

A HOT TOPIC

The Earth and its climate are fueled by the sun. Warmth from the sun heats the surface of the earth, which reflects the energy back toward space. Some of this energy is trapped in the atmosphere by greenhouse gases. The trapped energy warms the Earth's atmosphere. This is called the greenhouse effect because it acts similarly to a greenhouse for plants.

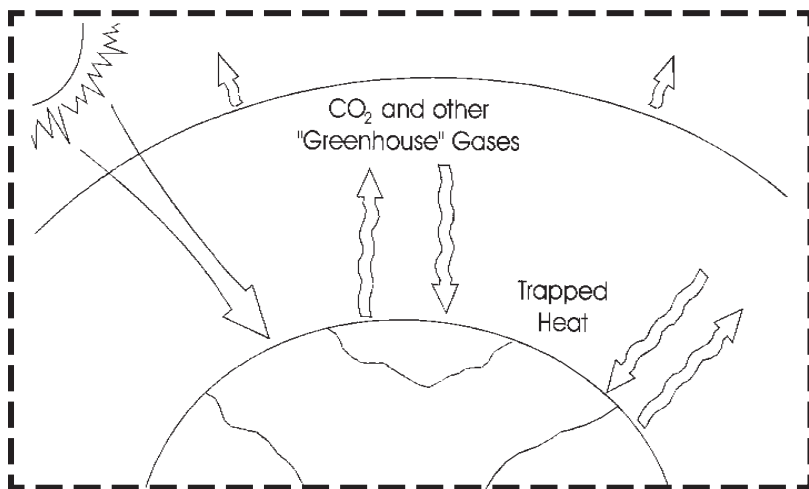
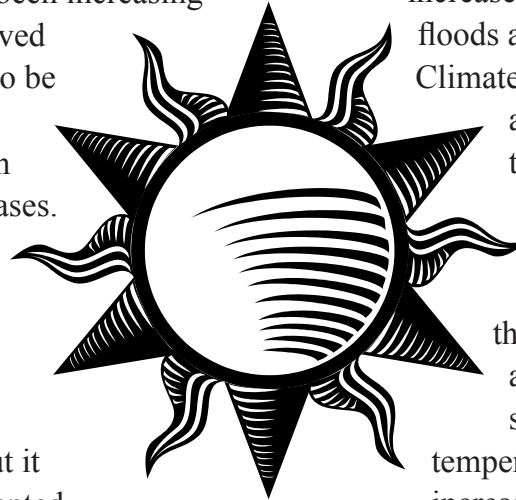
The greenhouse effect is a part of nature—in fact, it is what keeps the earth warm enough to sustain life. Without the greenhouse effect, the earth would be very cold and covered with ice. The problem is that the greenhouse effect is increasing. Natural levels of greenhouse gases in the

atmosphere are boosted by human activities, especially the burning of fossil fuels.

The global temperature of the earth has been increasing slightly, believed by scientists to be the result of the increase in greenhouse gases. It is very difficult to predict the rate at which the earth will warm, but it is widely accepted that the global temperature will increase by four to nine degrees Fahrenheit by the middle of the 21st century if greenhouse gas emissions increase at expected rates.

Increased temperature could change life on earth. Some

scientists predict decreased precipitation in some areas, leading to crop failure and larger deserts. In other areas, precipitation is likely to increase, causing floods and erosion. Climate change may also lead to the extinction of plants and animals that cannot adapt. A sustained temperature increase will also cause melting of polar ice and rising sea levels, flooding some coastal areas.



Carbon dioxide (CO₂), from the burning of fossil fuels, accounts for about 82 percent of greenhouse gas emissions. The United States (with only 5 percent of the world's population) is responsible for approximately 25 percent of the carbon dioxide released into the atmosphere by human sources.





the global warming terms with their definitions!

1. fossil fuel
 - a. The combined effect of temperature, precipitation, other atmospheric factors, and their yearly patterns on a large area of the earth's surface.
 - b. Gases (such as carbon dioxide, methane, nitrous oxide, and water vapor) which absorb infrared radiation and trap energy in the atmosphere.
 - c. Water in the form of rain, snow, hail or fog that originates in the air and falls on the earth's surface.
 - d. The invisible gas layers that surround the earth.
 - e. The warming of the atmosphere caused by the build-up of carbon dioxide and other greenhouse gases. Visible light from the sun comes through the gases, but the gases prevent the return of the energy, now in the form of heat, to the outer atmosphere.
 - f. Any combustible carbon-based fuel that is the result of organic deposits of the distant geological past— natural gas, coal, oil.
 - g. A colorless, odorless, incombustible gas formed during respiration, combustion, and organic decomposition; considered the major greenhouse gas.
2. atmosphere
3. precipitation
4. carbon dioxide
5. greenhouse gases
6. climate
7. greenhouse effect

Answers: 1:f, 2:d, 3:c, 4:g, 5:b, 6:a, 7:e

EXPERIMENT!

This activity shows the difference between the temperature inside and outside of a “greenhouse”.

What you'll need:

- Shoe box
- Plastic wrap
- Strong tape
- Dirt
- Two identical small outdoor thermometers

What to do:

1. Construct a miniature “greenhouse” with a thermometer to measure the temperature. Put a small layer of dirt in the bottom of the shoe box. Place one of the thermometers in the box, face

- up. Cover the box with the plastic wrap, and secure with tape. (hint: the plastic wrap will work just like the greenhouse gases!)
2. Place your greenhouse outside on a sunny day. Place the other thermometer near the greenhouse, with an equal amount of sun. (Neither thermometer should be placed in direct sunlight.)
3. After about 30 minutes, check the temperature both inside and outside of the greenhouse.

Which thermometer is warmer? Why?

