TIME FOR KIDS

HAND to EARTH

Saving the Environment



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Extreme Effects

Extreme weather is everywhere. Heavy rains are pouring down on India. Wildfires are breaking out across California's dry mountains. Deserts are getting larger. At the same time, arctic ice is shrinking. **Glaciers** (GLEY-shers) in the north are melting at a faster rate. This means less space for the animals that live there. These animals must move to new areas or die. These are just some examples of the effects of **climate** change on Earth.

Scientists have been studying the changes on Earth for many years. And now they are seeing a pattern. It's unlikely anyone felt the change. But Earth's temperature has increased over the past century. It's about 1.4°F hotter. That doesn't seem like much, but the effects are clear.





THINK LINK

- In what ways is our climate changing?
- What caused these changes?
- What can we do to help?

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Getting Warmer

Many things can raise Earth's temperature. Volcanoes can heat the air. Warm water can raise the temperature of the land. Sunshine can make the air hotter, too. But nearly all scientists agree the main reason for the increase is **greenhouse gases**. These are gases in Earth's atmosphere. They trap the sun's heat. This raises the temperature of the atmosphere. And even small changes in temperature and weather can cause big changes in Earth's climate.

What's the Difference?

Weather is an event that occurs over the course of hours or days. Climate is the average weather conditions in a region over many years.

Cause and Effect

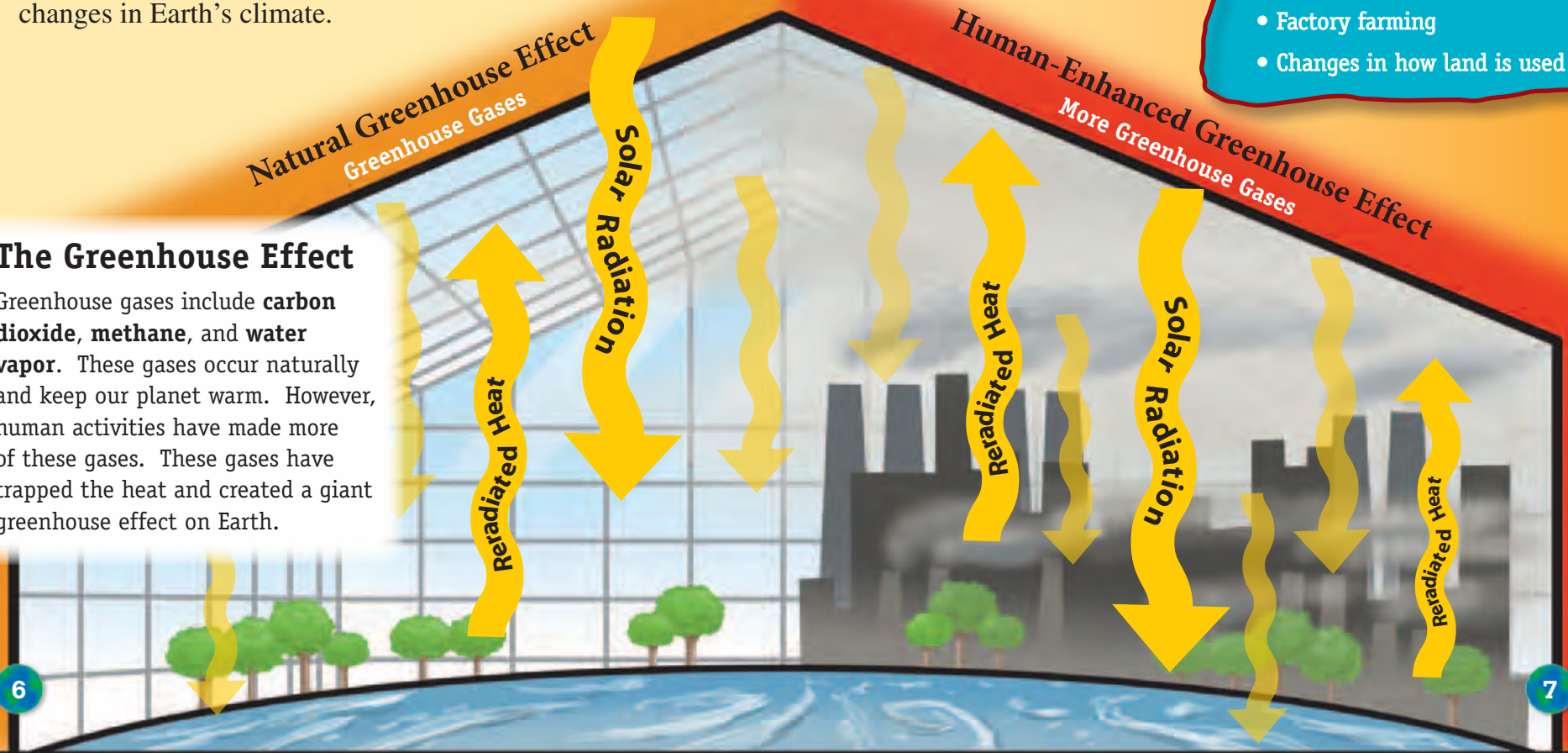
The following human activities contribute to an increase in greenhouse gases:

- Burning fossil fuels
- Deforestation
- Raising livestock
- Factory farming
- Changes in how land is used

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The Greenhouse Effect

Greenhouse gases include **carbon dioxide**, **methane**, and **water vapor**. These gases occur naturally and keep our planet warm. However, human activities have made more of these gases. These gases have trapped the heat and created a giant greenhouse effect on Earth.



Off the Charts

Scientists collect and analyze **data**. They look at data from the past to make guesses about the future. **Climate models** help scientists look at how conditions on Earth affect other conditions. They use satellites and computers to measure changes. Scientists compare the models with tests they complete in the field. All data shows that the rise of greenhouse gases is making Earth heat up. Scientists are working to find out what is making more of these gases.

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This image shows the Lambert Glacier in Antarctica from above. Changes in the ice mean the rest of Earth will experience changes on land and in the air.

Eyes in the Sky

National Aeronautics and Space Administration (NASA) satellites collect data every day. They record information about the atmosphere, the oceans, and the land. They even help **meteorologists** predict the weather. A program called Landsat takes photos of Earth from space. Scientists study the photos to find out what areas need help.

One of NASA's Landsat satellites

Key:

The colors show how fast the ice is moving.

- 3,200–4,000 feet per year
- no motion
- 320–1,000 feet per year