



TEACHER GUIDE

SUNLIGHT WARMS THE EARTH GRADES K-2

COMMON MISCONCEPTIONS

The most common misconception about the sun is that it directly heats up the Earth. In reality, the sun is too far away to heat the Earth directly. It's the light energy that is absorbed by Earth's materials that causes an increase in temperature of the Earth's surface.

Another misconception about sunlight that young students hold is that all materials heat up at the same rate. The Earth's surface is made up of a variety of materials. Each material has unique properties that affect the rate that visible light is absorbed.

SUNLIGHT

Sunlight is made up of visible light, infrared light, and ultraviolet light. As different materials absorb light rays their temperature increases. Some materials reflect more light than others, and this accounts for the different rates of heating of Earth's surface. For example sunlight will heat up water more slowly than a road made of tar.

EARTH'S SURFACES

Earth's surfaces include the geosphere (land) and the hydrosphere (water). Since different materials absorb light at different rates, they heat up at different rates. The tilt of the Earth also affects whether different parts of the Earth are getting direct rays or indirect rays. Areas of the Earth closer to the equator get more direct rays than areas closer to the poles.

TIPS FOR TEACHERS

Young students may not be familiar with how thermometers work. When the red liquid (usually colored alcohol) inside a thermometer heats up, it expands and takes up more room inside the glass, which results in the red liquid rising in the thermometer. Give students opportunities to use thermometers and practice reading the temperature.