

# Your Planet Needs You!

Written by Robert E. Slavin and Alli Hoge





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# Introduction

When you drink a bottle of water, what do you do with the empty bottle? Do you drop it in a **recycling bin**? Or do you toss it in a trash can? Every hour, people in the United States throw away 2.5 million plastic bottles. That's 60 million bottles a day. All those plastic bottles still exist somewhere on Earth.

Some of those bottles are **litter**. They've made their way into our parks and oceans. Most of the bottles went to **landfills** as trash. They will sit there for more than 400 years until the plastic breaks down. The lucky bottles were recycled. They have new lives as T-shirts, jacket fillings, and even playgrounds. All those things are made from the same material as the plastic bottle.





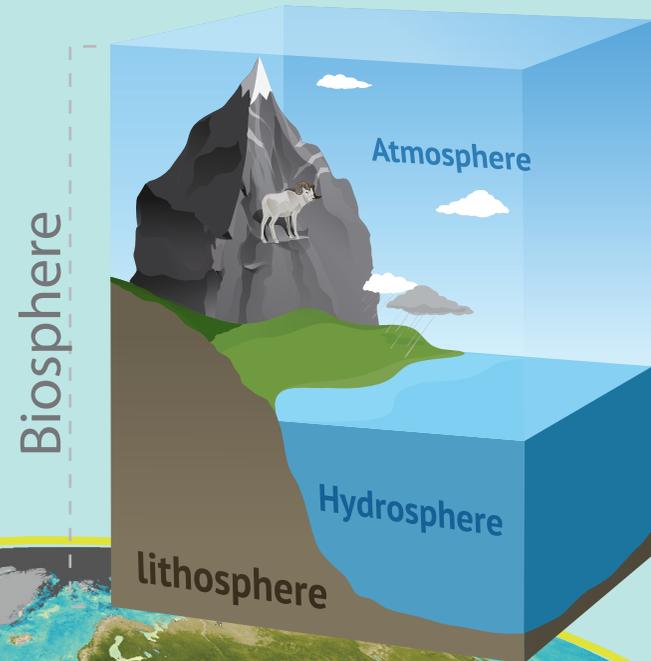
Every day, we make decisions. We decide to throw things away or **recycle** them. We decide to walk, bike, take public transportation, or ride in a car. We decide to borrow books and movies from libraries, download them from the Internet, or buy new ones from a bookstore. Each of these decisions makes an impact on the **environment**. Let's learn more about Earth, what is harming it, and how you can help make it a better place to live by making good decisions.



# The Biosphere and Biomes

All life on Earth lives in a very thin layer around the planet. That thin layer is called the **biosphere**. It includes the oceans and rivers, the land, and the air we breathe. These things are irreplaceable. The biosphere is the only place plants and animals can live on our planet.

The biosphere has all sorts of **biomes**. Biomes are environments in which plants and animals live. Each biome is home to different kinds of **flora** and **fauna**.



Think of the biosphere as a cross-section of the earth—it does not go into the earth's core, nor does it go into space. The biosphere is the only place where plants and animals can live on our planet.

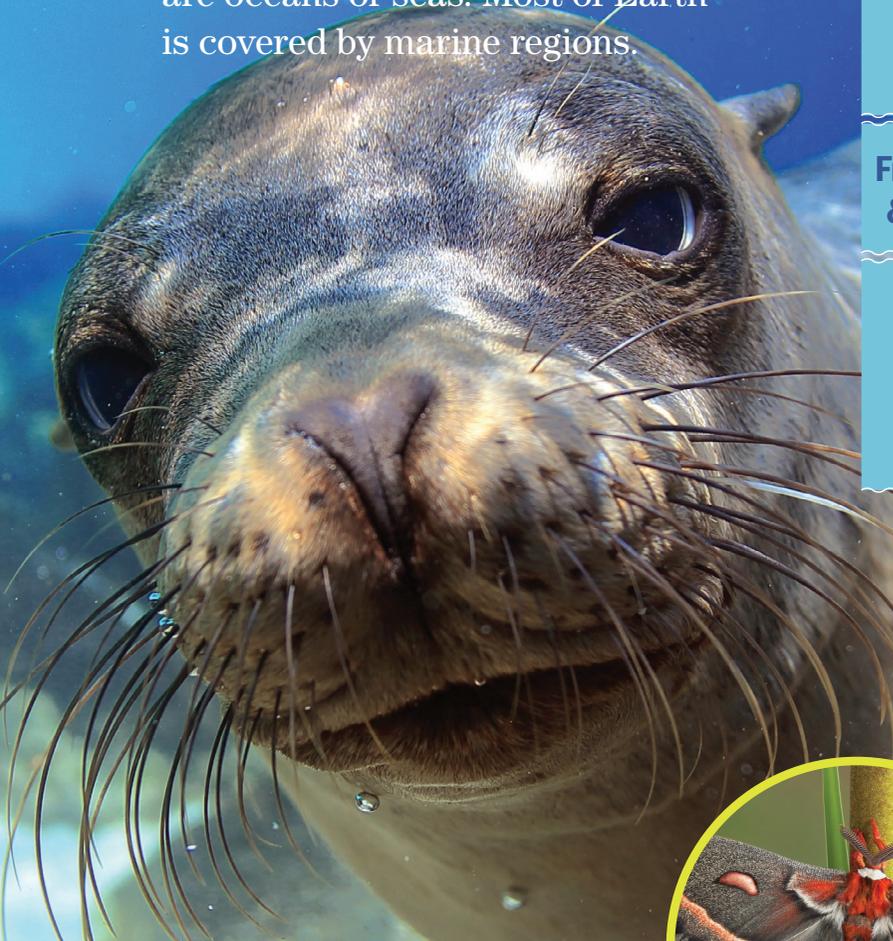


Duckling standing on a water lily leaf

# Water Biomes

## Water Biomes

Three-quarters of the planet is covered by water biomes. There are two main types of water biomes: freshwater and marine. **Freshwater** regions, which include most rivers and lakes, have very little salt. Water in **marine** regions has high salt content. Most marine biomes are oceans or seas. Most of Earth is covered by marine regions.



Sea lion swimming underwater in a tidal lagoon in the Galapagos (above)

Moth perched on cattails (right)



Biome	Location	Description	Flora	Fauna
Freshwater	Ponds and Lakes	Can be very small or very big Not connected to other bodies of water	Algae, water lily	Fish, insects, amphibians, birds
	Streams and Rivers	Usually begin as snow or ice melting or rain falling on a mountain and ending at a larger body of water	Algae, moss, cattails	Fish, reptiles, shellfish, insects
Freshwater & Marine	Wetlands	Swamps, marshes, bogs, and other areas where most of the land is covered by water	Cattail, pond lily	Birds, shellfish, reptiles, insects, amphibians, fish
Marine	Oceans	Very large bodies of salt water	Algae, seaweed, kelp	Fish, shellfish, marine mammals
	Coral Reefs	Found in warm, shallow water near land masses	Algae, mangrove, sea grass	Fish, coral, shellfish, marine mammals
	Estuaries	Where freshwater meets salt water	Algae, eelgrass, sedge	Fish, shellfish, birds, mammals



Alligator swimming in wetlands

## Land Biomes

There are four main types of land biomes. They are **desert**, **forest**, **grassland**, and **tundra**. The animals and plants in each **habitat** have different needs.

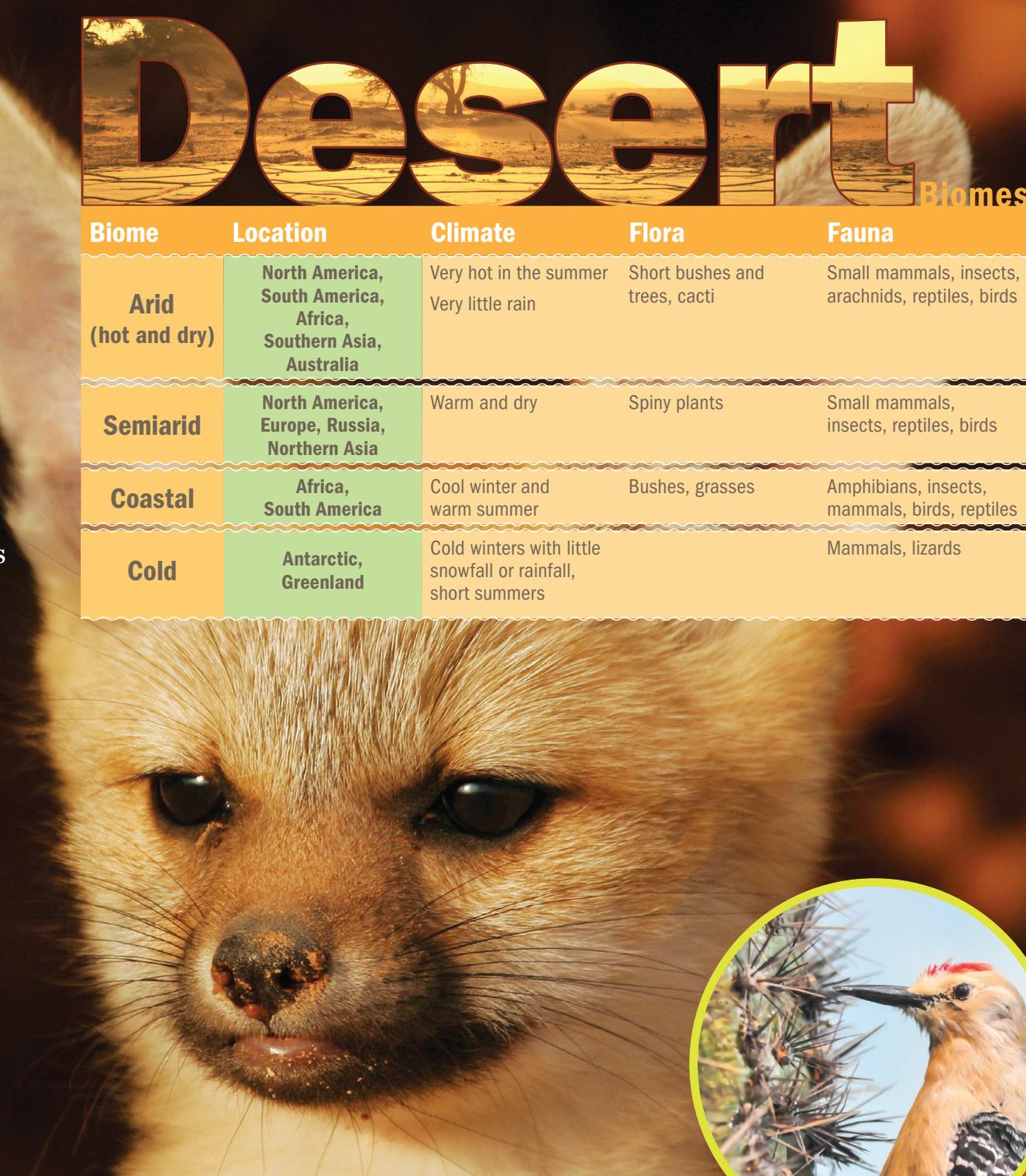
**Deserts** are dry areas where very little rain falls each year. Most deserts are very hot, but a few are very cold. The plants and animals in hot deserts have **adapted** to extreme temperatures and lack of water. Many desert animals are **nocturnal**. It is too hot during the day for them to be active. They hunt and scavenge at night, when it is cooler.

# Desert Biomes

Biome	Location	Climate	Flora	Fauna
<b>Arid</b> (hot and dry)	North America, South America, Africa, Southern Asia, Australia	Very hot in the summer Very little rain	Short bushes and trees, cacti	Small mammals, insects, arachnids, reptiles, birds
<b>Semiarid</b>	North America, Europe, Russia, Northern Asia	Warm and dry	Spiny plants	Small mammals, insects, reptiles, birds
<b>Coastal</b>	Africa, South America	Cool winter and warm summer	Bushes, grasses	Amphibians, insects, mammals, birds, reptiles
<b>Cold</b>	Antarctic, Greenland	Cold winters with little snowfall or rainfall, short summers		Mammals, lizards



Wild reindeer on the Arctic tundra



The nocturnal Cape fox pup of the African desert is most active just before dawn or dusk.



Gila woodpecker on saguaro cactus flower

# Forest Biomes

**Forests** can be found all over the world. The eastern part of the United States is a **temperate forest**. Temperate means not too hot and not too cold. In this biome, there are four distinct seasons. In autumn, the leaves change color and fall to the ground. Much of Canada and other places in the far north are in a kind of forest called a **taiga**, where winters are long and most trees are evergreens, such as pine and fir. Most **rainforests** are in hot, wet areas near the **equator**, such as South America and Africa. More species of plants and animals live in rainforests than in any other biome.

Biome	Location	Climate	Flora	Fauna
<b>Tropical</b> (most rainforests)	<b>South America, Africa, Southeast Asia</b>	Hot and wet Frequent rain	Trees, vines, flowers, ferns, mosses	Birds, mammals, insects, reptiles, amphibians
<b>Temperate</b>	<b>North America, Asia, Europe</b>	Great range in temperature, wet	Broad-leafed trees, bushes, grasses, mosses	Birds, mammals, insects, reptiles, amphibians
<b>Taiga</b>	<b>North America, Asia, Europe</b>	Cool, long winter and warm summer	Bushes, grasses	Amphibians, insects, mammals, birds, reptiles



Squirrel monkeys live in the canopy layer of tropical forests in Central and South America.



Orange praying mantis on an evergreen branch (above)



Mossy stones in a temperate forest stream

# Grassland Biomes

**Grasslands** are flat with few trees. Nearly half of Africa is covered by hot, dry **grasslands** called **savannas**. In some regions, elephants have turned forests into savannas by clearing the trees. They eat the leaves and twigs and then smash the trunks. The American and Canadian Midwest regions are **temperate grasslands**, which usually have plenty of rain. Much of the wild grass there has been replaced by corn and wheat. Corn and wheat are also grasses.

Biome	Location	Climate	Flora	Fauna
<b>Savanna</b>	Africa, Brazil, India, Australia	Rainy summer and dry winter	Tall grasses, shrubs, trees	Mammals, reptiles, insects, birds
<b>Temperate</b>	North America, South Africa, Argentina, Russia	Hot summers, cold winters, moderate rainfall	Grasses, flowers, few trees	Mammals, reptiles, insects, birds



Wild Mongolian horses roam the grasslands of Russia.

Yellow warbler of North America (above)  
Baby African elephant playing in grass

# Tundra Biomes

In the **tundra**, the ground is always frozen, and it is too cold for trees to grow. There are two kinds of tundra: arctic and alpine. **Arctic tundra** is found around the North Pole. There are only two seasons in the Arctic tundra—winter and summer—but it is almost always cold. Nighttime temperatures in the summer can be freezing. **Alpine tundra** is a similar biome in high mountains.

Biome	Location	Climate	Flora	Fauna
Arctic	Alaska, northern Canada, Siberia (Russia)	Long winters and short summers Ground is permanently frozen	Grasses, shrubs	Mammals, birds, insects
Alpine	Mountains throughout the world	Temperatures below freezing at night	Low shrubs, sedges, mosses, grasses, flowers	Mammals, birds, insects



Snowy owls nest in the Arctic tundra.



Blooming alpine wildflowers



Arctic wolf

# Keeping What's Left of the Biosphere

Two hundred years ago, there was plenty of land and sea for every animal and plant on Earth. People did not imagine that animals could die off or that environments could be ruined.

But today, the biosphere is in trouble for two reasons. One reason is that animals and fish all over the world are being hunted until there are no more left.

The other reason that plants and animals disappear is loss of habitat. A habitat is a place that has food and other resources that a plant or animal needs to live. For example, jaguars prefer a habitat with many trees, such as a forest. If people cut down the trees, the jaguars die off even if no one is hunting them. They cannot live in a different habitat. Reef fish need coral reefs. If ocean **pollution** kills the reef, it also kills the fish.

## Timeline of extinction:



1662  
Dodo



1883  
Quagga



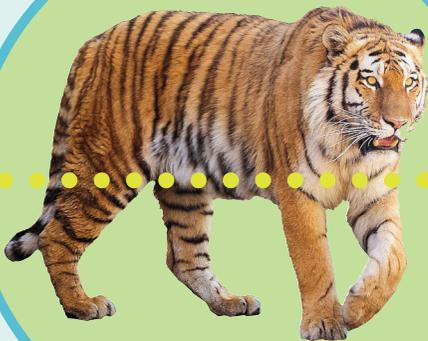
1914  
Passenger pigeon

The world's **population** is growing faster than ever before. Today, there are more than 7 billion people in the world. That's more than twice the number of people who were on Earth just fifty years ago. All these people need land to live on and farms to grow their food. As new cities, towns, and farms are built, land is being taken from the plants and animals that always lived there. Habitats are being reduced or destroyed.

We need space for people to live, but we also need space for all the wonderful plants and animals in the world. How can we make sure that the space that's left is good and healthy for all?

## Fact

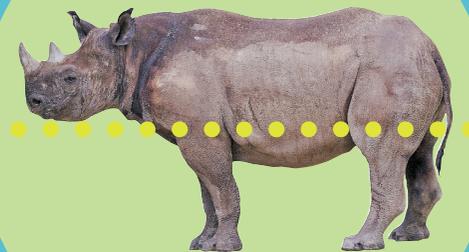
The dodo bird lived on the island of Mauritius. It could not fly, but the dodo had no **predators**. That changed in 1598 when humans arrived on the island for the first time. They brought dogs, cats, pigs, and rats with them. The dodo bird did not know to run or hide from the humans or the animals. In less than seventy years, the dodo bird became extinct. The dodo bird lived long before the time of cameras. Researchers had to use skeletons and centuries-old drawings to guess what the bird looked like.



**1937**  
**Bali tiger**



**2004**  
**Golden toad**



**2011**  
**Western black rhinoceros**

# What Can YOU Do? What Can YOU Do?

## **Plant a tree.**

Help replace the trees that are being cut down around the world. Plant a tree in your yard, or join a tree-planting group.

## **Clean up.**

Volunteer to clean up a local park or your school grounds. A clean environment is good for us and the plants and animals that live there.

## **Have meatless Mondays.**

Eating a **vegetarian** diet one or more times a week is good for the environment. Going meatless reduces the amount of energy and land needed to raise **livestock**. It's also good for your health. Diets high in red meat or processed meat can increase your risk for diabetes, heart disease, cancer, and obesity. Swap meat for nuts, beans, and other healthy sources of fat and protein.

## **Compost.**

Nature is a great recycler. Leaves and plants fall to the ground and decay. Worms and other tiny creatures eat the plants and help them decompose. This fills the soil with nutrients and makes it healthy for new plants to grow.

# What Can YOU Do? What Can YOU Do?

**You can start your own composting bin to recycle organic scraps and create rich soil for a garden.**

## Materials:

Plastic bin with lid

Knife or drill

Shredded newspaper

Potting soil

Brown matter: soil, dried leaves and plants,  
shredded newspaper

Green matter: fruit and vegetable scraps,  
coffee grounds, grass clippings

Water

## Instructions:

1. Have an adult cut or drill small holes along the bottom and sides of the bin. This will let air in and out of the bin.
2. Line your bin with a few inches of brown matter.
3. Add a few inches of green matter.
4. Sprinkle the matter with just enough water to make it damp, but not wet.
5. Close the lid tightly.
6. Use a shovel once a week to mix the matter.
7. When the compost looks like dirt, it's ready to be added to your yard or garden.

Tip: Add worms to the mix! Red wiggler worms (not earthworms) help the composting process go quicker. You can buy red wigglers at bait shops or garden stores.

Can it be composted?	
Yes	No
Vegetable scraps	Citrus peels (oranges, lemons, limes)
Fruit scraps	Meat
Leaves	Fish
Straw	Dairy
Grass clippings	Bones
Coffee grounds	Glossy paper
Tea leaves and tea bags	
Crushed eggshells	
Damp shredded newspaper	

# Pollution

Pollution is a big problem in today's world. Pollution is putting anything into the environment that harms plants, animals, or people. **Sewage** in rivers and smoke in the air are forms of pollution. Sewage and smoke are examples of **emissions**, which are forms of pollution that are released into the environment.



## Fact

In 2009, Americans produced enough trash to circle Earth twenty-four times.



## Land Pollution

Land pollution is one of the most obvious forms of pollution. Land pollution happens when waste is not disposed of properly. **Littering** is a major cause of land pollution. When people throw their trash on the ground instead of in a trash can, they can cause harmful **pollutants** to leak into the ground.

### Fact

How long does it take to decompose?

**Banana peel:** 3–4 weeks

**Newspaper:** 1–2 months

**Apple core:** 2 months

**Orange peel:** 6 months

**Aluminum can:** 200–500 years

**Plastic bottle:** 450 years

**Glass bottle:** 1–2 million years

**Styrofoam cup:** never

Most of the trash from our homes, schools, and businesses is taken to landfills. Natural trash, such as fruit peels and paper made from trees, is **biodegradable**.

It **decomposes**, or breaks down into the earth, within a few weeks or months. Other materials, such as Styrofoam, diapers, and aluminum, are **nonbiodegradable**. They cannot break down naturally. It can take hundreds, thousands, or even millions of years for these items to decompose. Many of the items in landfills have **chemicals** in them. As the items sit in the landfills, the chemicals ooze into the air and land. These chemicals

can then be absorbed by plants. Eating those plants can cause humans and animals to get sick.

Chemicals also get into the land through some **fertilizers, pesticides, and insecticides**. Many farmers use fertilizers to help their crops grow. Pesticides and insecticides help keep pests and insects away. These chemicals help us get more food, but they also harm animals that eat the crops. Some farmers have changed to **organic** farming, which relies on fewer chemicals and more natural techniques for growing food.



## Air Pollution

Gases, dust, fumes, and smoke pollute the air. Human actions are a big cause of air pollution. Many factories pump smoke into the air. Cars, trains, ships, and planes burn fuel to help them run. As the fuel burns, exhaust is released. The **toxic** gases in exhaust are harmful to people and nature.

Cars, factories, and home heating can add a chemical to the air called **carbon dioxide**. Too much carbon dioxide causes the whole earth to heat up, and that causes all sorts of problems with floods. Trees and other plants eat carbon dioxide and make **oxygen** for people and animals to breathe. Unfortunately, trees are being cut down all over the world to build more houses and to clear fields. This results in less oxygen.

The smoke from forest fires and volcanic eruptions sends pollutants into the air. Pollutants travel easily through the air.

Wind carries outdoor pollutants and spreads them from one place to another.

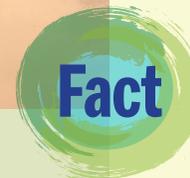
Indoor air can also be polluted. Smoking tobacco inside a home or building causes indoor air pollution. Cleaning products that contain harmful chemicals, such as bleach, can also pollute your air.

Humans and animals breathe in air and cannot easily avoid air pollutants. Air pollution can smell bad or sting people's lungs. Over time, this can lead to diseases.

## Acid Rain

Sometimes pollutants in the air mix with the water droplets that make up clouds. This makes the water droplets acidic.

As the **acid rain** falls, it destroys plant leaves and is very harmful to trees, animals, and fish.





## Water Pollution

Chemicals and waste can pollute our water too. **Wastewater**, fertilizers, and sewage can drain into bodies of water. This causes tiny **organisms** called **algae** to grow in the water. Algae take a lot of oxygen out of the water. If there is too much algae in the water, the other plants and animals living in the water will not get enough oxygen to survive.

Water pollution affects the water that many people drink. In some developing countries, people drink water right from a river or stream. Their water is not filtered like the drinking water in the United States. Millions of people die each year from drinking polluted water.

Most water pollution is caused by human actions. Every day, we take showers, use the toilet, and wash our dishes, cars, and other belongings. When the dirty water

goes down the drain, it flows to a **facility** that treats the water. The water is cleaned, but it is not the same as fresh water. This treated water usually ends up in the ocean.

Trash is also carried into the ocean. Rainwater washes street litter into the drains that lead to streams, rivers, and, eventually, the ocean. Litter is very harmful to sea life. Animals can choke on it or get trapped in litter in the water.



Oil spills send millions of gallons of oil into the water. Oil floats on top of the water and can spread for miles in the ocean. It kills many fish and can stick to birds' feathers and prevent them from flying.

In 2010, a spill in the Gulf of Mexico released millions of gallons of oil into the water. Thousands of fish, birds, sea turtles, and other marine life died. Oil continues to wash up on the shores of Florida, Louisiana, Mississippi, Alabama, and Texas.

## Other Forms of Pollution

Have you ever heard of noise pollution? Noise pollution is any loud noise that disrupts humans or animals. Loud sounds caused by construction, planes, and trains are all examples of noise pollution. Noise pollution can damage our hearing and have other negative effects on our health.

Noise affects the way animals behave in nature. Loud sounds can prevent animals from hearing their predators. It can even cause them to lose their hearing. Animals move away from noisy areas. As a result, their habitat becomes smaller.

Too much light is another problem that humans and animals face. Light pollution is a relatively new problem.

Big cities are often lit up at night. These **artificial** lights are so bright that they prevent people from being able to see the stars in the sky.

The brightness confuses animals, especially migrating birds. Some end up flying in circles and dying from exhaustion. The brightness also confuses nocturnal animals that are used to being active in the darkness of night.



City lights of North America, composite image assembled by NASA

# What Can YOU Do? What Can YOU Do?

## **Don't be a litterbug.**

Put your waste in a trashcan or recycling container. Don't see one? Hold onto your trash until you can find a proper place to dispose of it.

## **Recycle.**

Recycle glass, paper, plastic, and metal instead of throwing it away. Rather than sitting in a landfill for years, these items can be turned into new products. If your town doesn't pick up recycling from your home, find the nearest recycling center. Some states even pay their residents to recycle!

## **Eat organic.**

Look for organic food that was grown without fertilizer or pesticides. Is there a local farm where you can buy meat, dairy, and produce?

## **Reuse.**

Use plastic bags over and over again. More than one billion plastic bags end up in landfills each year. Many grocery stores will take money off your purchase for reusing bags you already have instead of taking new bags.

## **Repurpose.**

Don't throw it away! Turn something old into something new. Instead of buying wrapping paper, wrap gifts in newspaper or fabric. Decorating or painting glass bottles makes for a neat vase.

## **Take a walk.**

Encourage your family to walk or bike where you need to go. If you need to travel far, carpool or take a bus. This will put fewer cars on the road and fewer fumes in the air.

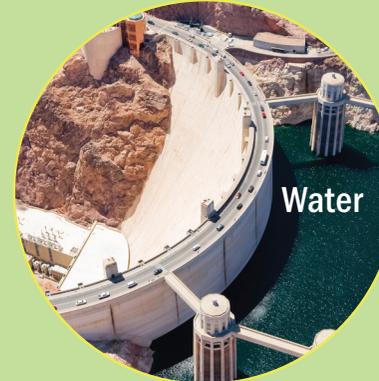
# Energy Sources

**Energy** is usable power. Nature gives us two types of resources for creating energy. **Renewable energy** resources will never run out. **Nonrenewable energy** resources took millions of years to form, but they will run out one day.

Most of the energy we use comes from nonrenewable resources. Cars and other vehicles are powered by gasoline, which is produced from oil. Oil is a **fossil fuel**. Fossil fuels began as plants and animals.

When they died, they were covered with earth. After millions of years, they transformed into oil, coal, and natural gas.

## Renewable



## Nonrenewable





People have to venture deep into the earth to get these fossil fuels. We get oil and natural gas by drilling far below the ground's surface. Miners venture underground to mine coal. Animal habitats can be disrupted when humans search for fossil fuels.

Energy from fossil fuels gives us electricity, heats and cools our homes, powers our vehicles, and helps us make products. However, burning these fossil fuels produces gases, such as carbon dioxide (CO<sub>2</sub>), and radioactive waste. Dangerous emissions are sent into the air.

Most renewable energy sources do not produce gases. They are much less harmful to the environment. Sun, water, wind, and biomass are renewable energy sources. They are natural and will never run out. These renewable energy sources can be converted into electricity and fuel.



## What is biomass?

Biomass is natural matter that can be converted into fuel. Wood, straw, sugar cane, corn, and manure are all types of biomass.

Wait a second. Aren't fossil fuels made of natural matter too? They began as plants and animals.

You are right, but the difference between the two is time. Biomass contains plants grown recently. As the plants grow, they absorb carbon dioxide from the air. When they are burned, they release CO<sub>2</sub> back into the air. It's a quick cycle that does not disrupt the level of CO<sub>2</sub> in the biosphere. Fossil fuels were formed from plants and animals that lived millions of years ago. The CO<sub>2</sub> they ate up is long gone. When fossil fuels are burned, the CO<sub>2</sub> is new to our environment today, and the carbon levels go up, up, up!

student

scientist



## Have you ever seen big devices like these on top of houses and buildings or out in a field?

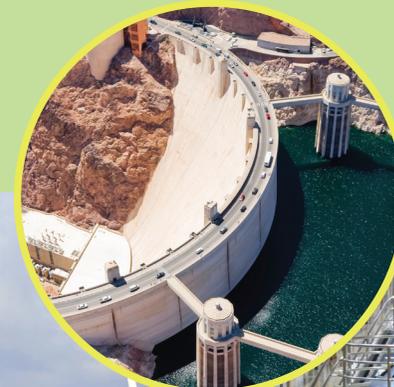


Individual solar cells (above top) are used to make solar panels (above bottom).

These devices capture energy from the sun and turn the energy into electricity. **Solar panels** are made up of many **solar cells**. These panels use light energy to heat water for drinking, bathing, washing, and even swimming. They can also produce electricity to heat homes and run appliances.

People have been using wind energy for more than 1,000 years. **Windmills** use wind power to grind grain and pump water. Today, **wind turbines** convert wind energy into electricity for homes and businesses. One wind turbine can produce enough electricity for 300 homes.

Energy from water is called **hydropower**. Turbines in dams can be used to convert energy from water into electricity. When water moves through the turbine, it turns the blades, which spin a **generator**. The generator produces electricity.



A field of wind turbines (below)

Turbines at Hoover Dam convert energy from water into electricity (right).



# What Can YOU Do? What Can YOU Do?

## Take fewer baths.

Stay clean, and take a shower instead of a bath. Showers use about half as much water as baths and require much less energy to heat the water. Limit your shower to five minutes.

## Power down.

Turn your computer or other electronics off at night. When computers and other devices are in sleep or standby mode, they use **vampire power**. They suck electricity without being turned on. You can save electricity by turning them all the way off.

## Turn off the lights.

When you leave a room, turn off the lights. This will save energy and keep your home cool. Lightbulbs add heat to rooms when they are turned on. Whenever you can, use natural sunlight from windows instead of lamps.

## Use renewable energy.

Most big energy companies that use fossil fuels to provide energy to homes will let people switch to a provider that uses renewable sources. It can even save your family money.

# Go Green!

If every person on Earth did his or her best to help the environment, we could have a better, healthier planet for us all. Going **green** means acting in ways that help the environment. There are many ways to go green. A good place to start is with recycling. You can also make choices that will save energy.

Part of going green is becoming a good world citizen. Read more books about the environment, and learn all you can about your world and the plants and animals in it. Then share what you've learned with family and friends. The more people know about the benefits of going green, the more they can help take care of the planet.

The next time you are in the grocery store, shop with Earth in mind. That means buying organic fruits and vegetables and products with small amounts of packaging. Check packages for the recycling symbol to make sure that they can be recycled. Don't forget to take reusable bags to carry your groceries home.



# Do something good for your environment!



April

22

**Earth Day** is celebrated on April 22 every year. Participate in Earth Day activities, or organize your own. When you practice green living, every day becomes Earth Day. The thin biosphere is all that we have for every human, animal, and plant. Will the biosphere be healthy for our children and grandchildren? Will there always be a place for all the animals and plants we love? The choices we make today will be the answers for tomorrow.

# Use this, not that!

**Going green is easy. Here are some simple ways to swap nature-friendly products for those that can be harmful or use a lot of energy.**

<b>Use This</b>	<b>Not That</b>
<b>At Home</b>	
Reusable bags and totes	Plastic and paper bags
Cloth towels and rags	Paper towels and napkins
Cold water for laundry	Hot water for laundry
Energy-efficient light bulbs	Ordinary light bulbs
Collected rainwater to water plants	Water from a hose or the tap
Filtered tap water	Bottled water
Homemade or chemical-free cleaning products	Cleaning products with bleach and other chemicals
<b>At School</b>	
Reusable aluminum water bottle	Plastic bottled water
Both sides of the paper	Only one side of the paper
Lunch box	Paper bags
Crayons made from soy	Crayons made from oil
Recycling bin for paper	Trash can
Number two pencils	Mechanical pencils
Fruit	Packaged fruit snacks

# Glossary

**acid rain:** Rain that contains acid from pollution.

**adapted:** Changed over time for a particular purpose.

**algae:** Organisms that live in the water and eat oxygen.

**alpine tundra:** Treeless land on mountains.

**arctic tundra:** Frozen ground near the North Pole.

**artificial:** Made by people, not nature.

**biodegradable:** Able to rot or break down naturally.

**biomass:** Plants and other natural matter turned into fuel.

**biomes:** Environments with specific climates, plants, and animals.

**biosphere:** The part of the earth, water, and air where animals and plants can live.

**carbon dioxide (CO<sub>2</sub>):** A colorless and odorless gas produced by human and animal breathing and the burning of fuels.

**chemicals:** Substances made by changing atoms or molecules.

**decomposes:** To break down or decay.

**desert:** A dry, usually hot area with few plants that does not receive much rain.

**emissions:** Things that are released into the environment.

**energy:** Power.

**environment:** Nature.

**equator:** The circle around the middle of the earth.

**facility:** A building or place used for a specific purpose.

**fauna:** Animals.

**fertilizers:** Substances added to soil to improve plant growth.

**flora:** Plants.

**forest:** Large area of land covered with trees.

**fossil fuel:** Fuel formed from the remains of prehistoric plants and animals, such as coal, oil, and natural gas.

**freshwater:** Water without salt, for example, lakes and ponds.

**generator:** A machine that converts energy into electricity.

**grassland:** Flat land covered in grass and very few trees.

**green:** Good for the environment.

**habitat:** The environment of a plant or animal.



South American horned frogs live in the tropical rainforest of Brazil.

**hydropower:** Electrical energy from moving water.

**insecticides:** Substances used to kill insects.

**landfills:** Places where waste and trash are dumped and covered with soil.

**litter:** Trash scattered in nature.

**littering:** Throwing trash on the ground or elsewhere in nature.

**livestock:** Animals raised on a farm or ranch.

**marine:** Relating to the ocean.

**nocturnal:** Active at night.

**nonbiodegradable:** Not able to rot or break down naturally.

**nonrenewable energy:** A source of energy that will run out one day.

**organic:** Produced naturally with no chemical fertilizers, pesticides, or insecticides.

**organisms:** Living things.

**oxygen:** A colorless, odorless gas produced mostly by trees and other plants and breathed by humans and animals.

**pesticides:** Substances used to kill pests that harm crops.

**pollutants:** Things that pollute air, water, or land.

**pollution:** Harmful substances or products in the environment.

**population:** The number of people, animals, or plants in a specific place.

**predators:** Animals that hunt other animals for food.

**rainforests:** Tropical forests with frequent rain.

**recycle:** To process material from a product to make a new product.

**recycling bin:** A container used for holding items made of plastic, tin, steel, glass, and paper that will be collected and recycled.

**renewable energy:** A natural source of energy that will never run out, such as the sun and the wind.

**savannas:** Flat, grassy lands with few trees.

**sewage:** Water and waste carried away by sewers.

**solar cells:** Cells that convert energy from the sun (sunlight) into electricity.

**solar panels:** Panels that use energy from the sun (sunlight) to heat water.

**taiga:** Cold, mostly evergreen forest in northern parts of the world.

**temperate forest:** Forests with lots of rain and trees that lose their leaves every autumn.

**temperate grasslands:** Flat grasslands with colder climates and more rain than savannas.

**toxic:** Poisonous.

**tundra:** Large area of frozen land with few trees.

**turbine:** A device with blades that makes electricity when spun by water or wind.

**vampire power:** Electric power used by computers and other devices in standby or sleep mode.

**vegetarian:** A person who does not eat meat.

**wastewater:** Water that has been used for flushing or washing.

**windmills:** Machines that use energy from a wheel turned by the wind to grind grain or pump water.

**wind turbines:** Machines that convert energy from the wind into electric power.

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Reindeer live on the tundra.





  
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