

Weathering

Different kinds of weather can make rocks weak. Wind, rain, heat, and ice can all change rocks. This is called weathering.



One way that weather breaks rocks is by heating and cooling them. In some places, it is hot during the day which causes rocks to **expand**, or become larger. Then it is cool at night, which makes rocks **contract**, or become smaller. This constant change causes cracks in the rocks, which break them into small pieces. Then snow and ice can get into cracks that have formed and make them larger.

⇐ **Think about it:** What caused the hole in this rock?

The Grand Canyon in Arizona is the result of millions of years of weathering. It is more than 277 miles long and one mile deep! A **canyon** is a very deep **valley**. The Grand Canyon was created by The Colorado River, which runs along the bottom of the canyon.



Highlight the following:

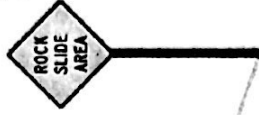
- The different kinds of weathering
- The definition of expand
- The definition of contract

EROSION and DEPOSITION

Erosion is the result of wind and water wearing away the land and moving these pieces to another place. Erosion can happen quickly or slowly. Some landforms, such as mountains, are the result of erosion by wind and water..



Erosion slowly changes the shape of a mountain. The **sediments** that break off are **deposited** into other places. As they are moved, they can wear large, steep mountains into gently sloping hills. An example of erosion that happens quickly is a landslide. **Landslides** happen when chunks of rock break off cliffs and roll downhill. Volcanoes and earthquakes also rapidly change the earth.



Deposition is the process of leaving things far from where they originally came. One way things are deposited is by glaciers. **Glaciers** are slow-moving sheets of ice. They pick up rocks as they move and then drop the rocks after they melt. This glacier is located in Argentina. What do you think is happening to the bottom of the glacier?



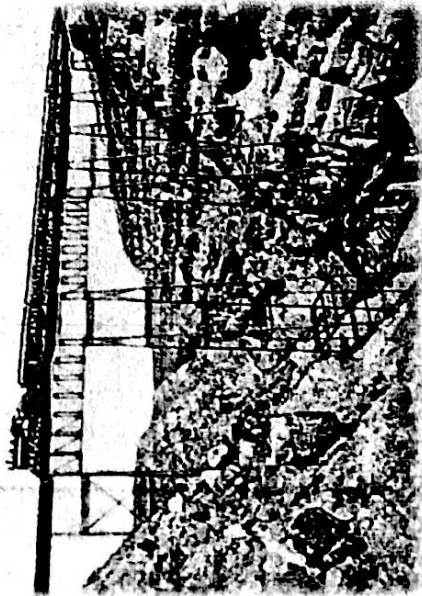
Highlight the following:

- The definition of erosion
- The definition of deposition

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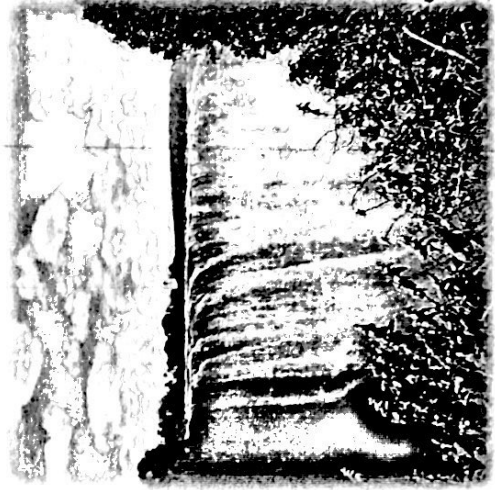
Water and Ice

A canyon is an example of **water erosion**. Rivers that flow downhill go very fast, making the water powerful enough to weather the land. As the rock crumbles off, the river moves it, dragging it along the bottom. This causes the river to scratch deeper into the land, creating **valleys and canyons**.



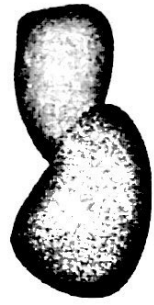
Glaciers can also create new landforms. They drag large pieces of rock and ice as they melt, scraping down mountains and carving valleys in the land. This is called **glacial or ice erosion**.

Victoria Falls is one of the widest waterfalls in the world. But why did it form? Moving water weathers rock over thousands of years and causes the land to flow downward and create a ledge. The powerful falling water causes a hole to form at the bottom. Over the years the hole becomes deeper and wider.

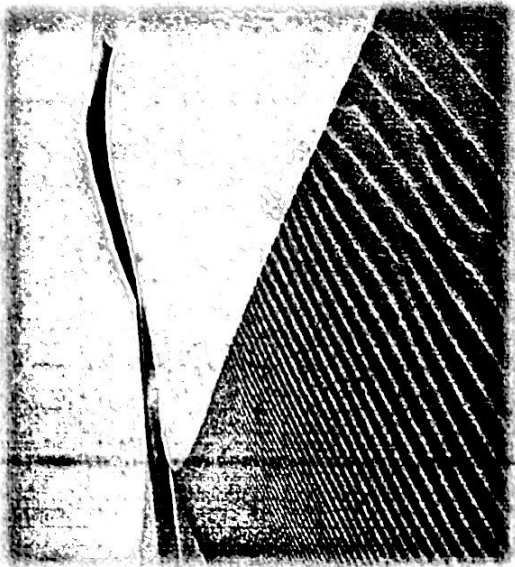


Highlight the following:

- An effect of water erosion
- An effect of ice erosion



Wind



Wind erosion is greatest in places that have few plants such as deserts and beaches. When there are no plants, there is nothing to hold the land in place. In the desert, hills of sand move constantly because of the wind. When the wind slows down, sand drops to the ground, depositing the sand into piles. The piles grow larger until they form sand dunes.

Wind can also make unusual rock formations. Wind can carve new shapes out of rock. **Ayers Rock** in Australia began as a pile of sand millions of years ago. It is now one of the oldest sandstone rocks on Earth. Over the years, wind and rain have eroded the rock. It is now 1,142 feet tall and five miles around! The sides have grooves, formed by rain running down them.

The red coloring of Ayers Rock is caused by **chemical weathering**. This is when rocks go through decomposition caused by chemicals.

Highlight the following:

- The effects of wind erosion



Weathering and Erosion

As you read, complete this chart with information about each process.

Weathering

Erosion

Deposition

Agents of Change

As you read, complete this chart with information about each process.

WIND

water

ice