



## The Greenhouse Effect

Earth's temperature is affected by a process called the greenhouse effect, which is how the atmosphere keeps our planet's surface warm.

This process begins with energy from the sun, which is mostly in the form of visible light. When this energy reaches Earth, some is reflected by the atmosphere or by Earth's surface and goes back into space.

The energy that is *not* reflected is absorbed and warms the Earth.

As the Earth warms, it radiates heat in the form of energy called infrared radiation.

The infrared radiation is absorbed by certain gases in the atmosphere called greenhouse gases, which include carbon dioxide, methane, and water vapor.

When greenhouse gases absorb infrared radiation, they radiate heat in all directions. Some of the heat goes into space, some is absorbed and radiated by the gases again, and some is radiated down, which keeps our planet warm.

Without the greenhouse effect, all this heat would return to space, and Earth would be much too cold for us to live on. But due to modern human activities, such as burning fossil fuels, the levels of greenhouse gases in our atmosphere are increasing and raising average global temperatures. This change will affect many Earth systems and require all parts of our planet, including humans, to adapt to new conditions.