

**Solar radiation travels towards Earth's surface.**

**Some of the solar radiation is reflected back into space.**

**Some solar radiation passes through the atmosphere.**

**Some of the solar radiation is trapped by greenhouse gases and is bounced back to Earth's surface.**

**Some solar radiation bounces off Earth's surface and travels back into space.**

**Some solar radiation is absorbed by Earth's surface. It warms the planet.**



# It Is Hot in Here

## Background Information

There are greenhouse gases in Earth's atmosphere. Carbon dioxide is one. Ozone and water vapor are others. Those gases act like sponges. They trap heat. They make Earth warm enough to live on. This is good for all living organisms. If there were no greenhouse gases, Earth would be about 33°C (59°F) cooler than it is right now.

This diagram shows how the greenhouse effect creates global warming. First, sunlight enters the atmosphere. Energy from the Sun is absorbed by Earth's surface. It warms Earth's surface. It also warms the atmosphere. The greenhouse gases reflect energy in all directions. Energy gets reflected into space and back down to Earth. When there are a lot of greenhouse gases, a lot of heat gets trapped. This makes Earth and its atmosphere get hotter. When the average temperature on Earth rises, it is known as *global warming*.

There are many changes that can occur when Earth's climate changes. For example, less rain may fall in some areas. More storms may happen in other areas. Some plants and animals may even die. But, there are ways to lower the amount of greenhouse gases in the atmosphere. Planting trees would help. Trees remove carbon dioxide from the air. Driving less would help, too. Cars put a lot of carbon dioxide into the air. Reducing the amount of carbon dioxide in the atmosphere is one good way to decrease global warming.

### Analyzing Science

- What is the greenhouse effect? What is global warming?
- How is the greenhouse effect related to the issue of global warming?
- ▲ How are human beings contributing to the greenhouse effect that directly causes global warming?


### Nonfiction Writing Prompt

Write a speech about global warming. Explain what you know about global warming and whether you think it is a problem. Support your main ideas with facts.

### Fiction Writing Prompt

Write a story about an animal that is affected by global warming. Describe how this animal is affected and what it does to survive.

### Scientific Challenge



Environmental issues of air pollution and global warming are interconnected in many different ways. Research this statement on the Internet or at the library. Create a presentation that includes information about both problems and how they are related. Include real-world examples. Talk about different solutions that students can help with that might address both issues at the same time.