

How does Earth's surface change?

Vocabulary

sediment solid particles that are moved from one place to another

weathering process by which nature breaks down rock into smaller pieces

mechanical weathering when natural forces, such as wind, water, or ice, break down rock

chemical weathering a change in minerals as they react with substances in the environment such as water or oxygen

erosion created by soil and sediments moved from one location to another

Earth's Features

Earth's landforms were created in different ways and continue to change. The force of moving water can cut into flat land and create canyons. Even frozen water can carve, or shape, Earth's surface. Many lakes on the North American continent were carved out by glaciers. As they move, they carry large amounts of rock and dirt that can dig lake bottoms.

Rivers can change their position as they carry and deposit **sediments** and solid particles, mostly of earth and rock.

Plateaus are flat lands that can be as high as a mountain. Plains are flat lands that usually have grass growing on them.

Weathering

Changes of Earth's surface are caused by **weathering**, the process by which nature breaks down rock into smaller pieces.

One type of weathering, called **mechanical weathering**, is when rocks are broken down by wind, water, or ice. Most rocks have tiny cracks in their surfaces. Water gets into the cracks and freezes. Freezing water then expands and pushes against the sides of the cracks. When the ice melts, water moves back into the cracks again. The rock freezes

and unfreezes, over and over. As a result, the cracks get larger and larger. The rock finally breaks into smaller pieces.

If soil gets in the cracks of rocks, plants may grow. Roots can also push cracks open. Some types of plants can make chemicals that eat into rocks, creating more cracks and holes. During **chemical weathering**, minerals change or break a rock. This can happen when minerals react to other substances in the environment, such as water or oxygen.

Erosion


Erosion is the process by which sediments are moved from one place to another, usually by wind, water, ice, or gravity. Erosion can carry sediments for hundreds of kilometers. Over many thousands of years, erosion can flatten mountains or dig deep canyons.

When areas of soil have no plants, the soil can be easily eroded. The roots of plants help keep soil in place. For that reason, farmers plant both crops they will harvest and crops to keep the soil from eroding. Farmers plant the "cover crops" between harvests. Cover crops also feed the soil with nutrients. This is one method of soil conservation—taking care of the soil to prevent erosion.

1. Describe three ways that landforms were created on Earth's surface.

2. Water can seep into rocks and dissolve minerals. The dissolved minerals can be washed away. What type of weathering is this? Explain your answer.

3. The water of the Mississippi River carries sediments from Minnesota to the Gulf of Mexico. What is the name of this process?

4.  **Draw Conclusions** Over the next 100 years, are Earth's landscapes likely to remain the same? Why or why not? How about over the next 10 years?
