ecotourism*

Do you want to learn more about the natural environment that you're traveling to? An increasing number of destinations and tour companies are offering *ecotourism* options to serve that desire.

Ecotourism is about doing more than simply enjoying your surroundings; it's about understanding them while making sure that your travel doesn't affect them negatively. Although it's often associated with physical adventure, you don't have to be out on a ledge on a mountain climb or in the surf in a sea kayak. More than anything, ecotourism is traveling with care and awareness. This begins with understanding what ecotourism is and choosing an appropriate supplier and destination; then you have to travel in a green and responsible manner.

### *What ecotourism is (and is not)*

There's a lot of confusion, even in the travel industry, about what ecotourism is. Every company that offers a tour, accommodations, or service in unspoiled natural locations like national parks, wildlife areas, beaches, lakes, and even remote islands has the potential to claim that it's an ecotourism company.

The International Ecotourism Society (TIES) ([www.ecotourism.org](http://www.ecotourism.org)) says that ecotourism is "Responsible travel to natural areas that conserves the environment and sustains the well-being of the local people." TIES believes that ecotourism should

- ✓ Minimize impact
- ✓ Build cultural and environmental awareness and respect
- ✓ Provide positive experiences for both visitors and hosts
- ✓ Provide direct financial benefits for conservation
- ✓ Provide financial benefits and empowerment for local people
- ✓ Raise sensitivity to a host country's political, environmental, and social climates
- ✓ Support international human rights and labor agreements

The European Travel Commission ([www.etc-corporate.org](http://www.etc-corporate.org)) says that the following characteristics apply for a trip to be considered ecotourism:

- ✔ The destination is usually an unpolluted natural area.
- ✔ The destination's attractions are the flora and fauna and its entire biodiversity.
- ✔ The trip should support the local economy and its indigenous atmosphere.
- ✔ The trip should contribute to the preservation of the environment and promote the importance of conserving nature.
- ✔ The trip may include a learning experience.

As you can imagine, it's not easy to achieve all these objectives, but demand for ecotourism options is on the rise as travelers become more aware of their impact on local environments and actively look for green vacation options. Local communities also see ecotourism as a way to bring in travelers who are willing to pay a bit extra if they know that their money goes toward saving endangered species or conserving their natural ecosystems, for example.

### *Hitting the ecotourism hotspots*

The first question you may ask when thinking of an eco-vacation is, "Where should I go?" Of course, it's best to travel locally if possible to cut down on the damage caused by flying (see the later section "Deciding how you'll get there (and back)" for more on this damage), but there are many cultural and economic advantages to traveling farther away, especially if local economies benefit.

Internationally, a growing number of countries and regions are becoming popular ecotourism regions. Some of the most popular locations with an increasing number of ecotourism attractions and services include:

- ✔ **Africa:** Kenya and Swaziland have become two of the most popular hotspots. Their national parks, deserts, and forests as well as rich wildlife and traditional culture (such as the Kenyan Masai tribe) make them extremely popular places to visit but also put huge pressure on the tourism industry to make sure that the recent marked increase in tourism is managed sensitively.
- ✔ **Caribbean and Central America:** Some of the fastest-growing ecotourism spots in the world are beach and rainforest areas found in small countries like the Dominican Republic, Belize, and Costa Rica. Costa Rica has become one the most popular ecotourism destinations in the Americas thanks to government support for tourism and the country's unmatched variety of rainforests, volcanoes, mountain ranges, and beaches.
- ✔ **Europe:** Although museums and historical sites immediately come to mind, European countries offer plenty of ecotourism options, too. Cycling and hiking holidays are especially popular.



- ✔ **North America:** The beautiful, extensive but increasingly overcrowded national parks continue to attract visitors to North America, with Alaska and Canada growing in popularity. Heading to some of the slightly less popular but equally stunning parks spreads out the impact more equally.
- ✔ **South America:** Brazil, Ecuador, and Peru are high on ecotourism lists, with the Amazon region in Brazil, the snow-capped volcanic mountains and indigenous populations in Ecuador, and the Andes in Peru still the dream destinations for many travelers.
- ✔ **Southeast Asia:** Indonesia and Thailand are the most popular destinations in this region, with their rainforests and mountain ranges contrasting with stunning beaches. An increasing number of ecotourists also are visiting countries such as Cambodia, Laos, and Nepal — although even in Nepal, garbage on the popular route toward Mount Everest has been a problem.



An increasing number of guidebooks highlight the attractions of these natural parts of the world (check out the travel titles in the *For Dummies* series). You also can type “ecotourism” into your favorite Internet search engine to find plenty of ecotourism options.

### ***Acting naturally: The seven principles of a no-trace trip***

There’s no point using the services of a company that touts green vacations if you have no intention of being an ecotourist. There are seven principles for leaving no trace when you travel to natural areas. Here’s a quick rundown; for more details, head to the Leave No Trace Center for Outdoor Ethics at [www.lnt.org](http://www.lnt.org):

- ✔ **Plan ahead and prepare.** This principle includes scheduling your trip to avoid times of high use, only visiting in small groups, and packaging food and beverages to minimize potential waste.
- ✔ **Travel and camp on durable surfaces.** Choose ready-made campsites, don’t alter a site to suit your purposes, and stick to existing trails. Walk in single file, and avoid places where you can see that use is starting to damage the area.
- ✔ **Dispose of waste properly.** If you bring it with you, take it away again. For washing and cleaning, use biodegradable products.
- ✔ **Leave what you find:** Don’t take any rocks, plants, or other potentially valuable artifacts with you when you leave an area. This includes any wildlife items such as birds’ eggs and nests.
- ✔ **Minimize the damage of campfires.** Light a campfire only if permitted by rangers or wildlife officials, and try to use established fire pits when you do. Never leave a campfire unattended, and burn everything to ash to be safe.

- ✓ **Respect wildlife.** Feeding animals or other wildlife can alter their natural behavior, so just view them from a distance. Know what to do to reduce your chance of encounters with potentially dangerous wildlife such as bears and what to do if you come across them.
- ✓ **Be considerate of others.** Respect and give way to other people you encounter on a trail.



It's up to you to do your own research to be sure that the vacation you arrange is as eco-friendly as possible. Don't take the word of the company you're booking through; it may claim to meet all the ecotourism principles, but the issue comes down to whether a self-proclaimed ecotourism company is actually adding value to an area rather than having a negative impact. You can't take their word for it. Unfortunately, there's no large-scale international certification system for eco-vacations; instead, there are lots of different labels, many of which are only relevant to specific countries and regions.

You can start your research with the organizations listed in the sidebar "Digging for more details on green vacations."



If your trip includes wildlife watching, ask about the operator's Code of Conduct before you book. At minimum, it should include provisos to never chase or interfere with wildlife in any way and to limit the time spent watching any one animal.

## *Volunteering on vacation*

Is there a cause that's near and dear to your heart — so much so that you'd want to devote part or even all of your vacation to it? Whether you want to help a homeless family build a house, assist in a remote archeological dig, comb beaches for signs of plover nests, or clear trails in a storm-damaged park, there's a wealth of opportunities just waiting for you to choose from. You'll return from your vacation knowing that what you've done has made a difference in the world. And there's a very good chance that you'll also gain new skills and new friends at the same time. What more could you ask for?



You may not be able to change the world in a week's vacation, but you may change a little corner of it for someone. By making someone's life better, you may help to put them in a position to help someone else. The positive ripple effect of your action could go on to produce even greater things.

### *Knowing what to expect*

You really need to do your research before committing to a volunteer vacation. In many cases, you'll be sharing fairly basic accommodations with other volunteers in anything from tents to dormitories to local homes. (If you're housed in hotels, you can expect the cost of the vacation to be proportionately higher.) You also should fully understand the level of physical strength

or stamina that may be required. Mentoring journalism students, for example, may require specialized knowledge but little in the way of brute strength. If you're building rock retaining walls to protect against coastal erosion, however, you shouldn't be surprised when someone points to a rock and asks you to "lift!"

Find out how much assistance you'll receive in getting to the volunteer site: In many cases, you travel with other volunteers; in others, you travel alone. Either way, you'll likely be met at a transportation hub near your destination by organizers who take you the rest of the way. Organizers may provide cooked meals for you on-site, or you may be responsible for some or all of your own meals. Knowing these details can help to ensure that your expectations are realistic — and met.

Most organized volunteer vacation opportunities ask you to pay for your trip, including transportation, accommodation, and meals. Some organizations also ask for a monetary donation as a portion of the trip fee in order to further their work; they may ask you to provide this yourself, or you may have the option of fundraising at home before you head out on your vacation.



Check your federal tax regulations: In the U.S. and Canada, charitable donations can be tax-deductible, so it's possible that at least a portion of your trip cost could be deducted from your taxes, depending on your income level.

### *Finding volunteer opportunities*

If you already support a cause or a nonprofit organization or are interested in supporting one, inquire about whether the group organizes volunteer vacations. That's a natural place to start. Otherwise, an Internet search on "volunteer vacations" will produce hundreds of options. (Try narrowing down the overwhelming results by refining your search with a geographic destination or a skill; for example, you may want "volunteer vacations Nicaragua" or "volunteer vacations trail building.") These organizations also can help:

- ✓ Charity Guide: [www.charityguide.org](http://www.charityguide.org)
- ✓ Earthwatch Institute: [www.earthwatch.org](http://www.earthwatch.org)
- ✓ Global Volunteers: [www.globalvolunteers.org](http://www.globalvolunteers.org)
- ✓ Habitat for Humanity: [www.habitat.org](http://www.habitat.org)
- ✓ Wilderness Volunteers: [www.wildernessvolunteers.org](http://www.wildernessvolunteers.org)
- ✓ World Volunteers: [www.worldvolunteers.org](http://www.worldvolunteers.org)



If you have 27 months or more to spare for training and service, there's always the ultimate in volunteer vacations: the Peace Corps ([www.peacecorps.gov](http://www.peacecorps.gov)). You could find yourself teaching English in Madagascar or helping to develop small businesses in Peru — and that's just to start.

## *Let the Decision Making Begin! What to Do Before You Start Planning*

The greenest holidays are those spent at home enjoying the countryside around you without traveling long distances and adding to environmental damage. But traveling farther afield can have a great deal of value, too. It can broaden your perspective on the world and even on your own life, helping you to see world events and people in a more educated light, for example. Travel also can help to build bridges between cultures, fostering understanding and communication instead of conflict. And it can help you to break free of patterns and habits that it's time to let go of.

Whether you choose to stay close to home or head somewhere different, focus on making every aspect of your vacation as green as possible. This begins with making the decision about the type of trip you're going to take — whether it's a simple vacation that you want to be as sustainable as possible or you're going beyond, into an eco-tourism experience, adventure travel, or volunteer vacation.

### *Making your first decision: Who should plan the trip?*

Your first step in planning green travel is to decide whether you're willing and able to spend time researching the trip yourself or whether you prefer to let someone else handle the details. Both options are entirely valid, and both have advantages and disadvantages.

If you prefer to plan your own green travel, you're in charge of all the decisions and the bookings for travel, accommodation, and activities. You can make the greenest possible choices at every step without having to explain them to a travel agent or tour operator.

This does take time, however, and you need to understand the process of travel — down to details such as how much time you'll need to transfer between airline or bus terminals, for example, and whether you'll need to obtain visas ahead of time for entry into the countries to which you're traveling.



When you plan your own eco-vacation, you need to commit the time necessary to research all these areas, but you're rewarded by the fact that you're traveling your way, which can be as deep a shade of green as you want.

A travel agent or tour operator can take care of many details automatically and may be able to suggest ideas for itineraries or destinations that you wouldn't find on your own. You need to make sure that the person you work with understands your green travel priorities in order to ensure that the trip you end up with is one that meets all your standards.

A third option is to combine the trip planning so that you plan parts of it and a tour operator or travel agent helps you with other parts. In this arrangement, the planning doesn't overwhelm you but you still have a strong degree of control. However you decide to plan your trip, make sure that you understand your green priorities; they'll help both you and any experts that may be trying to assist you.

## *Finding green travel operators*

Whether you're heading for an art-filled city or a wildlife-rich forest, you may not want to plan the entire trip yourself. To keep your trip green, find a tour or travel business operator that's as concerned as you are about the ethics and sustainability of travel. This may require a little more research on your part, but it will be worth it when you arrive at your destination and feel good about the impact of your trip.



When you're looking for green travel operators or vacations, begin with organizations that have developed certification programs or earned recognition from them. Three great places to start include:

- ✓ **Green Globe** ([www.greenglobe21.com](http://www.greenglobe21.com)), which offers a label based on the UN's Agenda 21 sustainability principles. Green Globe provides certification under four sustainability standards and includes all tourism, whether it's in cities or natural areas.
- ✓ **Sustainable Travel International** ([www.sustainabletravelinternational.org](http://www.sustainabletravelinternational.org)), which is a Colorado-based organization that offers an Eco-Directory of businesses committed to sustainable travel. Many of these business also have qualified for certification programs.
- ✓ **The International Ecotourism Society** ([www.ecotourism.org](http://www.ecotourism.org)), which offers a huge range of information about ecotourism, including a Travel Choice directory of members that have signed a code of conduct to follow responsible ecotourism guidelines.

The organizations in the preceding list can help you locate certified or recognized eco-friendly travel businesses. To feel confident that you've chosen ethical and sustainable travel operators (or perhaps to help you narrow down your list of possibilities), be prepared to ask a lot of questions, including the following:

- ✓ Have you qualified under any kind of environmental certification program?
- ✓ Do you have a written ethical policy for your business?
- ✓ How are you reducing waste in your operation?
- ✓ How are you conserving water and other natural resources, including power?
- ✓ How are you minimizing damage to wildlife and marine environments?
- ✓ Have your hotels or other accommodations been built in an environmentally friendly way?
- ✓ What percentage of your staff is local, and do you use local guides? Are your wages fair?
- ✓ What percentage of produce is locally sourced?
- ✓ Which local initiatives to protect or support culture or the environment do you support?

Make sure that you're happy with the answers you receive. The individual efforts of companies may differ depending on the part of the world that they're operating in, but you should feel comfortable that their ethical and sustainable initiatives are both genuine and effective.



If you book through a tour operator, go with one that's a member of Sustainable Travel International ([www.sustainabletravelinternational.org](http://www.sustainabletravelinternational.org)) or the Association of Independent Tour Operators ([www.aito.co.uk](http://www.aito.co.uk)), which includes many international operators. Members of AITO, for example, have to protect the environment and natural resources, minimize pollution, ensure that local communities benefit from tourism, and also make sure that visitors respect local cultures and customs. Some tour operators even give money to community projects in the countries they organize trips to. Always ask before you book.

## *Preparing for Your Trip*

Planning your trip to ensure that it's as green as possible takes a little time. After all, you need to take into consideration where you're going to go, how you're going to get there, where you're going to stay, and how you're going to spend your time. The good news is that at every stage, you'll find opportunities to reduce your carbon emissions, avoid environmental damage, support local communities, and protect local wildlife.

In this section, we take a look at each of these issues, offering advice to get you started. It's important to spend that extra time researching your options so that you choose wisely from the very beginning, helping to ensure that you can relax and enjoy your travels because you know that you're doing everything possible to help the environment.

## Digging for more details on green vacations

If you're convinced that your next vacation should be greener than some you've taken in the past and you want more information, try a few of the following Web sites. They cover everything from helping you decide where to go and what to do when you get there to providing discussion forums to put you in touch with other ecotourists.

- ✓ Conservation International: [www.ecotour.org](http://www.ecotour.org)
- ✓ Eco Club: [www.ecoclub.com](http://www.ecoclub.com)
- ✓ Ethical Escape: [www.ethicaleescape.com](http://www.ethicaleescape.com)
- ✓ Ethical Traveler: [www.ethicaltraveler.com](http://www.ethicaltraveler.com)
- ✓ National Geographic Center for Sustainable Destinations: [www.nationalgeographic.com/travel/sustainable](http://www.nationalgeographic.com/travel/sustainable)
- ✓ Rainforest Alliance: [www.eco-indextourism.org](http://www.eco-indextourism.org)
- ✓ Responsible Travel: [www.responsibletravel.com](http://www.responsibletravel.com)
- ✓ The Sustainable Tourism Stewardship Council: [www.stscouncil.org](http://www.stscouncil.org)
- ✓ Voluntary Initiative for Sustainability in Tourism: [www.visit21.net](http://www.visit21.net)
- ✓ World Wildlife Fund: [www.wwf.org](http://www.wwf.org)

## Choosing a location

Where you choose to go depends largely on what you want to do when you get there — whether it's meandering through museums, playing historian at archaeological sites, kayaking along a seacoast, or simply lounging by the pool. Some things to take into consideration when you're looking for a location are

- ✓ A destination (geographical area or individual resort) that supports environmentally friendly principles, especially carbon emissions reduction
- ✓ A destination that supports democratic principles and fundamental human rights for all people, including its own
- ✓ A destination that's actively working to protect local plants, birds, and wildlife
- ✓ A destination that values its own heritage and culture and is working to educate visitors about both



Do some research into what life is like for the local people. Sure, you deserve a bit of luxury when you're on vacation, but in some of the most luxurious vacation resorts, local people live well below the poverty line. You may not feel at all comfortable in a place where there's a huge gap between how you're vacationing and how they're living. If you think that may be an issue, try finding either a location where this isn't so much of an issue or an alternative accommodation that gets you closer to the local culture.

Even if your vacation doesn't take you outside the U.S., it's worth remembering that some areas fare better than others in terms of attracting visitors. There's nothing wrong with getting off the beaten path into less touristy areas and spending your money there.

If a train tour or a cruise is in your future (meaning that you don't necessarily have one specific destination), research the company you'd like to travel with before you book. Find out about their green practices, where they find their staff, and what working conditions are like for the staff. For cruise ships, you can also visit [www.cdc.gov/nceh/vsp/default.htm](http://www.cdc.gov/nceh/vsp/default.htm) for Vessel Sanitation Program reports from the Centers for Disease Control and Prevention. Although these inspections are targeted toward preventing disease, they can give you a good idea about how seriously the ship's crew and the cruise line take issues such as the health and well-being of their passengers.

## *Deciding how you'll get there (and back)*

Until the middle of the 20th century when commercial air travel became more of an option for regular folks, much of the traveling to and from chosen travel destinations was done by train and boat. Now, with life getting busier and busier, travelers often want to get there and back as quickly and as cheaply as possible. Weekend getaways from the East coast to destinations as far away as Europe are advertised, and the Caribbean seems to be just a hop, skip, and a jump away from airports throughout the U.S. (which is particularly tempting during winter snow and rain!).



Air travel may be convenient, but it's also one of the fastest growing sources of greenhouse gas emissions. And because it releases many of those gases at high altitudes — into the part of the earth's atmosphere where they can do the most damage — it does significantly more damage than other forms of travel. Even long-haul flights, which are considered the most efficient flights in terms of emissions per mile, still emit more greenhouse gases per passenger per mile than a small car does.

Add to those greenhouse gases pumped into the atmosphere the noise experienced by people living below the flight paths of planes and near busy airports, and you can see why many experts think that air travel should be reduced. Instead, predictions indicate that air travel is going to keep increasing over the coming years — and that means more planes, more runways, more airports, and more fuel. New, modern planes built using the latest technology are cleaner, less noisy, and more environmentally friendly than their predecessors, but they still can't counteract the effect of air travel's growing popularity. Fuel economy may be increasing, but total fuel consumption is also increasing as more people choose to fly.





Getting there and back in an earth-friendly manner involves looking at alternative ways of traveling, including the train, which can open up new travel possibilities. Going away for longer than the typical vacation and choosing only one long-distance trip per year (instead of several trips) cuts down on carbon emissions no matter how you travel.

In this section, we explain the benefits of the other transport options you have as well as one way you can help offset the environmental costs of flying.

### *Boarding a train, boat, or bus rather than a plane*

If you do nothing else to get greener on vacation, think about how to cut down on the number of flights you take each year. The first question to consider when you decide you need a vacation is how far you need to travel. Local vacations are the greenest, especially if you can use trains, buses, or bicycles to get you there. If you have to get to the other side of the country or even the planet to see friends and family, doing so without flying may not be an option. But if you have the choice and can go somewhere closer to home or use alternative forms of transportation, think about your options before you book airline flights.

If there's a choice between flying, driving, and taking a train or bus, go for the train or bus. Flying and driving are the most polluting options. When you let the train or bus take the strain, you can save three to seven times the greenhouse gas emissions compared to taking a plane, depending on the route you're traveling. Of course, it's difficult — even impossible — to avoid driving to some destinations that aren't served by public transportation. In European countries, for example, the local train and bus networks are often very good, but in North America, the long distances make comprehensive networks much more challenging for transportation operators.



In the U.S., you can take wonderful vacations in which traveling by train, boat, or bus adds to the enjoyment, or even becomes the reason for the journey. Scenic train trips, such as through the Rocky Mountains or along the Pacific coast, give you a chance to relax, let someone else do the “driving,” and simply enjoy the scenery. You don't have to worry about your bags getting lost, and you get to see a lot of your home country.

### *Reducing the impact of flying*

If you find that you have to fly, try to make the rest of your trip as green as possible. Consider the following ideas:

- ✔ **Try to take direct flights rather than those that make stops en route.** Taking off and landing use up more fuel than cruising at high altitude so a trip that includes a few hops costs you more in carbon emissions. Keep in mind when you're choosing flights that many low-cost airlines fly via a third location rather than non-stop, so it's less costly to the environment to seek a different airline.

- ✔ **Find an airline that uses newer model planes.** Newer planes tend to offer better fuel economy than older ones.
- ✔ **Choose daytime flights.** Studies have shown that the jet contrails (those white lines of exhaust that streak the sky behind planes) can contribute to warming the atmosphere because as they disperse they can trap heat radiating up from the earth. This is especially true at night because during the day the contrails partially offset the heat trap effect by radiating light from the sun away from the earth.
- ✔ **Pack light.** Every pound of weight that a plane carries increases the amount of fuel that it burns, so reducing your luggage weight actually reduces your environmental impact — and it makes your luggage much easier to carry, too!
- ✔ **If you have a choice between economy class and business or first class, choose the less comfortable (and less expensive) economy seat.** It makes sense from an environmental point of view because the more passengers that an aircraft carries, the less fuel is burned per passenger. When you choose an economy seat, you're responsible for fewer emissions than if you choose a seat in a roomier class of travel. (Although each passenger's weight costs the airline some fuel, there's a huge fuel cost in the airplane's weight, and carrying more passengers distributes this "fixed" cost among more people.)
- ✔ **Purchase carbon offsets.** These "shares" of sorts basically go toward reducing the same amount of environmental costs that your trip expends, and you can purchase these shares for driving as well as flying. See the next section for more information.

### *Flying carbon neutral*

As with any other aspect of being greener, every little bit helps. If you cut down on the number of flights you take each year, choose alternative transportation whenever possible, enjoy holidays locally, and fly only when necessary, you're already doing a lot to help the environment. No matter how green you want to be, however, sometimes you really do need to take a flight — especially because traveling to other areas of the world can help improve economic conditions there.



To make up for some of the environmental damage done by each flight you take, consider making the trip *carbon neutral*. This involves calculating how much your flight generated in greenhouse gas emissions and buying a certificate or "share" in a project that aims to reduce emissions by that same amount.

Many of these *carbon offset* programs or projects involve tree planting because trees have a huge capacity to absorb carbon from the atmosphere. They're not the only choices, however; others involve everything from supporting solar and wind power to replacing fossil fuel-burning stoves in developing countries with more sustainable energy sources. There also are programs in which you pay for energy-efficient appliances or energy conservation schemes in developing countries.

Making your flight carbon neutral is certainly a positive step, but it doesn't solve the root problem of greenhouse gas emissions — the amount of flights that you take. And there's a limit to how effective carbon offsetting programs can be; after all, there's a finite amount of land on which to plant trees. It's best to include the purchase of carbon offsets as one part of a personal green living strategy that includes reducing flights, too, rather than as a complete solution.

A growing number of airlines and other travel businesses are providing one-stop shopping for carbon offsets, making it very easy to purchase them. You can simply opt in at the time you purchase your ticket. (Some outfits even include the carbon offset in the ticket purchase price.) Other organizations are making independent carbon offset programs available, which is an excellent option if you have specific ideas about what you'd like to support.

For example, Sustainable Travel International offers a carbon offset program for flights: You simply enter your departure and destination airport, and it lets you know what the carbon dioxide emissions related to that flight will be and how much it will cost to offset them. For example, a one-way flight between New York and Paris produces 1.3 tons of CO<sub>2</sub>, which costs \$20 to offset.



When you're choosing a carbon offset provider, don't be afraid to ask questions or research the program's background thoroughly.

Consider selecting a nonprofit organization to ensure that your money and support go to carbon offsetting programs rather than contribute to a business's profitability. Also make sure that you're supporting a program that wouldn't have been possible without the carbon offset scheme. Otherwise, you're not actually contributing an additional program; you're simply paying for something that was going to happen anyway. To make your purchase go further, look for programs that actually reduce the amount of carbon that's produced in the first place rather than simply trying to take out what's in the atmosphere. For example, some programs are helping to make charcoal or wood-burning cookstoves in developing nations more efficient — this not only reduces the carbon that the stoves release but also helps to conserve a precious natural resource. Sustainable Travel International ([www.sustainabletravelinternational.org/documents/op\\_carbonoffsets.html](http://www.sustainabletravelinternational.org/documents/op_carbonoffsets.html)) offers a selection of carbon offset programs that independent experts have examined to make sure they meet criteria such as these. You also can find excellent information and carbon offsetting programs at [www.carbonoffsetsets.org](http://www.carbonoffsetsets.org).

## *Figuring out where you'll sleep*

Whether you decide to spend some time in the world's great cities or on top of a mountain, check out the accommodation options carefully. In general, staying in smaller, locally owned hotels, bed and breakfast (B&B) places, or

self-catering accommodation — essentially anywhere that's not part of a big offshore chain — means that the money that you spend on the accommodation has a much better chance of staying in and supporting the local economy.

The greenest accommodations include the following:

- ✓ **Campsites:** They're one of the greenest accommodations because they reduce the amount of local power and water that you're likely to use — as long as you're following low-impact choices; for example, you should avoid burning local firewood in places such as Nepal where wood is a scarce resource.
- ✓ **Self-catering rooms or apartments:** These are the next greenest options because they allow you to buy and prepare local food and to control the amount of energy you use.



You may find that the self-catering option is much less expensive than other options, too. For example, a small apartment in Paris can accommodate an entire family very comfortably for a week at a cost far less than a hotel room or two, and many Parisian apartments are within a block or two of the Metro subway line.

Even if you're staying in a more traditional accommodation, you can still be green. Here are some options:

- ✓ **Bed and breakfasts:** They're often in private homes where the owner is also your host. You get a chance to enjoy charming rooms, delicious breakfasts (often featuring local produce), and insider knowledge about the local area.
- ✓ **Hostels:** This excellent option offers the company of fellow travelers and plenty of local information and contacts.
- ✓ **Hotels or motels:** Many hotels and motels are incorporating green elements into their day-to-day operations. At their most basic, you should expect an option for reusing towels rather than replacing them every day and facilities for recycling items such as newspapers and beverage containers. However, many hotels and motels have gone much further: They may use their own renewable energy sources (including solar panels, wind turbines, and even hydroelectricity), bore holes for water, have water-saving devices, be decorated with local art, feature environmentally friendly and recycled materials in their décor, and use local produce in their kitchens (some hotels even have their own herb and vegetable gardens).

When you find a place that you think fits the bill, don't hesitate to call and ask about its green elements, or ask your tour operator for the details. You should know anything that indicates how well an accommodation treats its staff and whether it employs local people at fair wages.



When you're choosing somewhere to stay, be sure to check its location carefully. The ideal place is somewhere you can get to from the airport or train station without having to rent a car and somewhere that's close to everything you want to see so that you can walk, cycle, or use public transport to get around.

You may find the following Web sites worth a visit before you book somewhere to stay:

- ✓ [www.allstays.com](http://www.allstays.com) lists green resort, hotel, and B&B accommodations around the world.
- ✓ [www.specialplacestostay.com](http://www.specialplacestostay.com) includes a guide to green places to stay.

## *Planning what you'll do while you're there*

The first step when planning the day-to-day experience of a green vacation is to find out as much as possible about your destination. (You'd be surprised at how many people don't know very much about a place before they arrive.) Knowing what to expect during your vacation can make a huge difference in how much you enjoy it. Consider researching some great local cafés to try, for example, or the best (and most sensitive) wildlife watching locations.

Research really pays off when it comes to what you do while traveling. Hit your favorite Internet search engine and enter your destination along with "travel," "tourist bureau," or the name of an activity you're interested in. These searches may well lead you to Internet chat rooms or forums where you can communicate with people who have traveled there before you. Of course, if you know people who have been to your destination, you can talk to them in person, too!

Consider checking traditional print sources of travel information. Buy travel guidebooks about your destination (or borrow them from your local library). Many offer detailed information about places to sleep, eat, and play, and travel magazines such as *National Geographic Traveler*, *Islands*, and *Arthur Frommer's Budget Travel* can be invaluable sources of information and inspiration when you're planning your trip.



It's great to build in time for spontaneity when you're traveling and not to be so committed to your plan that you miss what could be a delightful side trip or a relaxing afternoon on a secluded beach, for example. But a little advance planning can go a long way when it comes to getting the most from your green travel.

## *When in Rome (or Zambia, or Costa Rica, and So On) . . .*

From cultural sensitivities to supporting local economies, when it comes to travel, there's a lot of truth to the saying "When in Rome, do as the Romans do." It's important to realize that when you travel, you're a guest in a community that's not your home, and so you have a responsibility to be the best possible guest you can. This not only includes green travel principles such as minimizing your energy usage but also connecting with the local people in a positive way, to enrich both your experience and theirs.



When traveling, don't forget to stick to the same green principles you use at home. Switch lights and appliances off at the wall when you're not using them; dry clothes in the fresh air rather than send them to the hotel laundry; use a solar-powered cellphone charger (check outdoor equipment stores, cellphone retailers, or type "solar cellphone charger" into a search engine to get your hands on one of these gems); stick to marked paths and trails to save wear and tear on the countryside; find local recycling facilities and recycle your bottles, cans, and glass; and take your garbage away with you.

### *Respecting the local people*

A good green vacation involves some cultural sensitivity. You make less of an impact when you at least try to fit in, and the best way to get to know a place is to try to do what the locals do. Start by researching the traditions and customs of the local people at your destination. Knowing these things ahead of time can help you to be sensitive to their culture while avoiding potentially embarrassing mistakes. Here are a few suggestions:

- ✔ **If English isn't the primary language at your destination, invest in a conversational language class as part of your trip preparation.** Knowing how to say "hello," "please," and "thank you" goes a long way to improving your welcome. (Not only will the local people appreciate the effort you've made, but knowing basics such as "left," "right," and "the bathrooms are that way" can make or break a day on the road!)
- ✔ **Dress appropriately.** A good guidebook will give excellent advice about what to wear and, more importantly, what not to wear. Generally, dress as modestly as the local people do. For example, avoid skimpy or revealing clothing in conservative countries, and cover your shoulders and choose skirts or trousers when visiting religious buildings.
- ✔ **Always ask before taking photographs, and beware of taking photographs or videos in sensitive areas such as near military or transportation facilities.** Many countries take a dim view of potential espionage activities!

- ✔ **Respect sacred or private sites by asking permission to enter and by following local customs such as removing shoes and wearing headscarves.**
- ✔ **Check into local tipping customs so that you know what to expect and can avoid giving offense to restaurant staff and other service providers.** Tour operators, guidebooks, and local tourism offices can provide tipping information.
- ✔ **Buy the local newspaper and tune in to some local radio and TV.** Even if you don't understand a word, the pictures and sounds give you a surprisingly good idea of local life.
- ✔ **Find out about the local environmental issues.** After all, you *are* on a green vacation, and you may need to conserve water and energy, particularly in many remote or developing parts of the world.

## *Supporting local economies and communities*

Whether you're on vacation in a big bustling city like Rome or in a tiny village in Patagonia, make sure that your money supports local businesses and communities. When you get there, do your part by

- ✔ **Eating in local restaurants that buy their food locally:** Eating local produce reduces the distances that your food has to travel (see Chapters 8 and 10) and supports the local farmers and economy. And besides, there's nothing more delicious than dining on fresh fish straight from the fishing boat (at some beachside restaurants, you can even watch the boats come in) and meat and vegetables from the local farmer.
- ✔ **Getting around using local public transport, walking, or renting bikes instead of vehicles (when possible):** If you're energetic and you love the outdoors, you can even base your entire trip around a favorite self-powered activity, such as hiking, biking, horseback riding, or kayaking. All these options — from the fare you pay on the local bus to the cost of your bike, horse, or kayak rental from a local supplier — support the local economy.



If you need to drive, rent a fuel-efficient hybrid car (many of the major rental agencies, including Hertz, Avis, and Enterprise Rent-A-Car have added them to their fleets), or choose the car that has the best fuel economy rating (this is often the smallest possible vehicle that suits your needs). Always try using a local rental agency first.

- ✔ **Using local guides:** Many areas have local training or certification programs, so always look for qualified guides. Locals also provide great insider information about the place you're visiting.

- ✓ **Buying locally made crafts and products:** Avoid large tourist shops that make cheap copies or that sell products imported from elsewhere. (The “Made in China” label only looks good on something that you’ve bought . . . in China.) Try local marketplaces instead. Although it can be fun to barter (once you get the hang of it!), avoid being too aggressive — and always retain your sense of humor!
- ✓ **Supporting local projects:** Devote either funds or some of your time (or both!) to projects such as health clinics, schools, or other appropriate causes.
- ✓ **Buying food from local markets and shops:** If you see a line of local people outside a shop, find out what it’s all about, and join in. (The only caveat here is to refrain from buying certain commodities that are in short supply locally; you don’t want to further restrict supply, which can drive up the price for local people.)
- ✓ **Visiting the local cafés and bars rather than remaining in the hotel or tourist areas:** Just be sure that the local areas are considered safe for visitors before you go wandering into them. (Being mugged is a surefire downer when you’re on vacation.)

## The pledge for promoting peace through tourism

The International Institute for Peace Through Tourism ([www.iipt.org](http://www.iipt.org)) offers a wonderful and thoughtful credo for the peaceful traveler that sums up the beauty of enlightened green travel. Consider these thoughtful words as you plan and experience your green vacation:

✓ *Grateful for the opportunity to travel and experience the world and because peace begins with the individual, I affirm my personal responsibility and commitment to:*

- ✓ *Journey with an open mind and gentle heart*
- ✓ *Accept with grace and gratitude the diversity I encounter*

✓ *Revere and protect the natural environment which sustains all life*

✓ *Appreciate all cultures I discover*

✓ *Respect and thank my hosts for their welcome*

✓ *Offer my hand in friendship to everyone I meet*

✓ *Support travel services that share these views and act upon them, and*

✓ *By my spirit, words and actions, encourage others to travel the world in peace*



# Part V

# Creating a Green Society

## The 5<sup>th</sup> Wave

By Rich Tennant



"I don't know much about alternative energy sources, but I'll bet there's enough solar power being collected on those beach blankets to run my workshop for a month."

## *In this part . . .*

**W**hy not take your green lifestyle beyond your home and your vehicle? This part provides solid, useful advice for greening your work environment, including changing office technology and how you get to and from work and getting your managers onboard with making green changes (Hint: talk about saving money).

This part also moves out of the office and focuses on community projects. You'll find lots of ideas about the kinds of programs that you can get involved with and even how to set up programs if you find a need that hasn't been filled yet.

## Chapter 16

# Implementing Ideas for a Green Working Environment

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### *In This Chapter*

- ▶ Discovering the mutual benefit of green businesses and the environment
  - ▶ Targeting green business travel
  - ▶ Cutting back on office waste and electricity usage
  - ▶ Making your business both green and ethical in the community
- 

**A**sk not what your company can do for you, but what you can do for your company! Like most people with green on the mind, you probably want the organization for which you work to be more environmentally aware, but you may feel that it's challenging to make your workplace greener. Part of the problem is that workplace methods and routines are established before you come onboard as an employee — and getting those methods and routines changed, especially in larger organizations, can be quite a process. You may feel that you don't have enough control to effect change. This chapter tells you that you *can* make a difference (and how), so don't give up.

Greening your workplace just takes someone — you — to monitor the eco-friendliness of your working environment, to come up with solutions to enhance it, and then to talk to the powers that be about the best ways to change things. You may find that you've added to your workload because you get the job of implementing the changes, but at least you know that you're doing your part to make your work environment a greener place.

## *Realizing the Importance and Gains of Corporate Greening*

You can do a great deal for the environment by changing your habits at home, so it's not a huge stretch of the imagination to see how those changes can do even more for the environment when they're applied where you work,

too. Whether the business employs a handful of people or hundreds, each individual green practice — from switching off the lights at night in order to reduce energy consumption to instituting a recycling system — reduces the impact of the business on the environment. Even better, when employees who aren't green at home see how easy and beneficial it is to implement environmentally friendly practices, they may take some of those tips and techniques home with them.

## *How businesses affect the environment*

Think about how your home affects the environment: There's the energy that you use to heat and cool it, the products that you bring into it, and the waste that you produce. Businesses are no different from homes except that because they're larger than a single home and a single family, they can affect the environment either positively or negatively to a much larger degree.



According to the U.S. Environmental Protection Agency (EPA), industrial and commercial energy use (from such sources as electricity use, product transportation, industrial processes, burning fossil fuels to power boilers and produce steam, and using gasoline to power vehicles) accounts for nearly 30 percent of total U.S. greenhouse gas emissions.

The good news is that by 2009 — and possibly even earlier — companies in the U.S. will have reached the *tipping point* where they move from being mostly uninvolved with green practices to being mostly involved with them. This prediction is one result from a 2006 study for Siemens Building Technologies and Siemens USA that talked to corporate leaders across the nation. Some two-thirds of these leaders also saw green building practices as financially beneficial and green practices in general as reducing overhead costs. More than half even saw “green” as a way to foster innovation within their companies.

Following are some specific examples of ways in which the working world damages the environment; some may seem obvious, whereas others may surprise you:

- ✓ Heating and air conditioning systems pump greenhouse gas emissions from offices into the atmosphere and use up vast amounts of electricity. Many buildings aren't designed to include energy efficient designs or technology to reduce the amount of heat and air conditioning they use.
- ✓ Many buildings are built from materials that don't come from renewable sources.
- ✓ Office buildings have a huge appetite for electricity to power lighting, air conditioning, computers, printers, and photocopiers. Equipment may be left on 24 hours a day, seven days a week — even when no one's working.

- ✔ Offices consume vast amounts of paper. Even with more offices recycling paper, a large amount of paper waste still goes to landfill sites or incinerators.
- ✔ In addition to paper, offices produce a lot of other waste, including equipment (especially computers), because companies regularly upgrade their equipment to stay competitive. Electronics such as photocopiers and computers can end up in landfills, where they don't break down and, even worse, can leach harmful chemicals into the ground and water.
- ✔ Rush-hour traffic jams in towns and cities are full of people trying to get to work — wasting time and polluting the atmosphere.

## *How corporate greening benefits businesses*

Keeping a business as green as possible has benefits for the business as well as the environment. In addition to the specific benefits that we cover in this section, taking preventive measures to protect the environment saves the costs of expensive cleanups when things go wrong. Plus, the environment messages sent out at work spread and multiply and therefore have a larger positive effect.

In today's business world, companies are more willing to make eco-friendly changes because the companies know that

- ✔ **They can achieve savings in energy costs.** Recycling, energy conservation, energy-efficient office equipment, and water-saving devices all save money by cutting bills.
- ✔ **They don't have to spend a lot of money to make changes, and often changes actually save the business money.** The "reducing consumption" part of being green can cut overhead expenses significantly. For example, printing on both sides of paper doesn't cost a business anything and can cut paper supply costs in half.
- ✔ **They can improve staff productivity.** Getting employees involved in making the business greener and the office and other workplaces more energy-efficient makes them feel like part of the team and motivates them. Greener workplaces also are likely to be healthier and safer, which means that the company loses less money through staff sick time.
- ✔ **Becoming known as a green firm can be attractive to potential employees.** Being green means looking after people as well as the environment, and being green may give your company the edge in attracting the best staff.

✓ **Introducing telecommuting can cut costs and make staff happier.**

Employees working from home can reduce employer costs such as parking and make it easier for employees to manage family issues, thus reducing their stress. For more benefits, see the section “Telecommuting” later in this chapter.

## *Making a Difference without Souring Your Reputation*

If you telecommute or work for yourself, you have control over how green you are in your own workspace. If you have to work in an office, however, you have to take your green principles with you and work on making them part of the work culture.

Simply talking to your work colleagues about green issues and how to reduce the impact you have on the planet can create a positive effect. But then you have to take action. Get together with colleagues to discuss ways to change things, and then go to your supervisor with your suggestions. Being green can cut business costs (see the preceding section for specifics), and if you present it as a cost-cutting exercise from the beginning, you may well get the higher-ups onboard.



Change has to come with commitment from the top, so in order to get your supervisor on your side, keep in mind that employers don’t want you to come to them with only problems — bring solutions too. Your boss may not have the time or knowledge to come to grips with any shortcomings in the greenness of the building and workspace and is likely to welcome your help.

### **Applying green principles to your own small business**

When you create a business — whether it provides eco-vacations or is an office-based call center, organic farm, beauty salon, or building contractor — you can apply environmentally friendly policies such as those covered in this chapter. Write your green principles into your business

plan, and review them periodically to take into account new technology that can improve things and cut your costs further. Also make your employees responsible for certain aspects of your green policies so that the green ethos becomes part of the work culture.

For help convincing your workplace to change, check with your state to find out if an advisory program is in place. The program may be able to suggest easy ways and even offer financial or tax incentives to help your organization go green. Sustainable Development International Corporation offers good examples and tips about greening your workplace or business at [www.smartoffice.com](http://www.smartoffice.com), as does the EPA at [www.epa.gov/epahome/workplac.htm](http://www.epa.gov/epahome/workplac.htm) (click on In An Office or Worker Health and Safety for more specific resources).

## *Encouraging Green Business Travel to Cut Costs and Reduce Impact*

Think about all the employees heading to work and home every single day of the week. If businesses made an effort to reduce their employees' need to commute — and their need to travel on behalf of the business — the change could make a significant impact on the amount of greenhouse gases emitted by the employees. Green businesses can try various initiatives, from telecommuting to encouraging the use of public transportation or car-pooling. The bottom line is that so much can be done to reduce the impact of business travel.



Telecommuting used in conjunction with workplace travel plans that encourage use of public transport, walking, cycling, car-sharing schemes, and workplace parking restrictions has real potential for getting employees to leave their cars at home. Check with local governments and the EPA ([www.epa.gov](http://www.epa.gov)) to find out about green workplace incentives.

### *Telecommuting*

*Telecommuting* is a system in which an employee or contractor connects to work via a computer from home or another remote location, thus reducing that person's need to physically commute to work. Thanks to technological advances, telecommuting is a growing phenomenon: According to the U.S. Census, the number of workers who worked at home in 1980 was 2.2 million. By 1990, it was 3.4 million, and by 2000, it was 4 million (or 3.2 percent of the workforce). The real figures are likely even higher because the census data involves those who “usually” work at home. Because many companies tend to offer telecommuting on a part-time basis, with employees working from home one or two days a week, other studies have pegged the telecommuting figure as high as 18 percent of the U.S. workforce.

If there's no telecommuting in your office, it may be that supervisors haven't considered it as an option. If they have, they may have chosen not to pursue it because they don't believe it fits their business model. For example, a

company that relies a great deal on employees meeting face-to-face with each other or working together on projects may be reluctant to have employees at home; the perception could be that the employees would be less available for meetings and that workflow would suffer. In some cases, this position is a holdover from previous management styles that emphasized a greater degree of control over an employee's workday. Companies that emphasize a 9-to-5 time-clock approach rather than rely on employee productivity also may be reluctant to try telecommuting.

If you're interested in a telecommuting arrangement, create a plan explaining how it would work for you, and use the arguments in this section to help win over your supervisor. Consider researching technology applications such as Internet-based meeting software that uses video cameras to link everyone or other teleconferencing methods to help address potential management concerns.

### *The pros and cons of telecommuting*

Telecommuting has benefits not only for the employer and employee but also for the community and the environment. The main selling point from an environmental point of view is that it cuts down the number of car trips made between home and work during weekday rush hours. Traffic congestion and air pollution are reduced as well as fuel consumption.

Telecommuting is attractive for both employers and employees for a variety of other reasons as well. They include the following:

- ✔ **You may be more productive.** Working from home may allow you to concentrate better on your job because you don't have to deal with workplace distractions such as people dropping in on you.
- ✔ **You feel trusted by your boss.** When your supervisor allows you to work from home, he sends a clear message that he trusts you to get the work done no matter where you are. When you feel trusted, there's often a reciprocal effect in that you want to make sure you continue to deserve that trust, so you make sure that you're productive.
- ✔ **You may get the flexibility to look after anyone at home who needs help during the day, such as older children or elderly parents.** Although not all telecommuting arrangements are this flexible (some may require your availability during normal work hours even if you're at home), some may focus instead on simply making sure that your work gets done on time, thus giving you more control over how you spend your time.
- ✔ **Companies can cut their overhead because they don't have to cater to the needs of all employees five days a week.** If some of the staff telecommutes several days a week, the business can reduce the number of desks, the sizes of offices, the amount of stationery, and the amount of parking available.



- ✔ **Telecommuting gives job opportunities to a greater range of people.** If you're the principal caregiver for children or other relatives, or if you can't physically travel to work, telecommuting may allow you to become part of the workforce.

Telecommuting isn't right for everyone, however, and it can have its disadvantages. Before you approach your supervisor with a telecommuting plan for yourself (or others), consider the following cons:

- ✔ **Some people don't have the discipline and personality to be as productive at home as they would be in the office.** It may turn out that you face more distractions at home than you would in the office, such as little personal things that you can't get out of your mind until you attend to them. And if you have young children at home, be prepared to pay for a babysitter: It's almost impossible to be both parent and office worker when the kids need constant attention.

Any telecommuting plan needs input from supervisors to make sure that employees are available (by phone and e-mail, for example) as needed and that the work and productivity goals are clearly set out.

- ✔ **If you're working from home most of the time, you can get left out of the loop.** It's one thing to avoid all office politics; it's much less satisfying to miss out on the camaraderie, spontaneous outings for coffee, and general praise when all's going well. On days that you're working in the office, be sure to stick your head around the door often enough so that you don't get forgotten! Supervisors also need to make an active effort to include telecommuters in social activities and perhaps make special arrangements to have everyone together at certain times to help build team spirit.
- ✔ **If your office is one in which face-to-face team meetings are essential and required on a daily basis, telecommuting may not be practical.** In this case, you may examine the way the business works and offer an option that makes telecommuting possible, say, one day a week for employees (by refraining from scheduling meetings on Fridays, for example).
- ✔ **If your business requires employees to use highly specialized equipment or be part of manufacturing processes, telecommuting may not be possible.** Telecommuting tends to work best for employees whose work is computer- or telephone-based rather than those involved in such work as product manufacturing or repair. In the latter cases, employees need to be on-site in order to do the work.



### *Requirements for successful telecommuting*

Not everyone can telecommute for practical reasons. Many people have to be on-site so that they can be involved in meetings, have access to the right equipment, or serve the public. The most suitable candidates for

telecommuting are employees who produce generally self-contained pieces of work — project work and policy analysis, research, planning, and writing, for instance. Telecommuters need to be able to

- ✔ Work without supervision
- ✔ Be productive and happy without social interaction with workmates
- ✔ Motivate themselves
- ✔ Maintain a trusting relationship with their supervisors

If you have the job, personality, and discipline for telecommuting you also need

- ✔ **The right computer equipment:** Telecommuting is much easier with a computer that enables you to access everything at work as if you were there. Many companies that offer telecommuting also offer technology such as laptops for their employees to use at home. The laptop can replace the computer that an employee uses at the office, too, becoming a kind of portable office for the employee. Other employers come to an arrangement with their employees that, in order to telecommute, the employees provide their own computer equipment (if you're in this position, you may be able to claim a partial or full tax deduction for the computer because it's a work-related expense; check with the IRS at [www.irs.gov](http://www.irs.gov) for details).

If you're putting together a telecommuting proposal, consider approaching your company's IT department or specialist to find out what's required from an equipment standpoint, but get your supervisor's permission before approaching IT. If you're not sure that your supervisor will support your proposal to telecommute, you may need to ask an outside specialist about options, being careful not to reveal your company's name.

- ✔ **A suitable home office environment:** You need a setup that enables you to divide your home and work life. Ideally, you have a separate room with a desk, an office-style chair, good lighting, no outside distractions, and room for office equipment like a printer.
- ✔ **A telecommuting agreement:** You and your supervisor need to agree on and outline (in writing) your working time, whether you need to log on and off the network at a certain time, when you communicate with the office, and whether you can claim any expenses (computer and printing costs, paper, coffee, and so on).

## *Carpools and other travel-reducing ideas*

Because telecommuting isn't always practical or possible, it's worth considering other ideas to reduce the number of vehicles that are on the road to

your workplace every day and to reduce the impact when workers need to travel on behalf of the business. Changes in this area can go a long way toward helping your company cut down on the greenhouse gas emissions that it's responsible for.

Consider these tips for carpooling and other travel-reducing strategies. You may be able to implement some of them yourself; for others you may need to obtain management approval:

- ✔ **Set up a carpool program so that employees can make arrangements to commute together.** This could be as simple as making an arrangement with a limited group of colleagues or as complex as inviting all company employees to take part (which would involve having someone set up the program and operate it).
- ✔ **Request that space be set aside in the parking lot for secure parking for bikes, and request shower and locker spaces so that people can cycle in.**
- ✔ **Suggest the use of videoconferencing and teleconferencing facilities in order to cut down on travel to meetings.**
- ✔ **Arrange to travel by train rather than plane if you have to travel.** Journeys by public transport such as trains and buses are responsible for fewer carbon emissions than trips by car. (Flying is the most environmentally damaging way to travel; see Chapters 14 and 15 for more info on transportation options.) When you take into account the time spent with airport check-in, security checks, and luggage collection, you may find that public transport doesn't take up any more of your workday than air travel.

## *Reducing Office Waste*

To make your workplace greener, you can use the same green principles and methods as you do at home, particularly when it comes to waste. It goes without saying that paper is by far the greatest waste product in business environments. In this section, we suggest ways of reducing waste of all kinds in your workplace.

### *Going paperless*

Back in the 1970s, people were excited by the idea of the office of the future in which technology was so advanced that no one needed to use paper. If you look around your office today, you probably see reams of paper for photocopying and printing and desks piled high with papers. As pervasive as they are, the Internet and e-mail don't seem to have helped reduce the amount of

paper used in the typical office. People send e-mails and then print them off so that they have paper trails, or they e-mail reports and then send out hard copies, too. It seems that the more advanced technology has become, the more demand there is for paper.

From a green perspective, reducing the amount of paper you use is key. Paper is originally produced from trees, which are a declining natural resource. Wasted paper means that not only the wood is wasted but also the chemicals and energy that went into processing the paper. More paper is being recycled than ever before, but even the process of recycling paper uses energy that can be saved if less paper is used in the first place. (Don't get us started on the amount of steel saved by reducing the number of paper clips used to hold paper together!)



Even though a completely paperless office may be unrealistic, technology allows you to greatly reduce the amount of paper you use at work. Only use paper when it's absolutely necessary, such as for tax and government regulation compliance issues. Otherwise, use the technology that's available to you. Here are some simple suggestions for cutting back on paper usage and putting gadgets to good use:

- ✔ **Review documents electronically on your computer screen, laptop, cellphone, or PDA (personal digital assistant).** The more you use the screen, the easier you'll find it to review and edit material without printing it off and using a pen. These tools also enable you to work wherever you are and are just as portable as paper.
- ✔ **Use e-mail and Internet access.** Advances in these areas enable people and companies to combine e-mail with fax and voice-mail retrieval.
- ✔ **Use a scanner to make digital versions of images or items so that you can exchange them electronically and copy them into electronic reports.**
- ✔ **Take pictures with a digital camera to save both ink and photographic paper if you maintain and exchange photo files electronically.**
- ✔ **Use Web pages, CDs, DVDs, or memory sticks instead of paper documents.** Documents can be exchanged via e-mail or accessible servers if appropriate and depending on their size and security needs. Company regulations and policy documents also can be posted on the internal computer system (Intranet) or on CDs or DVDs rather than being printed out.
- ✔ **Keep files in online storage systems, which enable centralized electronic information management on a network that everyone in the company can access.** These online systems can replace hard-copy filing systems.



The more you trust technology (with appropriate file backups), the less likely you are to want to maintain a paper filing system to back up your computer filing systems.

- ✓ **Make sure that people have remote access to the company network so they can access work from home or another remote location without carting around a heap of documents.**
- ✓ **Print on both sides of paper.**

## *Adopting other waste-reducing ideas*

Even if you can't eliminate the amount of paper used in your office, you can reduce it with some easy and inexpensive ideas. That goes for other consumables, too, from office supplies to the items in the staff lounge. Consider implementing the following suggestions to reduce the amount of waste produced in your workplace:

- ✓ **If you can't go paperless, buy recycled paper from local businesses to cut down the energy used producing new paper, save trees, and save fuel in transportation.**
- ✓ **Get the most out of paper by printing on both sides and using scrap paper to make notes and leave them for other people instead of using sticky notepads.**
- ✓ **Print using the "fast" or "draft" setting to save ink.**
- ✓ **Recycle used paper.**
- ✓ **Set up a place in the office to store and exchange reusable office supplies such as binders, envelopes (relabel them), and file folders (turn them inside out).**
- ✓ **Set up a complete recycling system for bottles, cans, photocopier cartridges, batteries, printer ink cartridges, and plastic. Reuse anything that can be reused, such as rewritable CDs and DVDs, and recycle the rest.**
- ✓ **When disposable items (such as cups) run out, replace them with reusable ones.**
- ✓ **Research practical alternatives to having water delivered for water coolers, such as reverse osmosis water filtration systems.**

Chapters 4 and 6 offer dozens of other tips that you can also apply to the workplace.

## Turning Down Water and Electricity Usage

As you take steps to make your workplace more environmentally conscious and friendly, turn your attention to the building itself. You may not have the authority or resources to make building-wide changes yourself, but you can make suggestions about how to improve things like electricity, water usage, and even furniture — it will be money well spent in the long run. Check out the suggestions in this section and also those in Chapters 4 and 5: The energy efficiency and green measures that apply to your home apply equally to business properties.



If the rate of illness in your building seems generally high, it may have something to do with poor air circulation, sometimes known as *sick building syndrome*. A better working environment improves staff comfort and may even reduce absence due to sickness.

To arm yourself with information about environmentally friendly buildings, head to the U.S. Green Building Council's Web site at [www.usgbc.org](http://www.usgbc.org) and click LEED at the top of the homepage. (LEED stands for Leadership in Energy and Environmental Design.)

You can find information about your own building from the maintenance or operations department or from the person responsible for those issues in your company. Just remember that you're doing research — avoid implying any criticism of them because the company will need them onboard with any changes you recommend.

Actions to consider suggesting include the following:

- ✓ **Switch to highly rated energy-efficient appliances.** For details, visit [www.energystar.gov](http://www.energystar.gov).
- ✓ **Schedule regular service for heating and air conditioning systems, and fit them with timers so that they're in use only when people are in the office.**
- ✓ **Change electricity suppliers to those sourcing power from green initiatives.**
- ✓ **Install water-saving taps, showerheads, and low-flush, dual-flush toilets.**
- ✓ **Take advantage of natural lighting, and install task lighting and high-efficiency compact fluorescent lighting.**

- ✔ **Install blinds and shutters on windows to block out direct sun and reduce the need for air conditioning in the summer and to let sun and light in during winter.** Blinds and shutters can reduce energy costs because less electricity or other fuels are used to cool the premises in summer and to heat the premises in winter.
- ✔ **Make sure that all equipment is turned off at the end of the day rather than left on standby.**
- ✔ **Arrange for the last person out of the office each day to turn out the lights, or have an electrician put the lights on a motion-sensor timer that switches them off when there has been no movement in a room for a certain amount of time.**
- ✔ **Equip the office kitchen with a fridge, a kettle, and perhaps a toaster oven or microwave so that people can easily reheat food that they bring from home.** The availability of these appliances reduces the need to drive somewhere off-site for meals and helps employees maintain a healthy diet if workplaces aren't close to restaurants that offer healthy alternatives.
- ✔ **Give everyone their own mug (or ask them to bring in their own), and remind them to save electricity by not boiling more water in the kettle than they need each time for hot beverages.**
- ✔ **In the winter, turn the thermostat down slightly, and ask people to wear sweaters or jackets. In the summer, set the air conditioning temperature slightly higher, use fans, and ask people to dress accordingly.**



TIP

Talk to your building management or local municipality about the recycling facilities available, including the usual glass, newspaper, cardboard, plastic, and paper options, plus any others, and ask if grants or other incentives are available for taking energy efficiency measures.



REMEMBER

People are likely to respond to building-wide changes positively if they feel they're being made for the good of the planet rather than just as a cost-cutting exercise. Get people involved by making someone responsible for each aspect of the company's green policy.

## *Buying Green Equipment and Supplies*

If you have purchasing power in your workplace, buy green goods. If someone else is in charge of equipment and supply purchasing, encourage your boss or purchasing office to buy green whenever possible for the workplace. It's great to recycle paper, but it's even better to buy paper that's produced from recycled materials and then recycle it again!

Before buying new, apply the green basics of reusing, repairing, and recycling, whether you're looking at machinery, paper, toilet paper, or paint. (Use this information to research greener options and make proposals to your office's purchasers, if that's not you.)

Consider following (or making) these suggestions, keeping in mind that most of them will not only make the company greener but also save it money:

- ✓ **Check whether the business already has something that can do the job for which the new item is being considered.**
- ✓ **Rent instead of buying new.**
- ✓ **Look for a version that has nontoxic components and as much recycled material as possible.**
- ✓ **Choose the option with as little packaging as possible.**
- ✓ **Opt for rechargeable batteries whenever possible.**
- ✓ **Buy the most energy-efficient product that will last as long as possible.** When purchasing office equipment, look for Energy Star ratings ([www.energystar.gov](http://www.energystar.gov)).
- ✓ **Make sure that equipment can be serviced and repaired so that it lasts as long as possible.**
- ✓ **Consider what happens when the item is used up, no longer needed, or can no longer be repaired.** How will it be disposed of? Avoid sending these items to the landfill if possible by donating them to an organization that can use them or by recycling their components as appropriate (see Chapter 6 for more tips on reducing waste).



Buy from local companies to reduce the distance that items have to be transported and therefore reduce the amount of fuel needed to get them to your workplace.



As demand grows for green business products, the marketplace is responding with greater selection and lower prices. As green products become more readily available, more businesses are willing to buy in. It's a great cycle!

Being green means being fair to people as well as the environment, so when you buy green products (or suggest that to someone with the authority to make such a decision), remember to be fair about paying your suppliers on time.



## Being Green by Being Ethical: Giving Back to the Community

Green living is about protecting the environment *and* behaving ethically, which means taking personal responsibility for your actions and making sure that they don't have a negative impact on the environment and the people around you. At work, that means not doing anything that's unfair to your fellow workers, customers, suppliers, and the community in which you operate. As a result of government legislation, businesses have become much more aware of the importance of ethical behavior internally over the past few years (think standards for minimum wage, antidiscrimination, and safe and healthy business environments and practices).

Nowadays, many businesses are taking their roles in the wider community more seriously too, embracing what's called *corporate social responsibility*. This concept is all about what a business does — over and above what it *has* to do to comply with the law — to make sure that its operations harm no one and instead benefit everyone around it and involved in it.



Firms can encourage other businesses — such as their suppliers — to be greener and more ethical and to act in a socially responsible way. Persuade your supervisors to deal with suppliers with green and socially responsible policies. The word soon spreads, awareness is raised, and attitudes and habits change for the better.

When you're thinking about improving your workplace by making it more green, consider other ethical aspects too. The company you work for is part of the local community where it has its offices or factories; this community includes neighbors, schools, other businesses, community projects, environmental and conservation projects, and hospitals. A truly green business makes sure that its actions in some way benefit as much of the community as possible. You can help your supervisors come up with corporate social responsibility policies for the company; you can find loads of great information from the Business for Social Responsibility at [www.bsr.org](http://www.bsr.org).



If the wider community benefits from your business, the residents will be loyal to the business, meaning that the business benefits, too.

A company can contribute to the community in many different ways, some of which cost very little. Here are some suggestions for your business:

- **Donate old computers or other equipment to schools or community, volunteer, or charity projects.** Some charities even accept equipment that's no longer working, saving it from cluttering up landfill sites.



- ✔ **Send used toner cartridges to charities or organizations that collect them on behalf of charities.**
- ✔ **Campaign for office coffee and tea to come from certified Fairtrade and organic producers.**
- ✔ **Ask your supervisor for permission to volunteer with a local community project during work hours on a regular basis.** For example, you may be able to spend an hour or two a week assisting a teacher at a local school.
- ✔ **Arrange for your company or just your department to adopt a local nonprofit organization or project, and encourage staff to donate money or time volunteering on the project for a day or weekend.**

Even better: Inquire as to whether your company or department can take on a community service project on company time (with the understanding that all work will stay on track, of course). Consult the appropriate person depending on your company: If you don't know who that is, start with your supervisor.
- ✔ **Set up a scheme in which someone from your workplace goes to local high schools to talk to students about business and working in your industry.**
- ✔ **Offer local young people work experience that's appropriate for their ages and abilities and your workplace.** Check with your Human Resources department or specialist to find out about any legal requirements that the company would have to meet.
- ✔ **Ask your employer to offer staff more flexible working hours so that they can look after relatives or do volunteer work.** Making it possible for employees to look after relatives in their own homes enables those family members to stay in the community longer before needing expensive and isolating institutionalized care.

As well as contributing to the local community, get the higher-ups in your company thinking about supporting charities and organizations helping communities in other parts of the world. At some companies, for example, management chooses a holiday gift for staff that contributes to some kind of charitable cause, such as planting trees or purchasing livestock for families in developing countries. Other companies have a gift- or service-matching program that matches the amount of money or time (usually to a preset limit) that an employee devotes to a charitable cause. If your company has policies like these in place, make sure that they're publicized in internal communications in order to raise employee awareness and participation.



## Finding green jobs, whether you're starting out or changing careers

You can take greening your workplace one step further and turn it into a green career. Working for an organization that's involved with climate change awareness, renewable energy, wildlife conservation, or green construction, for example, not only provides a paycheck but also a great deal of personal satisfaction. Whether your specialty is accounting, marketing, engineering, information technology, or virtually anything else, green organizations can use your expertise and your genuine interest in the environment.

Consider these strategies for finding work that fits your green ambitions:

- ✔ **Volunteer to gain experience.** If you're currently completing your studies or thinking about a career change in a greener direction, consider volunteering for or taking an unpaid or low-paid internship with an organization that operates in the area that you're interested in. You'll gain valuable, hands-on experience that can help you decide whether you want to pursue a career in the field. At the same time, you'll establish a profile within the organization that may lead to an offer of paid employment or to valuable career advice and references.
- ✔ **Identify business opportunities.** As you build your career experience, you may well discover a green business niche that's not well-served by other companies. Launching your own

business can fill that niche and provide employment for yourself and others. Be sure to research and plan your business thoroughly; the U.S. Small Business Administration at [www.sba.gov](http://www.sba.gov) is an excellent place to start, as are *Small Business For Dummies*, 3rd edition by Eric Tyson and Jim Schnell (Wiley) and *Small Business Kit For Dummies*, 2nd edition by Richard Harroch (Wiley).

- ✔ **Assess green employers.** If a green career is important to you, make sure that potential employers have put their greenbacks where their green words are. To assess their goals and achievements, do your research by checking their Web sites and publications such as research studies and annual reports. Also search newspaper and magazine databases (often available online through local libraries) for mentions of the organization to find out if the company's press has been positive or not. Check out the associations that the organization belongs to — or should belong to — to further assess its community involvement.

If you're looking for a green career or resources to help you find a green job, check out [www.environmentalcareer.com](http://www.environmentalcareer.com), a job-posting resource for the eco-friendly sector.



## Chapter 17

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# Getting Involved with Your Community and Beyond

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### *In This Chapter*

- ▶ Doing your part to make your community greener
  - ▶ Turning your attention to historic preservation
  - ▶ Bringing back run-down communities
  - ▶ Getting young people hooked on environmental change
- 

Community involvement brings together like-minded people, all of whom likely have ideas about how to improve the environment around them. It's a great example of several minds being better than one. Community-based environmental projects, both new and old, are active across the United States as concern about green living grows. They range from groups that campaign for change on a major scale, such as lobbying state and national governments to set limits on greenhouse gas emissions, to groups of local people who roll up their sleeves and restore a crumbling old building to preserve its timber and history.

To find projects that interest you, you can contact your local municipality or county for information; check the Internet, your library, and local papers; or set up a project of your own with neighbors in your street. You can even get involved with something on the other side of the world or in a network of projects that span the globe, thanks in part to the Internet. The United Nations Volunteers program at [www.unvolunteers.org](http://www.unvolunteers.org) and [www.worldvolunteerweb.org](http://www.worldvolunteerweb.org) serves as a global clearinghouse for information about volunteering.

In this chapter, you find examples of the projects currently taking place in different parts of the U.S., what you can do for them, and what they can do for the environment.

## *Establishing a Trade or Bartering System*

Money may make the world go 'round, but it isn't always necessary. You can obtain goods and services (legally!) without cash and as a result become involved in community-based projects that are sustainable, ethically sound, and green. Trading or bartering systems and time banks are two ways to transcend the need for cash and foster community development.

### *Creating a community currency for trading skills and products*

If you have a marketable skill or product, a local bartering system might be a great way to put it to work without cash. They work by assigning a value for your skill or product in an alternative currency (not usually the dollar) based on a point system. As people use your skills or products, you can build up points in the bartering community's currency, which you then can use to obtain other people's skills or products.

For example, if your skill is in furniture making and you make a table for someone, you get a certain number of points in whatever your scheme's currency is called. You then may use some of those points to pay someone to do some babysitting for you. Programs like this encourage less buying of new products and more sharing, so they make less impact on the environment. Be aware, though, that bartering can have tax implications, just as purchasing and selling goods and services does. Check with the IRS at [www.irs.gov](http://www.irs.gov) for more information.



To find a bartering program near you, check the state-by-state member listing at the National Association of Trade Exchanges (NATE) Web site: [www.nate.org](http://www.nate.org). You also can find information about bartering at [www.u-exchange.com/barter101](http://www.u-exchange.com/barter101), which offers a member-based trade system that operates across North America (and membership is free), and at [www.irta.com](http://www.irta.com), the International Reciprocal Trade Exchange.

If there isn't a local exchange and you don't want to join a nationally based exchange, consider launching your own exchange. Be aware, however, that this can be a time-consuming and accounting-heavy endeavor. You need to gather people together who are interested in bartering; decide how you're going to run the barter exchange; set up a currency equivalent, code of ethics, and operating protocols; and actually run the system. If you need assistance, Internet-based advisors can help (for a fee), including [bartertrainer.com](http://bartertrainer.com) and [barternews.com](http://barternews.com).



## Supporting Agenda 21, a worldwide initiative

In 1992 the United Nations released a groundbreaking action plan for sustainable development called *Agenda 21* (the United Nations action plan is called Agenda 21; local projects come under the title of Local Agenda 21). This is a blueprint that sets out what can be done to contribute to global sustainability in the 21st century — hence the name. The idea was to encourage people to act in a sustainable or green way at their local level, with the involvement of local government, business, and the community.

An Agenda 21 program should deliver at least two results at a local level:

- ✓ Community involvement in the development and implementation of a sustainable program.
- ✓ Support for local people and businesses and equal access to the opportunities generated by the program.

Basically, a Local Agenda 21 project should involve the local community in deciding what needs to be done and help it make those changes. It's usually up to town, city, or county administrations to develop and put these programs into action (although there's no reason why you can't propose programs).

Here are a few examples of typical projects:

- ✓ Energy and water efficiency programs
- ✓ Recycling and waste reduction projects
- ✓ Worm farms, composting, and green gardening systems
- ✓ Alternative energy projects, such as solar lighting in local parks
- ✓ The promotion of public transit, walking, and cycling programs
- ✓ Public information on unique flora and fauna and local ecosystems, which may include giveaways such as plant seeds
- ✓ Exhibitions showcasing low-energy designs for homes
- ✓ Educational programs for people in different local communities
- ✓ Raising awareness about opportunities in green jobs, such as in city greenhouses, parks, and gardens

If you type “Local Agenda 21” into a search engine or visit [www.iclei.org](http://www.iclei.org), you'll find many Web sites outlining individual projects — including what's happening in your area.

## *Banking your time*

TimeBanks is a program in which you volunteer to share your time and skills. Instead of giving money, you spend time doing something for someone else and deposit your time in the “bank.” You then make a withdrawal from the time bank when you need someone to spend time doing something for you. A timekeeper (or online matching system) keeps track of the time spent and matches people up to help as they need it — and no payments change hands.



Everyone's time is equal: One hour of time earns one time credit to spend when needed regardless of what you spend that hour doing.

For example, you may register for the program and say that you're willing to help out with people's yard work. Someone calls in and says that she needs your help, and you spend two hours working in her yard for her. Those two hours are banked for you. Perhaps you need some help setting up an accounting system for your small business. You can ask TimeBanks for two hours of help from a bookkeeper. The bookkeeper's two hours then get banked for him, and the system keeps going.

You can get more information — including details about setting up a program in your area if there isn't one there already — from TimeBanks USA ([www.timebanks.org](http://www.timebanks.org)), the national nonprofit organization that links and supports time banks across the country by providing inspiration, guidance, and practical help. TimeBanks appeals to people who know that their time and skills are in demand but just don't know what to do about it or where to start.

## *Protecting the Environment and Cleaning Up America*

There's no shortage of community projects aimed at protecting nature, whether it's wildlife or wild places. You can clear and maintain hiking trails in national parks, count birds for wildlife inventories that track declining species, plant trees, and so much more. Where there are rivers and canals, areas of common land, pathways, and parks, there are clean-up projects. Waterways in particular seem to be magnets for plastic bags, supermarket carts, old couches, and even burned-out cars, but vacant lots and public lands can become dumping grounds, too. Cleaning these areas up has many benefits: You're protecting animals, fish, birds, and plant life from the risks that the trash brings, and you're also sending a message to other people that someone cares about this piece of water or land — that it's not a place to dump their unwanted items.



Many of these protection and cleanup activities have a social benefit, too: You're out with your community, finding like-minded people and possibly making great friends. That's why projects such as these are excellent for everyone — families, single people, and groups of friends or coworkers.

If you find a piece of land or water that needs some tender loving care, ask your local municipality, county, or conservation groups what plans they



have for cleaning it up. If no plans exist, come up with some of your own. For more information, see the sidebar in this chapter “Setting up your own community project.”

## *Finding groups with a variety of opportunities*

The following organizations have myriad opportunities for tending to the land, some of which we cover in the following sections. Consider joining one of these initiatives if you prefer to get onboard a nationwide effort:

- ✔ **The U.S. Army Corps of Engineers** ([www.orn.usace.army.mil/volunteer](http://www.orn.usace.army.mil/volunteer)) probably isn't the first organization you think of when it comes to volunteering to protect the environment, but in fact the Corps offers a wide range of opportunities in locations across the country. It even has its own volunteer hotline to match you up with those opportunities: 1-800-VOL-TEER. More than 50,000 people provide a million hours of help to the Corps annually as campground hosts, visitor center staff, program coordinators, computer program developers, and writers. You also can help with trail building and maintenance, wildlife habitat restoration, and shoreline cleanup, so you have plenty of opportunities to choose from.
- ✔ **The Nature Conservancy** ([www.nature.org](http://www.nature.org)) works around the world and across the U.S. to protect the land and water on which life on earth — plants, animals, and natural communities — depends for survival. You may be familiar with the organization because it often partners with private individuals, nonprofit organizations, governments, and other groups to purchase land in order to protect it from development or degradation. However, the Nature Conservancy also depends on volunteers to help out with a wide variety of work. This can include getting rid of exotic or invasive species on land or in water, running inventory on plants and animals in a particular area, planting trees, cleaning up natural areas, maintaining fences, assisting with prescribed burns that help forests regenerate, and even working in offices to help with marketing or administration. Check out the organization's Web site, which lets you search by state to find volunteer opportunities in your area.
- ✔ **National Public Lands Day** ([www.publiclandsday.org](http://www.publiclandsday.org)) gives volunteers a hands-on opportunity each year to get involved with their local, state, and federal lands. It started in 1994 with 700 volunteers and has now grown to nearly 100,000 people getting out and helping on the designated day (usually near the end of September). Along with building trails and bridges and planting trees, volunteers remove trash and invasive plants from public lands.



## Setting up your own community project

You don't have to join an established organization in order to make a difference to the environment. You can launch your own community project. Here are some basic steps to follow in order to make it successful:

### 1. Identify the need.

Do your research so that you have a clear idea of the problem and its scope.

### 2. Find like-minded people.

Share your vision and you may be surprised at how much help you can get. Talk to local service organizations, community-based clubs, or youth groups, for example. Get your municipal or county government involved. When you make presentations to such groups, always have a sign-up sheet available so that you can start building a list of potential organizers and volunteers.

### 3. Put a plan in place.

Organize your project to map out goals, strategies, and even contingencies in case of obstacles.

### 4. Raise funds if necessary.

Look for local, state, and federal grants (make phone calls or start searching online), and collect donations from the community. Check out the latest edition of *Fundraising For Dummies*, by John Mutz and Katherine Murray (Wiley), for information to guide your way.

### 5. Raise awareness in the community.

The most successful projects are the ones that capture the community's imagination and support, so let the community know what's happening and why. Contact local community newsletters, newspapers, and other media outlets and offer to submit articles about the project or provide people who can be interviewed about it. Put up posters on community bulletin boards (such as in supermarkets, libraries, and community halls), and talk about the project to friends and neighbors.

## Planting trees

When you consider what trees do for the environment, they're pretty amazing. They provide food and homes for animals such as squirrels and birds, shade for the forest floor (and for people!), and oxygen for the atmosphere — not to mention the fact that trees get rid of carbon dioxide (a major greenhouse gas) in the process of releasing oxygen.



According to Trees Forever, an Iowa-based national organization that focuses on planting and caring for trees as well as on larger environmental issues, a single tree can provide enough oxygen in one day for a family of four.

To get in on the tree-planting game, you can join a Trees Forever ([www.treesforever.org](http://www.treesforever.org)) chapter in your community or start one if one doesn't already exist. Local groups get involved with the nuts and bolts of

planting trees, including digging holes, planting, watering, and mulching. But they also organize and need help with other projects such as planning and managing events, designing planting plans, learning and educating others about proper pruning techniques, and counting trees to help with inventories.

Of course, you can launch your own project, too. See the sidebar “Setting up your own community project” — the tips in it work for tree-planting projects just as much as any other.



If you're launching your own tree-planting project, have an expert onboard who can recommend appropriate tree species and ongoing care and maintenance needs for them.

## *Taking care of the coasts*

Each September in countries around the world, people gather on the edges of oceans, lakes, and waterways to clean up the beaches and banks of these marine ecosystems. It's all part of the Ocean Conservancy's International Coastal Cleanup (go to [www.oceanconservancy.org](http://www.oceanconservancy.org), click Activities, and then International Coastal Cleanup), and it's one of the world's largest single-day volunteer efforts dedicated to improving the health of the ocean and its wildlife.

Along with the cleanup, International Coastal Cleanup volunteers also keep records of the type and quantity of the trash that's found in order to help with trash elimination and education efforts throughout the year. From 1986 and 2006, the 6.6 million volunteers that participated in International Coastal Cleanup efforts removed 116 million pounds of trash from beaches worldwide — that's 258 times the weight of the Statue of Liberty!

You also can find other waterway cleanup initiatives by entering “waterway cleanup” and the name of your city, county, or state into your favorite Internet search engine. For example, the Texas Waterway Cleanup Program is a project of the Keep Texas Beautiful organization: [www.ktb.org](http://www.ktb.org).

## *Joining or organizing waste-reduction projects*

Cutting down on the amount of waste generated across America is a crucial part of green living, so it makes sense to get the community involved in waste-reduction strategies, including recycling.

The U.S. Environmental Protection Agency (or EPA) operates the WasteWise Program to help organizations of all kinds — governments, businesses of any size, nonprofits, hospitals, and so on — reduce their waste and their impact

on the environment. The program's absolutely free and voluntary, and it's very flexible, which makes it easier to convince your organization to give it a try. If you're concerned that your workplace or community organization isn't as green as it should be, the WasteWise program is one way to suggest solutions in a very positive and constructive way; you may even volunteer to become the waste-reduction team leader to facilitate the program's implementation and ongoing management.

Your organization can find more information and register for the program at [www.epa.gov/epaoswer/non-hw/reduce/wstewise/index.htm](http://www.epa.gov/epaoswer/non-hw/reduce/wstewise/index.htm). The EPA recommends that you then conduct a waste assessment to figure out your starting point and determine the actions you can take to reduce the amount of trash that you're generating. The program helps you out by providing strategies for reducing trash that would otherwise head to municipal solid waste sites.



There's no reason that you can't spearhead the creation of a local recycling project yourself. You don't have to start big and tackle your entire city: Starting with a small project such as composting for your child's school is easier to manage, and it provides an excellent building block for future, larger projects. From smaller projects at schools and workplaces to large systems for entire communities, the principal requirements are the same.

- ✓ **Type of recycling:** Research the kind of recycling that's possible for your target: Do recycling companies in your area take all or at least some of the usual suspects — paper, glass, aluminum cans, and plastics? Can you access a community-wide program that's already in place? (For example, perhaps you can organize a recycling program for your apartment building that will feed into your town's existing program.) Can you handle the recycling on a local level, as may be the case for composting?
- ✓ **Equipment:** Decide what equipment you need in terms of containers for different kinds of material. How large do the containers need to be? How many do you need in order to be convenient to recyclers? Where should you place the containers, again thinking about convenience?
- ✓ **Transportation:** Determine if you need to arrange pick-up of the recycling materials and transportation to local recycling centers.
- ✓ **Sponsorship:** Find local, state, or national programs or businesses that will help out with costs such as startup equipment and transportation.
- ✓ **Project management:** Assign someone (or a team of people) to be responsible for the ongoing management of the recycling program, including fundraising, cleaning containers, raising awareness, and monitoring the program's success.

Establishing a recycling program may sound like a lot of work, but if you find some people who are equally as concerned as you are — possibly other parents at the school or other residents of the apartment building, for example — you can build a committee to share the work. (See Chapter 9 for more on organizing green efforts in schools.)

## Restoring the Past: Working on Historic Buildings and Sites

Rebuilding, restoring, or upgrading sites and buildings of importance to an area's history is an effective way to contribute to your local environment. You can join in one of thousands of projects going on around the country or, if you're ambitious, you can launch one of your own locally. The following federal programs provide opportunities to get involved in a variety of projects in the areas of building restoration and archaeological studies:

✓ **The National Park Service** is one of many resources that you can tap into if you're interested in either restoring an old house that you're purchasing as your home or launching a community project to preserve a building that has historic significance to the local area. The service's Technical Preservation Services department is the best place to start; use its checklist ([www.nps.gov/history/hps/tps/cheklist.htm](http://www.nps.gov/history/hps/tps/cheklist.htm)) for evaluating the building and planning the rehabilitation:

- Check available documentation.
- Evaluate the building's historic character.
- Assess architectural integrity and physical condition.
- Plan the rehabilitation work.
- Check codes and other legal requirements.
- Check use of federal funds.
- Check available publications.

✓ **The USDA Forest Service** offers ordinary people a Passport in Time — a volunteer archaeology and historic preservation program in which you work with professionals in national forests throughout the nation. Previous projects indicate the range of work that you can participate in: stabilizing ancient cliff dwellings in New Mexico; excavating a 10,000-year-old village site in Minnesota; restoring a historic lookout tower in Oregon; cleaning vandalized rock art in Colorado; and serving as information specialists at various sites.

You can find current projects listed by state on the program's Web site at [www.passportintime.com](http://www.passportintime.com).



To find local projects that are in need of help, contact local historic preservation societies or groups, local chambers of commerce, local community or county government offices, and state historic preservation offices. You also may find projects via the Internet by entering the name of your local area plus the words “historic building preservation” or “historic restoration.”

## Volunteering virtually

Not everyone can volunteer for some of the types of projects mentioned throughout this chapter. If you're taking care of children, looking after someone who's older or sick, or have a disability that restricts your mobility, some programs may be out of the question because you don't have the time or transportation to participate in a community project that operates outside your home. Virtual volunteering is a relatively new and popular approach to involving people in volunteer capacities in which you contribute your efforts over the Internet. You can volunteer for any project that you're interested in anywhere in the world as long as it accepts virtual volunteers. You simply arrange to complete the tasks at a time and place that suits you.

The types of jobs asked of virtual volunteers include Web site design, building databases, writing newsletters, fundraising, doing research, and mentoring. If you want to get involved virtually with a particular project in your own community or farther afield, contact the organization directly and offer your services. Because you use practically no energy to make your contribution, you contribute doubly to the green revolution!

Letter writing is one method of virtual volunteering that has been around for a long time. If you're concerned about a particular environmental issue, let local, state, and national politicians know, in writing. Many organizations offer templates or letter samples to help you word your letters most effectively. You can use the following sources to help you find causes, organizations, and places to send your letters or e-mails:

- ✓ Look to government Web sites to find mail and e-mail addresses for politicians.
- ✓ Head to the National Resources Defense Council's Web site at [www.nrdc.org](http://www.nrdc.org) for links to a number of different causes.
- ✓ Find information about a vast range of environmental health and well-being issues, including clean air and water, and open-space protection at [www.uspirg.org](http://www.uspirg.org), the Web site for the U.S. Federation of State Public Interest Research Groups.

## Regenerating Communities

In many towns and cities, entire neighborhoods have become run-down, contributing to crime and environmental damage. For example, trash, including hazardous materials, is often left on streets instead of being disposed of properly, potentially polluting the ground, air, and storm sewer systems. The circumstances are reversible, but it's a big project that requires a lot of time and resources from different people. Communities don't deteriorate overnight, and they also don't regenerate overnight. Sometimes, though, all it takes is one project to provide the kick start that's needed to set the community back on track.

## Protecting your donations

When considering donating either time or money to a charitable organization, it pays to do your research first. You need to make sure that it's not only a legitimate charity but also one that manages donations wisely and efficiently, ensuring that administration costs are kept as low as possible, for

example, so that donations go to action rather than administration. Charity Navigator evaluates charities on a number of different levels to help you assess the relative merits of different organizations. You can find it online at [www.charitynavigator.org](http://www.charitynavigator.org).

Many community regeneration efforts start with building restoration and renovation (refer to the preceding section), but they also can include projects such as cleaning graffiti; setting up community gardens; clearing vacant lots; improving park spaces; and organizing community gatherings such as festivals and suppers, community education efforts, and crime prevention strategies.



Communities need green space to attract birds and other beneficial wildlife. The National Audubon Society offers great information about providing habitat (including food, shelter, nesting sites, and clean water) for a range of bird species, whether you're working in urban, suburban, or rural areas. Visit [www.audubonathome.org](http://www.audubonathome.org) for more information.

The New York Restoration Project is an excellent example of a community regeneration program. Founded by actor and singer Bette Midler in 1995, the organization reclaims, restores, and develops parks, community gardens, and other open spaces in New York City. Midler began the project after moving to New York and noticing the dilapidated state of some of the city's open spaces. She launched the organization to clean up and restore those areas, and the program became the "conservancy of forgotten places." You can volunteer with the project whether you live in New York or are just visiting; check out the Web site at [www.nyrp.org](http://www.nyrp.org) for details.



According to the New York Restoration Project, the program and its volunteers have removed more than 875 tons of trash from the city's parks and open spaces, reclaimed more than 400 acres of under-resourced and run-down parkland, and provided free environmental education programming to more than 10,000 at-risk urban youngsters.



To find community regeneration projects across the country, run an Internet search that includes the words "sustainable neighborhoods." To find assistance in your area, start with your local city or town council, which is likely to have lists of organizations or staff members that deal with the municipal planning and social issues that this type of project entails.

## Restoring New Orleans

One of the largest community regeneration projects ever attempted in the U.S. is ongoing in New Orleans as a result of the devastation wrought in 2005 by Hurricane Katrina. Although all levels of government are involved in rehabilitation efforts, a large number of individual and community projects are making a significant difference in New Orleans.

One such project is the New Orleans Area Habitat for Humanity. Through a number of different projects including Hoops for Homes, the Baptist Crossroads Foundation, Musicians Village, the St. Bernard Recovery Project, and the 2008 Jimmy and Rosalynn Carter Work Project, the nonprofit organization is helping to build literally hundreds of affordable houses for those in need. You can donate

to the cause or plan a trip to volunteer in person by visiting [www.habitat-nola.org](http://www.habitat-nola.org).

Global Green USA, the American affiliate of Green Cross International, is also active in New Orleans, focusing on rebuilding in a sustainable way. The organization is teaming up with partners such as the Home Depot Foundation and actor Brad Pitt on initiatives such as the Holy Cross Project, which aims to build a sustainable low-income housing community in the Ninth Ward. The Holy Cross Project includes several houses and an apartment complex that will feature green products and energy-efficient systems, including solar panels to generate electricity. Find out more at [www.globalgreen.org](http://www.globalgreen.org).

## *Encouraging the Next Generation to Lead the Way*

Whether you want to engage a small group of neighborhood kids, local youth groups such as Boy Scouts or Girl Scouts, or an entire school in an environmental project, you just have to give the kids a few ideas. They'll likely run with those ideas, inspired to do as much as they can for the environment. They could make habitat boxes for birds and bats, plant trees and gardens, develop nature trails, create wildflower meadows, launch recycling programs, or even run environmental awareness campaigns.

A number of different organizations offer child-, teen-, and young adult-oriented programs, including the two we focus on in the following sections. But you also can create your own program for children of a certain age, depending on what your community needs most.

### *Taking action for nature*

Action for Nature ([www.actionfornature.org](http://www.actionfornature.org)) is a worldwide community project based in San Francisco that encourages young people to do their part to protect the environment wherever they live. The list of projects and ideas is endless. For example, children set up recycling schemes among friends and



families in their communities, or they campaign for their school to use recyclable plates and cups instead of plastic ones and to buy food in recyclable packaging.

Action for Nature also collects stories from young people about what they've been doing that's green, publishes those stories, and gives eco-awards each year for the best projects. The group's messages to children about green living are similar to the ones in this book — like using public transport, buying less, and protecting the wider environment — but Action for Nature is a practical project that encourages *doing* something instead of just talking about the issues. It also encourages children to spread the messages to friends and family.

## *Giving water a hand*

Give Water a Hand ([www.uwex.edu/erc/gwah](http://www.uwex.edu/erc/gwah)) is a national program from the University of Wisconsin's Environmental Resources Center that helps to educate young people about watersheds and get them involved in local environmental service projects. Young people work with teachers and experts to study water issues, such as whether their own local bodies of water are healthy and rich in wildlife, and to take action to improve water quality.

The program includes both an Action Guide for youth (which is also available in Spanish) and a Leader Guidebook for youth leaders and teachers. You can download both documents from the organization's Web site.

## *Greening your local schools*

If you truly want to create lasting change, then turning schools into centers for change is a strategy that will last beyond your own lifetime. When schools are built in green ways and teach green principles — both in the classroom and by example — the kids who are educated there carry green living ideas with them throughout their lives and pass them down to their kids, too. (We cover a variety of ways to make your children's schools greener in Chapter 9.)

The Earth Day Network extends well beyond Earth Day itself, which is April 22 each year. In fact, the organization has teamed up with the U.S. Green Building Council (USGBC) to green all of America's kindergarten to grade 12 schools within a generation. Greening these schools involves change in the following four key areas:

- ✓ **Healthy foods:** The Network supports organic and locally grown food choices. A major focus of its efforts is encouraging politicians at local, state, and national levels to pass legislation that improves the nutrition and quality of foods available in schools.

- ✔ **Curriculum:** The Network already has an Educator's Network in place that offers lesson plans and other tools for teachers to help them integrate environmental issues into the classroom at all grade levels. It also plans to create an online warehouse for free classroom materials that will help educate children and youth about the environment.
- ✔ **Policy and civics:** Green school symposiums and school bond initiatives (the sale by local governments of interest-bearing bonds that raise money for specific measures — in this case, environmentally friendly school construction or renovation) are part of the plan to help convince politicians to pass measures that encourage green school construction or renovation projects.
- ✔ **Green facilities:** The Network plans to work with community groups, volunteers, policymakers, the USGBC, and others to improve both indoor and outdoor school facilities, using programs to increase energy efficiency, biodiversity, outdoor green space, and the use of green building materials.

For more information about projects that your community can get involved with to further this long-term campaign, visit [www.earthday.net](http://www.earthday.net).

## *Getting college students to ease up on gasoline use*

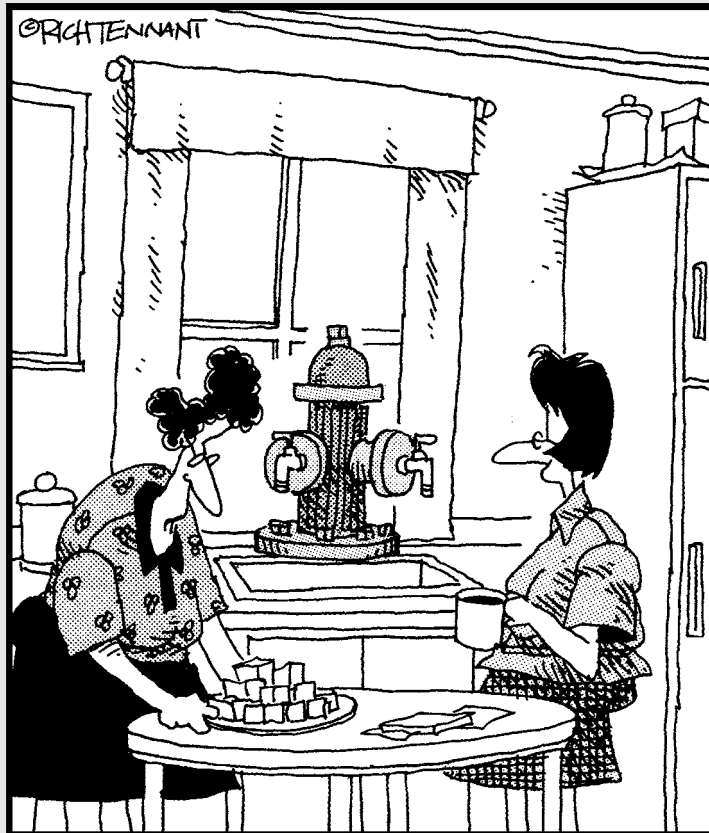
No Gas Required ([www.nogasrequired.com](http://www.nogasrequired.com)) uses the electric car as a symbol to get students at colleges and universities involved in convincing their educational institutions to reduce their hydrocarbon footprint and environmental impact. The Web site offers a place for these young adult students to learn about and discuss environmental issues and shows them how to become advocates for change.

# Part VI

## The Part of Tens

The 5<sup>th</sup> Wave

By Rich Tennant



"Sometimes Bill working for the city comes in real handy. Like when we decided to replace the kitchen fixtures."

## *In this part . . .*

**I**n this part, you find ten easy things you can do today to be greener right away; ten things that take a little more effort but really pay off for a green lifestyle; and ten ways to put the three Rs (that's reducing, reusing, and recycling) into effect by restoring and repairing items around the house instead of trashing them.

## Chapter 18

# Ten Easy Actions that Make an Immediate Impact

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### *In This Chapter*

- ▶ Making a habit of recycling and reusing
  - ▶ Keeping tabs on vehicle and energy use
  - ▶ Getting the whole family involved
  - ▶ Planning ahead for an even greener lifestyle
- 

**M**any of the green living suggestions throughout this book require some planning and help to put into practice, but there are plenty that you can get started on right now. This chapter lists the actions that are the most doable and that won't make any impact on your pocket — they just require a bit of time and commitment.

## *Recycle Regularly*

Organizing your recycling makes life a lot easier for you and your family, and you'll be more likely to keep it up if it's convenient. It's helpful to have separate boxes or bags set up in your home so that you can simply drop the various items to be recycled into the right receptacle as you go along. It's so much easier than sorting them all out later. (You can see some possible receptacles in Chapter 6.)

It's possible to recycle cardboard, newspapers, magazines, paper, glass, plastic, cans, and clothes, but check out the recycling facilities in your area because not all areas offer full recycling services yet. Call your city, town, or county administration and ask to speak with the appropriate person for recycling issues; he or she can tell you what items are accepted and how the system works.

Some places provide big recycling collection bins at various locations and expect you to take your materials there for recycling. Others provide special bins or boxes that you fill with the appropriate materials for curbside collection on certain days. If your local administration doesn't offer recycling, check your telephone directory to see if a private company offers it.

If you have a garden, designate one recycling container for leftover food and peelings from fruit and vegetables (it's best if this is a metal container that won't pick up any odors), and regularly empty it into your compost heap or composter in the back yard. (Turn to Chapter 8 for more on composting.)



You can recycle other household items by reusing them. For example, turn old, unwearable clothes into rags for polishing shoes, washing vehicles, and cleaning around the house.

## *Reduce Your Vehicle Use*

Plan your driving schedule by the week to cut down on the use of your vehicle as much as possible. For example, if you have to drive your children to and from school, do your shopping on the way home or on the way to pick them up. If you have to drive to and from work, include any other journeys that require the vehicle on your way there or back. Also consider sharing commutes with colleagues from work or taking other people's children with yours to school. If it's practical from where you live, you may want to drive your vehicle (or even better, walk or cycle) to the nearest bus or train station and use public transportation for the rest of the journey. You can find more transportation information in Chapter 13.

Even if you leave your vehicle in the garage for only the shortest journeys, you'll be doing your part to reduce fuel consumption and emissions. Short journeys are often the most environmentally damaging because a cold engine uses more fuel and pumps out more damaging emissions than one that's already running. If you're considering a short drive because the items you need are too heavy to carry back, get a backpack or even a wheeled cart that may do the trick and let you walk or cycle.



If you have to use the vehicle, think about how you drive. Rapid acceleration and braking use up more fuel — a smooth driving style is less damaging for the environment. Keep your tires properly inflated, and don't let the engine idle when you can turn it off.

## *Become Frugal with Your Energy Use*

Many of the actions that you can take to become more energy efficient are super easy, cost little or no money, and will even save you money on your

monthly utility bills. Most involve changing your habits (and those of your family). Be prepared for your new approach to take a little time to catch on, but be patient because when it does, you save energy and cash.

You can try these tips at home:

- ✔ **Beat phantom power.** Leaving appliances such as cellphone chargers, coffeemakers, televisions, and computers plugged in on “standby” uses a small amount of electricity that’s still very real when you’re paying for it on your monthly bill. Unplug these appliances or switch them off at a power strip.
- ✔ **Turn things off.** Turn off the lights in empty rooms. Turn off the computer if it will be unused for more than two hours, and turn off the monitor if it will be unused for more than 20 minutes.
- ✔ **Turn things down.** Reduce the thermostat by two to five degrees in winter (and increase it in summer), and reduce the temperature of your hot water heater (if your dishwasher has its own temperature booster).
- ✔ **Lasso the chill.** The refrigerator and freezer are more energy efficient if they’re full but not overloaded. Clean the coils either below or behind the fridge in order to keep them operating efficiently.
- ✔ **Avoid the burn.** Choose the microwave or toaster oven over the regular oven. When you have to use the regular oven, don’t open the door to check cooking progress — you just let out the heat. When using the stove, match the pan or pot size to the stovetop element, and keep a lid on the pan or pot to make cooking more efficient. Keep appliances clean.
- ✔ **Go for full and cold.** Always wait to run the washer until you have a full load, and wash clothes in cold water whenever possible to save energy and reduce shrinkage and dye transfer. Line-dry whenever possible to avoid using the clothes dryer.



Over a longer period of time you can do a complete audit of the amount of energy each of your appliances uses. You can borrow a simple gadget from many local libraries or utility companies that you plug your appliances into to see how much power they’re using. This device gives you a clearer picture of where you can make the most savings.

## *Maximize the Energy Efficiency of Your Lighting*

As your conventional light bulbs burn out, replace them with compact fluorescent (CFL) models, which use 75 percent less energy than conventional bulbs and last up to ten times longer. CFLs cost a little more to purchase, but the U.S. Department of Energy (DOE) estimates that they save you upwards of

\$30 over their lifetime. Another advantage is that you don't have to change the light bulbs so often! If everyone in America switched just one bulb from conventional to CFL, the DOE estimates that enough electricity would be saved every year to light 3 million homes and prevent greenhouse gas emissions equivalent to 800,000 vehicles.



CFLs contain a tiny amount of mercury, which is poisonous, so be careful with them. Don't put them in the trash because if the glass breaks and the mercury leaks out, it could contaminate the area where it leaks. To dispose of them properly, seek out recycling facilities by checking [www.epa.gov/bulbrecycling](http://www.epa.gov/bulbrecycling). (Home Depot has a national bulb recycling program — you can drop CFLs off in stores.) If you happen to break a bulb in your home, follow the clean-up instructions at [www.energystar.gov/ia/partners/promotions/change\\_light/downloads/Fact\\_Sheet\\_Mercury.pdf](http://www.energystar.gov/ia/partners/promotions/change_light/downloads/Fact_Sheet_Mercury.pdf).

## Sign Up with a Green Energy Supplier or Plan

Some energy suppliers can sell you electricity generated by renewable sources such as wind power. Call your supplier today to see if it offers a green energy plan. With some plans, the electricity you use and pay for is from a renewable source. With others, you pay a small premium that goes toward a renewable project. For more on home energy use, flip to Chapter 5.



Green electricity has virtually no carbon emissions. If your own supplier can't come up with something suitable, call around to other suppliers until you find one that can, and switch.

## Turn Off the Tap

Water is the most precious of natural resources, yet it's often taken for granted. You can easily reduce the amount of water you use, however: Start by turning off the tap while brushing your teeth. If everyone in the family gets out of that habit, it's a good start to a greener household (see Chapter 5). Then try these other water-saving tips:

- ✓ When you run the faucet to get hot water, collect the cold water that would otherwise head down the drain. Use kettles, bottles if you like to have chilled water from the fridge, or a bucket that you can use to water plants.
- ✓ Make sure that the washing machine and dishwasher are full when you use them so that you use them less often.
- ✓ If you wash the dishes by hand, don't do it under a running tap.



- ✓ Take quick showers (less than ten minutes) instead of baths. If you do take a bath, you can use the bath water to water the garden (any bubble bath ends up diluted).
- ✓ Collect rainwater in a rain barrel for use in the garden or for washing your vehicle or bicycle. Keep a lid on the barrel so that the water doesn't evaporate on sunny days or attract breeding mosquitoes.

## *Buy Less; Reuse More*

You've probably bought many things over the years that you didn't really need and didn't end up using very much. Everything you buy has a tally of carbon emissions — from the manufacturing process, the packaging, and transporting it to and from the store — so the more you buy, the more emissions you're responsible for. And many unwanted items are likely to end their days in a landfill site where they take centuries to decompose. Overall, buying less uses up less of the planet's natural resources, which is an excellent green strategy.

When considering new purchases, first think reduce, reuse, repair, and recycle. Do you already have something that would do the job as well if you repaired it? Can you rent or borrow the item from someone else or share one belonging to a friend? When you do need to buy an item, consider whether it can be recycled or reused when you're finished with it. Maybe a friend can make use of it and pass it on or a secondhand store could find it a new home. We cover shopping and material goods in detail in Chapter 6.



Things like paper from presents and material from clothes can be reused to wrap packages, and gifts you've received but don't want can be regifted to friends who would appreciate them.

## *Get Everyone in the Household Involved*

You can achieve a lot on your own and even more together with your family. Talk over your green lifestyle plans with everyone and explain your reasons for going green. Explain how you'd like everyone to play their part: Maybe each person can have special green responsibilities. It will take a while before everyone turns off the light when they leave a room or shuts the fridge door, but eventually it will become second nature. By doing things yourself and setting an example, you can help to create a new green culture around the home.



Children often get information at school about green issues, so you can give your children the job of making sure that they keep you up-to-date on practical tips they pick up that you can use at home. They'll feel as if they're

leading the green revolution in your home. For more on raising green kids, check out Chapter 9.

## Stay Informed

There's so much information available about leading a greener lifestyle that it's hard to know where to start. One of the best tools for staying informed about new breakthroughs is the Internet: Just type "green living" into any search engine and you'll get links to all sorts of useful information. Newspapers and radio and television programs also are useful for keeping up-to-date.



The Appendix of this book includes dozens of Web sites to give you a head start on staying informed when it comes to specific aspects of green living, such as shopping, water conservation, and wildlife issues. We also list Web sites that you can visit for more general green living information on the Cheat Sheet at the front of this book.

## Plan for Bigger Steps and a Greener Lifestyle

When you start to think about leading a greener lifestyle, you may find that you want to do more. The steps in this chapter don't require money to put into operation, but now's the time to plan what you'd like to do if and when you can save up the money: Most of the energy-efficient measures that cost money to implement ultimately turn out to be a good investment over the long term. For example, you save money on your utility bills by replacing old appliances with more energy-efficient models. Also, your food bills come down if you convert some of your garden to grow your own vegetables; this change also pays dividends in terms of providing you with healthier food and the opportunity to get more exercise.

If you want to become even greener, you may be able to produce some of your own power from solar panels or a domestic wind turbine. Research the grants you may be eligible for, and factor those into the amount you have to save or roll into your mortgage. (Chapters 4 and 12 have information on this topic.) If your vehicle is about to give up the ghost and you intend to replace it, check out the greener options in the showrooms. Chapter 19 contains ten suggestions for making your green lifestyle even greener.



There's no need to rush into spending a lot of money on being green, but through planning you may well find that it doesn't cost much more and will save you money in the long run.

## Chapter 19

# Ten Ways to Darken Your Shade of Green

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### *In This Chapter*

- ▶ Giving away your unwanted items
  - ▶ Finding green products to replace conventional ones
  - ▶ Passing the green mindset on to your kids
  - ▶ Thinking green when exercising
  - ▶ Renting out your green home
  - ▶ Commemorating life events in a green way
- 

As the green revolution gathers momentum, it gets much easier to buy food and other items that make your life greener, to donate unwanted goods, to throw green parties, and even to exercise with the environment in mind. This chapter outlines ten green actions that will make a difference in your life and in the life of the planet.



Being green doesn't always involve spending money. Sometimes putting good ideas into practice and helping other people by behaving ethically is enough.

## *Find a New Home for Pre-Loved Items*

Of course you can always give things away to friends, family, and stores such as Goodwill and the Salvation Army, but what happens if no one you know really wants the items or if there's no charity store near you? The Freecycle Network ([www.freecycle.org](http://www.freecycle.org)) is an Internet-based free service that allows people to post messages about items they'd like to give away. It's one more tool in your quest to divert as many items as possible away from the landfill. Freecycle has millions of members around the world who are divided up into local sites.

After you post an item on the Freecycle message board, others e-mail you to say that they'd like the item. Many people just use a "first-come, first-served" approach to choosing the recipient if more than one person is interested. The giver and the recipient then decide how to exchange the item. The standard rule is that, when you become a member, you first offer something up on Freecycle; after that, you have the opportunity to pick up things that you'd like that other people are giving away.

## *Buy Local Produce the Easy Way*

Eating in a green way involves as much locally grown food as possible, and it's even better if that local food is also organic. You may find, however, that it's not convenient for you to head across town to a farmer's market or into the countryside to a farm to pick up locally grown produce such as fruit, vegetables, and eggs. That's when a local grocery delivery service can really come in handy. The food (usually of your choice) is delivered right to your door. This convenient service is also environmentally friendly because instead of ten people driving all over town to pick up the produce, the company can choose an efficient route between those people and deliver to them instead. This arrangement usually saves both fuel and greenhouse gas emissions.

When comparing services, check out where the food is sourced to make sure that it's as local as possible. Also find out where companies source fruit and veggies when local producers aren't growing (during the winter, for example). Opting at least for organic when you can't find local produce is a good plan.



To find a grocery delivery service in your area, type "organic food delivery service (*your town or city*)" into your favorite Internet search engine. Also check [www.spud.com](http://www.spud.com) and [www.doortodoororganics.com](http://www.doortodoororganics.com) to see if they deliver locally. If you can't find an organic food delivery service, try skipping the "organic" part of the search and check the resulting delivery companies to see if the produce is at least local.

## *Eat with Your Children*

If your children are involved in shopping for food and cooking it, they'll have a much better idea of where the food actually comes from and what's good and bad for them. Take them to visit local farms or city farms to help them understand the link between food and the countryside. (Audubon centers and farms are a great learning environment and can be found in many states — check [www.audubon.org](http://www.audubon.org) for a state-by-state listing.) Then welcome their help in the kitchen in an age-appropriate way so that they think of cooking as something that's fun and pleasant rather than a chore.

Focus your family's choices on fresh foods, including fruit and vegetables, so that they're less likely to develop a taste for processed food. This is a great way to create a green legacy that will last for generations.

## *Buy Fairtrade Goods*

As we explain in Chapters 10 and 11, Fairtrade Labelling Organizations International is a trading program that works to make sure that producers (especially in the developing world) receive fair prices for their products that allow them to reinvest in their business, and that workers have reasonable working conditions. While it was once quite difficult to find Fairtrade goods, it's becoming much easier as the program catches on with consumers. The more that you support Fairtrade goods, the more money is available to support further expansion of the program.

Specialty stores and even some supermarkets carry a range of Fairtrade goods — approximately 300 at the time of this writing — including tea, coffee, chocolate, bananas, herbs and spices, flowers, cotton, and footballs, and the list is growing as the program extends its reach. You can find more information about Fairtrade at [www.fairtrade.net](http://www.fairtrade.net).

## *Green Your Morning Coffee*

Because green living isn't about sacrificing things that make your life more enjoyable, there's no reason to do without your morning coffee — but you can make it a little greener (in philosophy rather than color!). If you pick it up on your way to work, ask the store to fill your own mug rather than using a disposable cup. Many coffee shops also offer Fairtrade-certified coffee along with metal spoons and cartons of cream or milk instead of small individual (disposable) servings. If your usual stop doesn't have these things, consider asking them to change their ways, or just switch to a new coffee place that's more environmentally conscious.

If you park your vehicle and go in to get your coffee, you not only save the fuel and greenhouse gases that you'd otherwise emit while waiting at the drive-thru, but you also get to know the people who run the shop and so increase your local community contacts.



Of course, you can also brew your own Fairtrade coffee at home and take it with you on the road in an insulated mug — the coffee's even greener if it's organic, too!

## *Limber Up with Green Exercise*

Regular exercise improves your health tremendously. Simply making time to walk or cycle can make a huge difference, but if you need or want a little extra time in the gym, consider buying exercise equipment to use at home instead. Gyms aren't necessarily the greenest places to exercise: They use a huge amount of energy to light the facility, run air conditioning, operate the equipment, and heat pools, saunas, and other water features; they also use chemicals in the pools.

You can get greener exercise in the nearest park or at home. Exercise in the park and there's no energy involved apart from your own. Exercise at home and, unless you use electrical equipment, you'll use no more power than normal. Plus, you save on those gym fees.

If you need the motivation or social contact that a gym provides, find a facility that's as green as possible. For example, it may source power from green alternatives and clean with natural chemicals. Check the clubs closest to your home or work to find out which one offers the greenest facility: Use their Web sites or a quick call to their information lines to gather green details.

## *Assist in Community Development*

If your community is looking for ways in which to plan for sustainable development, suggest The Natural Step, an international nonprofit organization that offers a very concrete, science-based approach to sustainability.

The Natural Step provides a logical, systematic way to approach community development that focuses on the following issues:

- ✓ **Resources:** Reducing and eventually eliminating the continued mining and use of minerals brought up from the ground
- ✓ **Health:** Reducing and eliminating contribution to synthetic substances that are persistent in nature and harmful to health and well-being
- ✓ **Environment:** Reducing the impact that people have on nature in terms of the physical degradation of natural systems
- ✓ **Society:** Reducing and eliminating the barriers in society that keep people from meeting their needs



You can find more information about The Natural Step, which is active in Oregon, at [www.naturalstep.org](http://www.naturalstep.org).

## Rent to Green Tenants

If you're lucky enough to have a house, apartment, or room to rent out, think about *green renting*, renting to tenants who want to live in an eco-friendly home. Adding green features to a house or apartment costs money, but it's worth it. Green renters are likely to pay a little extra for a home that's cost-effective or that doesn't trigger any of their environmental sensitivities. Green tenants also are likely to stay longer because of the home's green features, so you don't have as many periods when the property is empty while you look for a new tenant. (Turn to Chapter 4 for green changes you can make to your home.)

## Celebrate Life's Milestones Greenly

Every big life event — births, birthdays, anniversaries, weddings, and Christmas and other religious festivals — deserves to be marked in an appropriate way. Celebrate in a way that's green, and you extend your focus on an environmentally friendly lifestyle to every aspect of the fun. Use these strategies to green your celebration:

- ✔ **Cut back on printing.** Send invitations electronically or at least print them on recycled paper using as little paper as possible. Skip the extra papers often included in wedding invitations, for example.
- ✔ **Go organic.** Choose local, organic food for celebratory meals, whether you're having the celebration at home or in a hotel or restaurant. If possible, find a caterer in your area who can accommodate this request.
- ✔ **Support Fairtrade.** Whenever possible, buy Fairtrade party supplies. Check stores that offer Fairtrade products first, and then head online if you still need items for your celebration.
- ✔ **Decorate naturally.** Use natural rather than artificial decorations, including potted or garden plants suited to your area that guests can take home after the celebration (ask a local garden center for advice). If you choose cut flowers, enjoy them and then compost them after the party.
- ✔ **Green the gifts.** Request or give green gifts: Suggest donations to green or sustainable causes, or put green items on the gift registry list. Other low-impact, green gifts include artwork, tickets for the theater, or gift certificates for a restaurant specializing in local cuisine.

## Plan for a Green Funeral

You may not want to think about your death and funeral, but you can choose an environmentally friendly alternative that's kinder to the planet for almost every aspect of your end-of-life wishes. If you want a green funeral, you must do your research, make your plans, draw up a list of dos and don'ts, and talk to your nearest and dearest about your wishes. Write all the details down, and keep them with your will.

Your family needs to know whether you would prefer to be buried or cremated. There are green arguments against both these options. Conventional burials in cemeteries carry a problem of space and the proper disposal of potentially harmful embalming fluids. For cremation, there's the issue of gases released into the atmosphere. Whether you're buried or cremated is one decision that's intensely personal, so do your research and choose the option that's right for you.

If you prefer burial and a wood casket, choose one that's made from wood certified to come from a sustainable forest — that is, one where trees are replaced as they're cut down. (You can get more information on sustainable forests from the Forest Stewardship Council at [www.fscus.org](http://www.fscus.org).)

Alternatives to wood caskets are wicker or cardboard caskets, which are biodegradable. Some suppliers offer a cardboard casket inside a wooden shell, and the shell goes back to the undertaker when the funeral is over.

Green or natural burial sites are becoming more common. These nature-based sites don't usually allow the use of embalming fluids and require biodegradable coffins. Also, there aren't any headstones in green burial sites; most graves have trees planted on them, so you have a doubly green send-off.



Visit the Centre for Natural Burial's site at [naturalburial.coop](http://naturalburial.coop) for more information about green cemeteries in the United States, including Memorial Ecosystems ([www.memorialecosystems.com](http://www.memorialecosystems.com)), which operates locations in South Carolina and Georgia, and the Glendale Nature Preserve ([www.glendalenaturepreserve.org](http://www.glendalenaturepreserve.org)) in Florida. Another option is having yours or your loved one's cremated remains mixed in a cast-concrete reef that's lowered onto the seabed off the coast of Florida, where it can serve as a shelter for marine life for hundreds of years; find more information at [www.eternalreefs.com](http://www.eternalreefs.com).



## Chapter 20

# Ten Ways to Repair and Restore Rather than Trash

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### *In This Chapter*

- ▶ Salvaging broken china
  - ▶ Making furniture last longer
  - ▶ Patching flooring
  - ▶ Giving fabric a new lease on life
- 

**O**ne way to live the green lifestyle is to reduce the amount you purchase; in order to do that, it makes sense to focus on extending the life of what you have. This chapter contains our favorite repair and reuse projects for everyday items from dishware to furniture to fabric. The techniques used are straightforward, quick, and effective. For tools, equipment, and some extra help (if you need it), turn to experts at your local home building center or fabric store.

## *Turning Broken Plates into Tabletops*

You can turn old plates that you don't use anymore or — oops! — plates that you've accidentally broken into creative works of art as tabletop mosaics. This project does double duty if your tabletop is in bad shape to begin with. Follow these steps to make the transformation:

- 1. Break the plate pieces into workable sizes — anywhere from ½ inch to several inches across. The pieces don't need to be even or equal in size.**



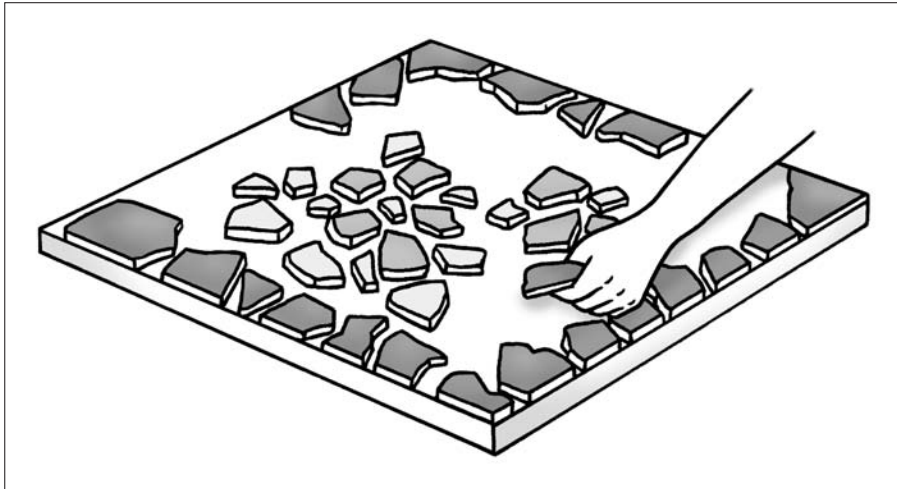
For safety, place the pieces you're breaking under a piece of cardboard or heavy fabric, and hammer the material. The protective layer stops most of the pieces from flying around, but you should still wear safety glasses, just in case.

2. Do a dry layout without adhesive, placing the pieces on the tabletop to make sure that you're happy with the design (see Figure 20-1).
3. Remove the pieces from the dry layout in an orderly manner, perhaps placing them in the same arrangement on your work surface as they were on the tabletop.
4. Use a notched trowel to apply premixed tile adhesive to the table, and set the broken pieces into the adhesive.



Choose an adhesive that's environmentally friendly and nontoxic. If your local building center doesn't stock these, you can find them online at sites such as [greenbuildingsupply.com](http://greenbuildingsupply.com).

5. Allow the tabletop to dry according to the adhesive instructions.
6. Using a rubber-backed trowel, apply premixed grout to the mosaic top to fill in the spaces between the broken pieces. Wipe a damp sponge over the surface to remove most of the excess grout.
7. Let the grout dry, and then wipe the surface again with a damp sponge.
8. Let the grout cure according to the manufacturer's instructions, and then seal the tabletop with a tile and grout sealer to help protect the finish.



**Figure 20-1:**  
Plan your  
mosaic  
layout  
before  
applying the  
tile  
adhesive.

## Refinishing Wood Furniture

With just a little elbow grease and some water-based paint or stain products, you can repair and refinish wood furniture to give it a whole new life. A wooden chest of drawers that's outlived its usefulness in the master bedroom, for example, can be reinforced and repainted to suit a child's bedroom. This project also is a great way to turn secondhand furniture (look for solid wood and sturdy construction) into a family heirloom.

The specifics of refinishing vary depending on what you're working on, how valuable it is, the finish that's already on it, and what you want it to look like in the end. However, the basic steps include first identifying the existing finish; stripping or sanding it down if needed, or just cleaning it; and applying the new finish or renewing the old finish according to the instructions of the product that you're using. Always use the most environmentally friendly, least toxic products available.



Water-based paint or stain products are much friendlier to the environment than oil-based products; those that release few or no volatile organic compounds (they're labeled as low- or no-VOC) are even better.



If part of the furniture structure is beyond salvaging, you may still be able to use other parts of it. Remove a tabletop from its legs, for example, and reuse it with new legs (many stores, including home improvement stores and Ikea at [www.ikea.com](http://www.ikea.com), stock a vast array of table-leg options). If the exterior structure of a chest of drawers is beyond help, you can reuse the drawers as under-bed storage by adding wheels to the bases and pushing them under the bed (measure the bed's height from the floor first to make sure they'll fit).

## Repairing Wooden Chair Rungs

Loose, wobbly chair legs are common on older wooden chairs, but they don't have to signal that it's time for the chair to head to the landfill. If the chair isn't particularly valuable and you're looking for a quick fix, hit the hardware store for small metal strips that you insert between the rung and the hole that the rung fits into. The strips grab both surfaces and make the chair wobble no more. Home improvement stores also sell a glue-based product that you inject into the space between the rung and its hole to firm things up.

To do the job completely, however, you need to take the chair rungs apart. Separate the pieces gently, and lay the rungs out in the same pattern as they fit into the chair so that you know which ones go where when it's time to

reassemble. Clean off old glue with sandpaper, and then re-glue the joints. Clamp the chair rungs into place with several rigid bar clamps (see Figure 20-2) or a flexible clamp that cinches around all the legs at the same time (often called a *strap* or *band clamp*), and wipe off any excess glue that oozes out. Then just wait for the glue to dry according to the manufacturer's instructions.



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**Figure 20-2:**  
Use flexible  
clamps or  
several rigid  
bar clamps  
to hold the  
repaired  
chair rungs.

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## *Recovering Dining Chair Sets*

Replacing the fabric on dining chair seats is a simple fix that gives the chairs a whole new look at a fraction of the cost (and environmental impact) of buying new ones. Before you get started, however, make sure that the chair frames themselves — whether they're made of wood, metal, or something else — are sound, and repair them as necessary. Then follow these steps for the seat:

- 1. Remove the seat pad from the chair by removing the screws that hold it to the frame.**
- 2. The seat pad likely has a piece of cardboard or similar material stapled to its underside to cover the raw edges of the fabric, so carefully remove the board.**

If the board is in good shape, save it; if not, use it as a pattern to cut a new piece of board (cardboard or otherwise).
- 3. Remove the old fabric from the seat pad and use it as a pattern to cut out the new fabric. Check the seat's padding and replace it if it's too compressed or damaged to cushion the seat comfortably.**
- 4. Lay the new fabric right-side down on a sturdy surface. Place the padding over it and the seat pad on top of the padding so that the underside of the seat pad is facing up.**
- 5. Grasp the center of the fabric from what will be the front edge of the seat, fold it over the seat pad, and staple it to the seat. Do the same on the facing side. Then staple the fabric along those two sides into place, working from the center staples out toward the edges.**
- 6. Repeat Step 5 on the other two sides of the seat.**
- 7. Staple the board from Step 2 into place to hide the cut edges of the fabric. If the staples don't insert themselves all the way, use a hammer to tap them firmly into place.**
- 8. Screw the seat pad back onto the chair frame.**

## *Renewing Upholstered Furniture*

If your chairs and sofas are looking a little tired, you have two options to extend their life: slipcovering or reupholstering. Both options work best when the material is tired but the underlying structure is still sound; if the structure, such as a metal or wooden frame, is broken and not easily fixed, it may not be worth the time and expense to solve the material problem.

Slipcovering is the easier and less expensive of the two options. You can either buy or make slipcovers to fit furniture such as sofas and chairs. In many cases, the slipcover fabric is washable, which gives you the additional benefit of being able to remove and launder the slipcovers when needed. The covers often use elastic or fabric ties to secure them to the shape of your furniture, but one downside is that even with these measures, they still tend to need frequent re-tucking. Check out *Window Treatments & Slipcovers For Dummies* by Mark Montano and Carly Sommerstein (Wiley) for advice and instructions on making slipcovers.

Reupholstering your furniture provides a much more permanent — albeit more expensive — solution for tired furniture. The phone book can direct you to local stores or craftspeople who specialize in this work in your area, but you can do it yourself if you're prepared to be patient and to put the time into learning the skills and completing the job.



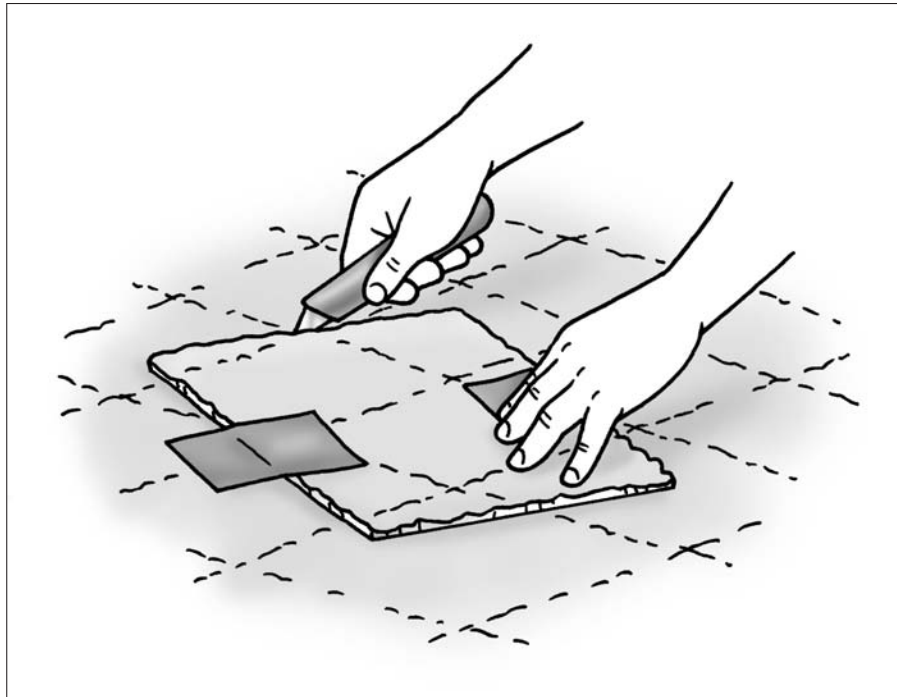
College and community continuing education programs and fabric stores often offer courses and workshops to help you learn the techniques involved in sewing your own slipcovers and reupholstering your own furniture. Books, videos, and Web sites can also help a great deal, but the courses offer a chance to try the techniques for yourself under the supervision of experts.

## *Patching Carpets and Vinyl Flooring*

You can patch small holes, tears, or damaged areas in carpet and vinyl flooring using quite similar techniques, despite the dissimilarity of the material. The key is finding a small piece of undamaged carpet or flooring to use as a patch. If you don't have any spare carpet or flooring, cut the patch out of an inconspicuous area such as the back of a closet. Follow these steps:

- 1. Find a place to cut out the patch where the pattern of the patch will match the pattern of the damaged area. Cut out the patch using a utility knife, running the knife against a metal straightedge to get a clean seam.**
- 2. Tape the patch into place over the damaged area so that the patterns match exactly. Use the utility knife to cut out the damaged area using the patch as a guide (see Figure 20-3).**
- 3. For carpet, stick double-sided carpet tape onto the floor and press the patch into place. You also can use seam adhesive to help seal the patch's seams. For vinyl flooring, glue the patch into place with vinyl flooring adhesive (follow the manufacturer's instructions).**

You can find nontoxic adhesives at [greenbuildingsupply.com](http://greenbuildingsupply.com) if your local stores don't stock them.



**Figure 20-3:**  
Lay the patch over the damaged area so that the pattern matches exactly.



If your vinyl flooring dates back beyond 1981, it may contain asbestos. If you have any doubt or concern about the presence of asbestos in your flooring, hire an expert to check it before you start repairing it; it may be healthier and safer either to have it removed by professionals or to lay new flooring over top of it.

## *Turning an Old Door into a Desktop*

Reusing furniture doesn't get any easier than this. An old door can make a great work surface. A flat door without embellishments or windows works best, and it's even better if it's solid wood rather than hollow core. Here's how to make the transformation:

- 1. Remove all hardware from the door, such as hinges and doorknobs.**
- 2. Measure the space you want the desk to fit into and then measure the door. If the door fits, great. If it doesn't, you can cut it to size with a saw.**

If you're using a hollow-core door, carefully save the pieces that you cut off. There should be a solid piece of wood that forms a frame inside the door edge. Take this piece of wood out of the discarded piece, and screw or glue it inside the cut edge of the door to recreate the solid frame.

3. Refinish the door if desired (refer to the “Refinishing Wood Furniture” section earlier in this chapter).
4. Mount the door, which is now a tabletop, either on table legs (which you can buy at home improvement stores and some retailers, such as Ikea) or on two pieces of similar furniture such as bookshelves or end tables.

Make sure that the hole for the doorknob is to the rear of the desk; it makes a great hole through which to pass computer component cables.

## *Making Gift Wrap Out of Fabric*

Making gift bags or gift wrap out of fabric takes just a few minutes (sewing is optional), but it creates striking gift wrap that can be used again and again. Buying inexpensive fabric on sale keeps the cost down below that of wrapping paper, but you also can go greener by using leftover fabric from other projects. You can even salvage fabric from older clothing; jeans, for example, may be worn at the knees and hem, but if the denim in between is in good shape, reuse it.

Here are two options for turning fabric into gift wrap:

- ✓ **The no-sew gift wrap method:** Cut out a piece of fabric with pinking shears. The scissors produce a jagged cut edge that resists fraying. Wrap the fabric around the gift as if you were using paper, and then tie the fabric in place with ribbon.
- ✓ **The quick-sew gift bag method:** Cut out a piece of fabric and fold it over on itself with the right sides of the fabric together. Assume that the folded edge is the bottom of the bag, and sew the edges together along what will be the two sides of the bag. Either fold the edges of the remaining open seam (the top of the bag) over and sew to create a hem, or cut them using pinking shears. Turn the bag right-side out, place the present inside, and tie the open side closed with a ribbon.

## *Sewing an Heirloom Quilt from Your Children's Clothes*

Even if you've never quilted before, you can make a wonderful keepsake out of the children's clothing that you can't bring yourself to give away. Collect the clothing you want to use and then select a quilt pattern that you like. (Search quilt patterns and instructions online, or visit your local library to peruse quilt pattern books.) Cut the clothing up into pieces that are the



proper shapes and sizes for the pattern, and sew them together according to the pattern instructions. Sandwich the quilt with the pieced top, a layer or two of batting, and a piece of backing fabric. You can then sew a pattern through all the layers either by hand or by machine to add interest and keep the layers together.



If you're a novice quilter, check out Cheryl Fall's *Quilting For Dummies*, 2nd Edition (Wiley). Also, you can learn so much by taking a quilting class at your local fabric store or community college. You'll discover great tools (like the rotary cutting tool that makes cutting easier and more accurate than scissors), handy tips, and like-minded people who can help you with your project.

## Making a Rag Rug from Fabric Scraps

If you remember how to braid, you can create a rug from leftover fabric that you have hanging around the house. One strategy is to use fabrics with colors that complement each other, but that's not at all necessary: Part of the fun of the rag rug is not knowing how the colors will come together when they're braided. Follow these basic steps and check out Figure 20-4:

1. **Cut the fabric into strips that are two to three inches wide and as long as possible.**
2. **Sew the short ends of the strips together, with the right sides of the fabric together, to create long strips that are a maximum of about nine feet long (any longer and they tend to tangle while braiding).**

You'll braid these strips together in sets of three. It's difficult to provide guidelines as to how much footage you need for the strips because the size of the rug is determined not only by the braid length but also by the weight or thickness of the fabric. It's best to estimate the required footage after you start braiding — then you can see how thick the braids are and the length of the fabric that went into them.

3. **Tie three strips together at one end, and start braiding them.**

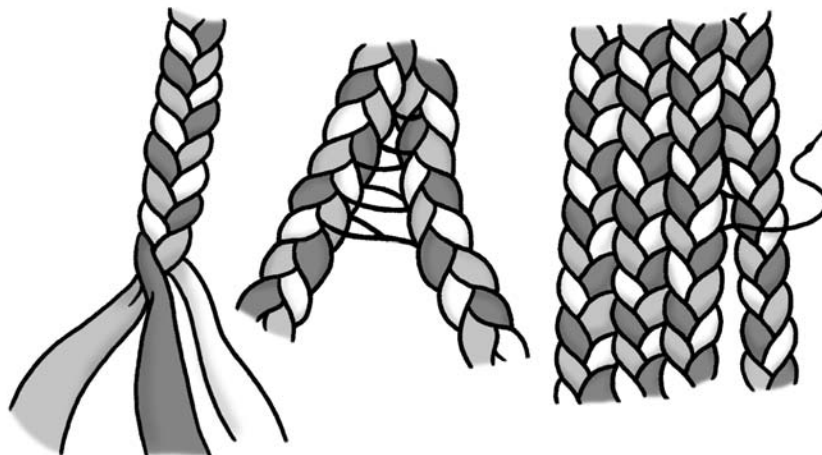
When you come to the end of the strips, sew each of the strips to a new strip to lengthen the braid and increase the size of your finished rug.

4. **Begin coiling the braid into a circle or oval as desired. As you coil it, hold it in place with safety pins, and then use an upholstery (curved) needle and very sturdy thread (nylon works well) to sew the braid to itself in the shape you want.**



To determine the size of a finished oval rug, the center braid that you start with should be as long as the difference between the length and width of the finished rug. For example, for a 4-x-6-foot rug, you lay out 2 feet of braid before turning it to start the coiling process.

**Figure 20-4:** How to braid a rug: Braid three strips of fabric together, sew one braid to another, and continue sewing each braid to the next one in order to hold the desired shape.



## Appendix

# Finding Green Products, Services, and Information

Throughout this book, we direct you to resources that can help you to find more information about living a green and sustainable life. This appendix rounds up the key resources and even adds a few to point you in the right direction to explore the varied, wider world of green living.

## *Animal Welfare*

- ✓ **Animal Welfare Institute ([www.animalwelfareapproved.org](http://www.animalwelfareapproved.org)):** Offers a new food certification seal that indicates the highest standards of humane animal treatment.
- ✓ **Compassion Index ([www.compassionindex.org](http://www.compassionindex.org)):** A project of the Animal Welfare Institute that provides a comparison of legislation and voting records dealing with animal welfare.
- ✓ **Endangered Species Handbook ([www.endangeredspecieshandbook.org](http://www.endangeredspecieshandbook.org)):** A project of the Animal Welfare Institute that offers information about vanishing species.
- ✓ **Humane Society of the United States ([www.hsus.org](http://www.hsus.org)):** The well-known organization that works to prevent animal cruelty.
- ✓ **Lab Animal Issues ([www.labanimalissues.org](http://www.labanimalissues.org)):** Another project from the Animal Welfare Institute that's focused on the humane treatment of animals used for experimentation and the development of alternatives to this practice.
- ✓ **Society for Animal Protective Legislation ([www.saplonline.org](http://www.saplonline.org)):** Dedicated to supporting local, federal, and international legislation to ensure and protect animal welfare.

## Money Matters

- ✔ **Charity Navigator ([www.charitynavigator.org](http://www.charitynavigator.org)):** A helpful guide to donating your money to reputable nonprofit organizations.
- ✔ **Charity Watch ([www.charitywatch.org](http://www.charitywatch.org)):** An organization that helps donors to make informed giving decisions.
- ✔ **General Electric Credit Card ([www.myearthrewards.com](http://www.myearthrewards.com)):** A credit card that offers carbon offsets for your purchases.
- ✔ **National Association of Trade Exchanges ([www.nate.org](http://www.nate.org)):** Offers a membership listing for trade (barter) operations across the U.S.
- ✔ **Sierra Club Stock Fund ([www.sierraclubfunds.com](http://www.sierraclubfunds.com)):** A source of information on financial investment vehicles from the Sierra Club.
- ✔ **Social Investment Forum ([www.socialinvest.org](http://www.socialinvest.org)):** Provides lots of background information and investment options for socially responsible investing.
- ✔ **TimeBanks USA ([www.timebanks.org](http://www.timebanks.org)):** Helps set up time banks in which service time is traded across the U.S. instead of goods.

## Children

- ✔ **Action for Nature ([www.actionfornature.org](http://www.actionfornature.org)):** A nonprofit organization that encourages children to help protect the environment.
- ✔ **Children's Environmental Health Network ([www.cehn.org](http://www.cehn.org)):** A multi-disciplinary national network that works to protect children from environmental health hazards.
- ✔ **Give Water a Hand ([www.uwex.edu/erc/gwah](http://www.uwex.edu/erc/gwah)):** A kid-focused program from the University of Wisconsin's Environmental Resources Center.
- ✔ **Healthy Child Healthy World ([www.healthychild.org](http://www.healthychild.org)):** A national nonprofit organization dedicated to protecting children from environmental health hazards.
- ✔ **International Baby Food Action Network ([www.ibfan.org](http://www.ibfan.org)):** An association of public interest groups working around the world to reduce infant and child morbidity and mortality.

## Cleaning

- ✔ **Ecover ([www.ecover.com](http://www.ecover.com)):** Manufacturer of washing and cleaning products produced in a socially, economically, and environmentally responsible way.

- ✔ **Method** ([www.methodhome.com](http://www.methodhome.com)): Manufacturer of cleaning supplies, candles, and personal care products that use naturally derived, biodegradable ingredients; the Free & Clear line is without dyes and fragrances.
- ✔ **Seventh Generation** ([www.seventhgeneration.com](http://www.seventhgeneration.com)): Manufacturer of household and personal care products that are healthy and safe for homes, people, and the environment.

## *Energy and Water Conservation*

- ✔ **American Solar Energy Society** ([www.ases.org](http://www.ases.org)): A nonprofit organization focused on promoting the use of solar energy in the U.S.
- ✔ **American Wind Energy Association** ([www.awea.org](http://www.awea.org)): The national trade organization that promotes the use of wind power energy in the U.S.
- ✔ **Bosch Appliance** ([www.boschappliances.com](http://www.boschappliances.com)): A manufacturer of energy-efficient appliances.
- ✔ **Building with Awareness** ([www.buildingwithawareness.com](http://www.buildingwithawareness.com)): Offers practical information about straw bale and solar hybrid homes.
- ✔ **Collaborative Biodiesel Tutorial** ([www.biodieselcommunity.org](http://www.biodieselcommunity.org)): The source for everything you ever wanted to know about biodiesel, including where to find it.
- ✔ **Energy Star** ([www.energystar.gov](http://www.energystar.gov)): Certifies the most energy-efficient appliances and building materials.
- ✔ **Forest Stewardship Council** ([www.fsc.org](http://www.fsc.org)): An international organization promoting responsible management of the world's forests; operates a labeling program for environmentally friendly wood.
- ✔ **Sun Lizard** ([www.alternativefuels.com.au](http://www.alternativefuels.com.au)): An Australia-based company with some interesting solar energy technology for homes.
- ✔ **U.S. Department of Energy** ([www.doe.gov](http://www.doe.gov); [www.eere.energy.gov](http://www.eere.energy.gov); [www.energysavers.gov](http://www.energysavers.gov)): Source of background information about energy efficiency as well as conventional and alternative sources of energy.
- ✔ **U.S. Department of Energy WaterSense Program** ([www.epa.gov/watersense](http://www.epa.gov/watersense)): Shares water-conservation tools and techniques that everyone can use.

## Food

- ✔ **The Campaign ([www.thecampaign.org](http://www.thecampaign.org)):** Supports the Genetically Engineered Food Right to Know Act that would give consumers information about genetically modified ingredients in their food.
- ✔ **Door to Door Organics ([www.doortodoororganics.com](http://www.doortodoororganics.com)):** A delivery service for organic produce.
- ✔ **Fairtrade Foundation ([www.fairtrade.net](http://www.fairtrade.net)):** Provides details of Fairtrade products, suppliers, retailers, campaigns, and how you can get involved.
- ✔ **Farmers' Markets ([www.ams.usda.gov/farmersmarkets/map.htm](http://www.ams.usda.gov/farmersmarkets/map.htm)):** A searchable listing of farmers' markets across the U.S.
- ✔ **Food Network Healthy Eating ([www.foodnetwork.com/food/1f\\_health](http://www.foodnetwork.com/food/1f_health)):** A source for definitions and discussions of organic food and vegetarianism along with healthy recipes.
- ✔ **National Center for Home Food Preservation ([www.uga.edu/nchfp/index.html](http://www.uga.edu/nchfp/index.html)):** A source for invaluable tips for canning, freezing, and otherwise preserving your own food at home.
- ✔ **Northeast Organic Farming Association ([www.nofa.org](http://www.nofa.org)):** A nonprofit organization of nearly 4,000 farmers, gardeners, and consumers working to promote healthy food, organic farming practices, and a cleaner environment.
- ✔ ***Plenty: One Man, One Woman, and a Raucous Year of Eating Locally* by Alisa Smith and J.B. MacKinnon (Crown Publishers) ([www.100milediet.org](http://www.100milediet.org)):** Nonfiction work about the authors' journey to spend a year buying or gathering their food from within a 100-mile radius of their home in Vancouver, British Columbia, Canada; highlights both the challenges and the benefits of eating locally and has launched 100-mile diet challenges around the world.
- ✔ **The Rodale Institute ([www.rodaleinstitute.org](http://www.rodaleinstitute.org)):** A long-standing organization that focuses on organic and sustainable growing practices.
- ✔ **Slow Food International ([www.slowfood.com](http://www.slowfood.com)):** An organization focused on the pleasure that food brings and on encouraging the purchase of local, in-season food that has been grown or raised in traditional ways that protect the world's biodiversity.
- ✔ **SPUD ([www.spud.com](http://www.spud.com)):** Small Potatoes Urban Delivery is a delivery service for local and organic produce.
- ✔ **Trader Joe's ([www.traderjoes.com](http://www.traderjoes.com)):** A grocery store chain that sells organic and Fairtrade food and personal care products.

- ✓ **U.S. Department of Agriculture National Organic Program ([www.ams.usda.gov/nop](http://www.ams.usda.gov/nop)):** The official source for organic food information in the U.S., including details about production and labeling.
- ✓ **U.S. Department of Agriculture Nutrition Information ([www.nutrition.gov](http://www.nutrition.gov)):** A source for quality information about food and nutrition issues.

## Gardening

- ✓ **American Community Gardening Association ([www.communitygarden.org](http://www.communitygarden.org)):** A helpful association if you'd like to learn more about community gardens or launch one in your area.
- ✓ **Biodynamic Farming and Gardening Association ([www.biodynamics.com](http://www.biodynamics.com)):** Focuses on non-chemical agriculture.
- ✓ **Kids Gardening ([www.kidsgardening.org](http://www.kidsgardening.org)):** Provides lots of great tips for getting children involved in gardening; sponsored by the National Gardening Association.
- ✓ **National Gardening Association ([www.garden.org](http://www.garden.org)):** A nonprofit organization with tons of information about gardens and gardening issues across the country.

## Nature Conservation

- ✓ **Environmental Resources Center ([www.uwex.edu/erc](http://www.uwex.edu/erc)):** The University of Wisconsin's center for research, education, and resources on the ecosystem.
- ✓ **National Audubon Society ([audubonathome.org](http://audubonathome.org)):** Conserves and restores natural ecosystems, focusing on birds and other wildlife.
- ✓ **National Environmental Education Foundation ([www.neefusa.org](http://www.neefusa.org)):** Provides trusted, objective information about the environment, including programs for both adults and children.
- ✓ **National Parks Conservation Association ([www.npca.org](http://www.npca.org)):** A membership-based organization that's dedicated to preserving America's national parks for future generations.
- ✓ **National Public Lands Day ([www.publiclandsday.org](http://www.publiclandsday.org)):** A source for information about one of the nation's largest hands-on volunteer efforts to keep public lands clean.
- ✓ **The Nature Conservancy ([www.nature.org](http://www.nature.org)):** Preserves plants, animals, and natural communities by protecting land and water around the world.

- ✔ **Ocean Conservancy ([www.oceanconservancy.org](http://www.oceanconservancy.org)):** Focuses on protecting the planet's waters and marine wildlife.
- ✔ **U.S. Army Corps of Engineers Volunteer Clearinghouse ([www.ornc.usace.army.mil/volunteer](http://www.ornc.usace.army.mil/volunteer)):** The place to find out how to volunteer with a Corps of Engineers project.
- ✔ **World Wildlife Fund ([www.wwf.org](http://www.wwf.org)):** Conserves endangered species, protects threatened habitats, and addresses global threats such as climate change.

## Schools

- ✔ **Alliance to Save Energy ([www.ase.org](http://www.ase.org)):** Runs Green Schools and Green Campus Programs to engage students and help educational facilities improve their energy efficiency.
- ✔ **Earth Day Network ([www.earthday.net/programs/teachers/greenschools.aspx](http://www.earthday.net/programs/teachers/greenschools.aspx)):** The Network's Green Schools program focuses on greening all K–12 schools in the U.S. within a generation.
- ✔ **Interstate Renewable Energy Council ([www.irecusa.org/index.php?id=36](http://www.irecusa.org/index.php?id=36)):** Operates a Schools Going Solar program.
- ✔ **National Clearinghouse for Educational Facilities ([www.edfacilities.org](http://www.edfacilities.org)):** An interesting site to visit if you're interested in high-performance school buildings that are energy efficient and healthy for their occupants.
- ✔ **National Energy Education Development Project ([www.need.org](http://www.need.org)):** Provides energy education resources for school curriculums.
- ✔ **Solar Schools ([www.solarschools.com](http://www.solarschools.com)):** A source of information on solar-powered schools in the U.S. and around the world.
- ✔ **U.S. Green Building Council ([www.usgbc.org](http://www.usgbc.org)):** All about green building in the U.S., from homes to schools to commercial buildings — including the Leadership in Environmental and Energy Design (LEED) certification program.

## Shopping

- ✔ **Coalition for Consumer Information on Cosmetics ([www.leapingbunny.org](http://www.leapingbunny.org)):** Focuses on cosmetic, personal care, and household products whose manufacturing didn't involve animal testing; offers tips about which ingredients to look for in cosmetics in order to go green.



- ✔ **Consumer Reports** ([www.consumerreports.org](http://www.consumerreports.org)): A source for all kinds of information about how products and services — including green ones — measure up to their claims.
- ✔ **Fair Trade Federation** ([www.fairtradefederation.org](http://www.fairtradefederation.org)): Offers stores and products that are Fairtrade certified to help create a just and sustainable economic system around the world.
- ✔ **Freeplay** ([www.freeplayenergy.com](http://www.freeplayenergy.com)): Manufacturer of solar- and crank-powered items such as radios and flashlights.
- ✔ **Green Living Now** ([www.greenlivingnow.com](http://www.greenlivingnow.com)): A Web store that sells organic and natural products researched by green living expert, Amy Todisco; also offers green living information and a free newsletter.
- ✔ **MyGiftList** ([www.mygiftlist.com](http://www.mygiftlist.com)): Allows you to develop your own environmentally friendly online gift registry for events such as birthdays and weddings.
- ✔ **A Natural Home** ([www.anaturalhome.com](http://www.anaturalhome.com)): Manufacturer of environmentally friendly home and furniture products.
- ✔ **U.S. Consumer Product Safety Commission** ([www.cpsc.gov](http://www.cpsc.gov)): Use this site to check for product recalls and concerns.
- ✔ **U.S. Federal Trade Commission** ([www.ftc.gov](http://www.ftc.gov)): An excellent source for consumer protection information.
- ✔ **The World Wildlife Fund Shop** ([www.worldwildlife.org](http://www.worldwildlife.org)): Sells natural and Fairtrade goods, a plant-a-tree gift, and lots of goodies with beautiful animals on them, and gives you the option to “adopt” animals (see the Donate, Gift Center section).

## *Transportation and Travel*

- ✔ **Better World Club** ([www.betterworldclub.com](http://www.betterworldclub.com)): An environmentally friendly auto club.
- ✔ **Conservation International** ([www.ecotour.org](http://www.ecotour.org)): Conservation International’s online guide to ecotourism, ethical traveling, and biodiversity.
- ✔ **Electric Bikes** ([www.electric-bikes.com](http://www.electric-bikes.com)): Information about all kinds of electric-assisted two-wheeled transportation, from bicycles to scooters to motorcycles.
- ✔ **EV Rental Cars** ([www.evrental.com](http://www.evrental.com)): A car rental company that specializes in environmentally friendly vehicles.
- ✔ **Flexcar** ([www.flexcar.com](http://www.flexcar.com)): A car-sharing company focused on smart, simple, sustainable personal transportation.

- ✔ **Hopstop ([www.hopstop.com](http://www.hopstop.com)):** Provides detailed information on public transportation in cities across the U.S.
- ✔ **National Ethanol Vehicle Coalition ([www.e85refueling.com](http://www.e85refueling.com)):** Tells you where to find ethanol fuel in your area.
- ✔ **Sustainable Travel International ([www.sustainabletravel.com](http://www.sustainabletravel.com)):** A nonprofit organization that supports sustainable tourism development and provides tips for traveling in green ways.
- ✔ **Travel Green ([www.travel-green.org](http://www.travel-green.org)):** A program from Sustainable Travel International that lists carbon-neutral accommodation options around the world.
- ✔ **UN World Tourism Organization ([www.world-tourism.org](http://www.world-tourism.org)):** The world's forum for tourism issues and cutting edge policy development, including sustainability issues.
- ✔ **U.S. Council for Automotive Research ([www.uscar.org](http://www.uscar.org)):** A collaborative effort from Chrysler, GMC, and Ford to work cooperatively on research and development.
- ✔ **U.S. Environmental Protection Agency Green Vehicle Guide ([www.epa.gov/emissweb](http://www.epa.gov/emissweb)):** A resource to help you research vehicles with the least emissions and best fuel ratings.
- ✔ **Zipcar ([www.zipcar.com](http://www.zipcar.com)):** A car-sharing program in select cities that claims to serve tens of thousands of drivers.

## *Waste Reduction and Recycling*

- ✔ **Ecocycle ([www.ecocycle.org](http://www.ecocycle.org)):** Provides excellent, detailed information about how to make homes, schools, businesses, and other facilities zero waste.
- ✔ **Freecycle ([www.freecycle.org](http://www.freecycle.org)):** A network of millions of members around the world giving away unwanted items.
- ✔ **U.S. Environmental Protection Agency ([www.epa.gov/osw](http://www.epa.gov/osw)):** A source for information on all sorts of waste issues, including reduction and recycling, for all sorts of waste.
- ✔ **Zero Waste America ([www.zerowasteamerica.org](http://www.zerowasteamerica.org)):** Provides tips and strategies to move you toward eliminating waste completely through the three Rs (reducing, reusing, and recycling) and more.

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