

Earth Structures

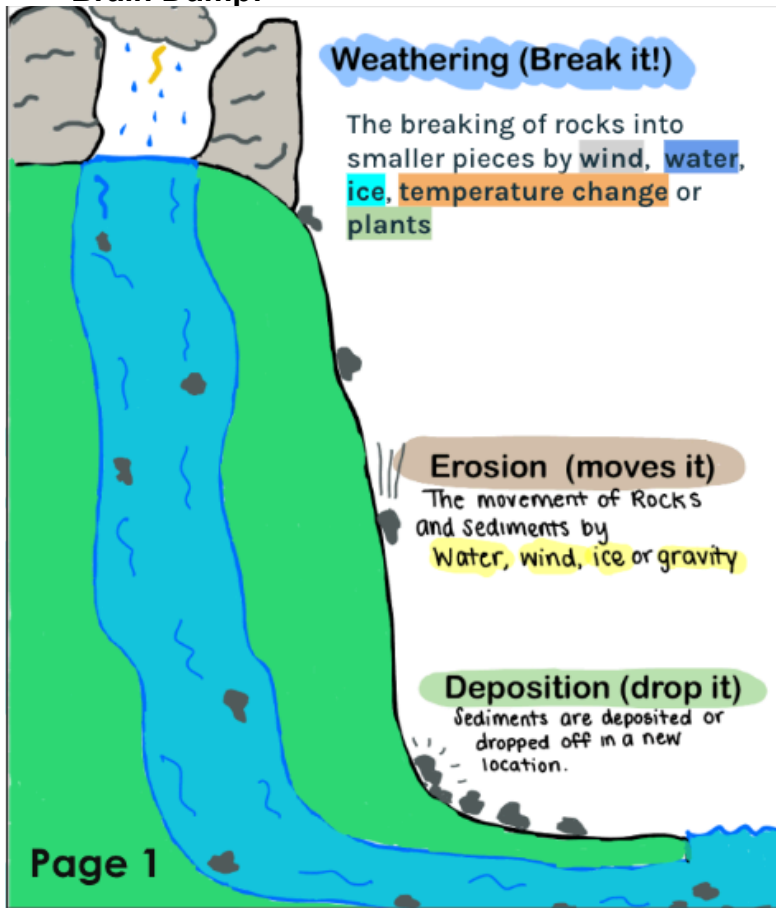
Lesson 2: Weathering

Today's focus

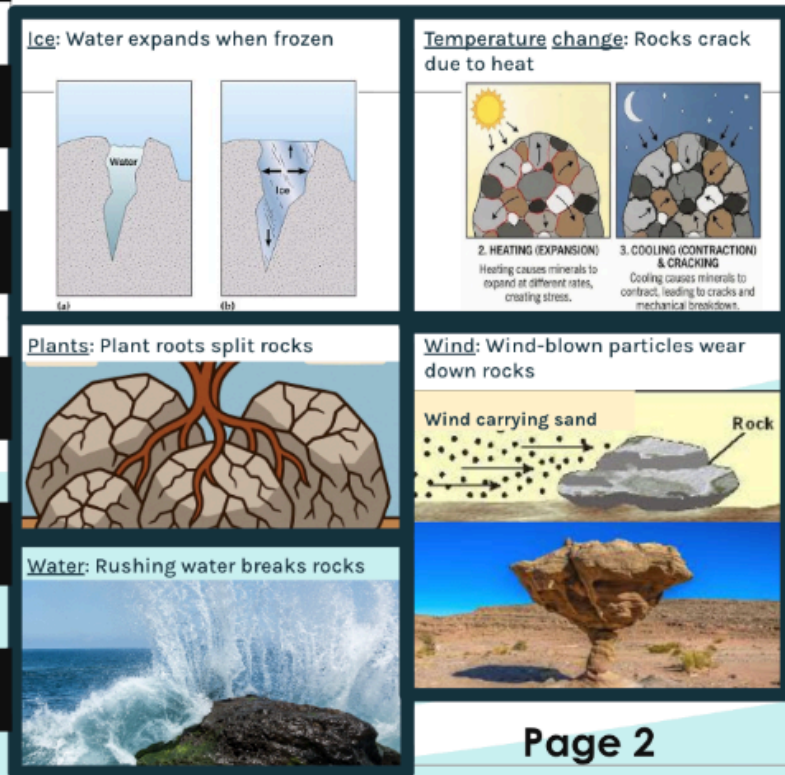
I will:

- describe the basic cause of physical weathering (breaking down of rock by wind, water, ice, temperature change, and plants)
- Identify that wind and water cause physical weathering and erosion of rocks.
- Recognize examples of weathering or erosion in the environment.
- Recognize the effect of weathering on an object

Brain Dump:



Ways Weathering Occurs:



Science Reading:

Weathering is the natural process of rock and soil material being broken down or worn down. This process can be caused by moving water, wind, ice wedging, plant growth, animal activity, temperature changes, and glacier movement. Examples of moving water are when streams and rivers flow downhill because of gravity or with wave action along shorelines. All of these weathering processes break down rocks into smaller pieces. The breaking of rocks by the forces of water, wind, ice, and plant and animal activity are all examples of what is more specifically called physical weathering. Most weathering happens very slowly over long periods of time, although sometimes weathering can occur very quickly, like when gravity collapses rock formations that are shifted, falling on and breaking other rocks below.

According to the text, what are the processes that cause weathering to happen? _____

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Weathering and Erosion Lab

Activity 1: Wind

Procedure:

1. Place a piece of chalk and 2 tablespoons of sand in the clear plastic container and close the lid.
2. Shake the closed container for 10 seconds.
3. Pass the container until all group members have had a chance to shake the container for 10 seconds.
4. Open the lid to the container to make observations.
6. Record your observations of evidence of weathering (breaking down of rock) or evidence of erosion (movement of rock and sediment).

Does wind cause weathering, erosion, or both?

Circle Your Prediction: Weathering, Erosion, or Both

Record Your Evidence Based on Your Observations:

Weathering

Erosion

Activity 2: Water

Procedure:

1. Using the container and contents from Activity 1 add water to fill the container $\frac{1}{4}$ the way and close the lid.
2. Follow the same shaking procedure as in our wind simulation.
3. Open the lid to the container to make observations.
4. Record your observations of evidence of weathering or evidence of erosion.

Does water cause weathering, erosion, or both?

Circle Your Prediction: Weathering, Erosion, or Both

Record Your Evidence Based on Your Observations:

Weathering

Erosion

Activity 3: Ice

Procedure:

1. Place the ice and a new piece of chalk onto a paper plate.
2. With the chalk each team member will rub a piece of ice (glacier) over your landmass (chalk).
3. Record your observations of evidence of weathering or evidence of erosion.

Does ice cause weathering, erosion, or both?

Circle Your Prediction: Weathering, Erosion, or Both

Record Your Evidence Based on Your Observations:

Weathering

Erosion

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Activity 4: Temperature Change

Procedure:

1. To observe the impacts of temperature change you will observe a video.
2. In the video a glass bottle (representing a rock) is completely filled with water and sealed. The bottle is then placed into a freezer.
3. After viewing the video record observations of evidence of weathering or evidence of erosion.

Does temperature change cause weathering, erosion, or both?

Circle Your Prediction: Weathering, Erosion, or Both

Record Your Evidence Based on Your Observations:
Weathering

Erosion

Activity 5: Plants

Procedure:

1. To observe the impacts of plants you will observe a few photos.



Do plants cause weathering, erosion, or both?

Circle Your Prediction: Weathering, Erosion, or Both

Record Your Evidence Based on Your Observations:
Weathering

Erosion

Weathering Video:

Weathering in nature happens:

- over a long time over a short time

Weathering breaks down large rocks into:

- precipitates sediment evaporites

Rocks making contact with other rocks, such as in a river, is known as

- physical weathering chemical weathering

Freezing water can cause objects to _____ change

- physically chemically

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What happens to water when it freezes?

- It contracts It expands

A rock dissolving in acidic water is an example of _____ weathering.

- physical chemical

Plants **CAN NOT** cause weathering because the rock is inorganic.

- True False

Wind can change landforms over time. This is called

- frost action abrasion

Heat causes rock to

- wear away expand

When it gets cold at night the rocks

- contract expand

What causes weathering?

- time temperature changes radiation pollution

Writing

Weathering causes changes to the surface of the Earth. Explain the causes of weathering and how they change Earth's surface.

Check What You Know:

What could cause rocks to split and break, greatly changing the landscape of a region?

- Fine sand settling in the cracks of rocks.
- Water freezing inside the cracks of rocks.
- Sunlight shining into the cracks of rocks.
- Small animals searching for food in the cracks of rocks.