

What are Weathering, Erosion, and Deposition?

Name: _____

Date: _____

What are Weathering, Erosion, and Deposition?

- Earth's surface is constantly being _____ by water, glaciers, wind, and gravity.
- Sometimes the change is _____.
- As we talk about weathering, erosion, and deposition, remember that _____ events can produce changes that are rapid and dramatic.
- What events in the Bible relates to these processes?

Changes to Earth's Surface

- You know that Earth's crust and upper mantle are broken into huge slabs called _____.
- _____ deep within Earth cause these plates to move and change the surface.
- For example, most mountains form when plates come _____.
- Many volcanoes form when plates _____ as well as when plates move apart.
- In addition to plate movements, other _____ change the planet's surface.
- These are agents of change that are at or very close to Earth's _____.

Weathering

- In Chapter 7, you learned that _____ is any process that breaks rocks into smaller pieces.
- Now you will find out that there are two types of weathering
 - _____ Weathering
 - _____ Weathering

Weathering: Mechanical Weathering

- _____ **weathering**, also called physical weathering, is the movement or breakdown of rocks.
- Mechanical weathering can take many _____.

Type of Mechanical Weathering	Description
	The movement of rocks to sediment past one another causes rock to break down.

	Rapid or sudden removal of rocks reduces pressure on the underlying rock, causing it to expand and fracture.
	Water freezes in the cracks of rocks and expands, pushing out on the rocks and braking them into smaller pieces
	The repeated expansion and contraction created by heating and cooling of rocks weakens rocks.
	As water flows into the cracks of rocks and evaporates, the remaining salt crystals wedge in the cracks, breaking the rocks more
	Animals that burrow into the ground cause mechanical weathering by breaking rocks and soil into smaller pieces
	Plant roots grow into cracks in rocks. As the roots become larger, they push outward on the rocks, breaking them into smaller pieces

Scripture Spotlight

- *What example of mechanical weathering is described in **Jeremiah 23:29**? What does the tool represent in this verse?*

Weathering: Chemical Weathering

- _____ **weathering** is the breakdown of rocks by chemical means.
- Chemical weathering can take many forms.

Type of Chemical Weathering	Description
	Oxygen in the air reacts with many different minerals to form oxides – aluminum, copper, magnesium, and calcium, to name a few – in rocks
	Ions in water exchange with ions in a mineral

	Carbon dioxide dissolves in water to form a carbonic acid solution that eats away in many rocks and minerals, especially limestone
	Reaction of a substance with water
	Chemicals, like acids, are released by plants as they grow or decay

Weathering: Chemical Weathering

- Many _____ affect weathering.
- _____ is one of these.
- Rocks in warm, wet climates weather faster than rocks in cold, dry climates.

Factors	Description
	Rocks in warm, wet climates – faster Rocks in cold, dry climates – slower
	Rocks with many plants – faster Rocks with few plants – slower
	Rocks with cracks and holes – faster Rocks with no cracks and holes – slower
	Limestone and marble – faster Granite and Basalt – slower
	Rocks with large surface areas – faster Rocks with small surface areas – slower

Scripture Spotlight

- *What is described in **Psalm 78:15-16**? Do you think it was like mechanical weathering? Chemical weathering? Both? Neither?*

Erosion

- The materials produced by any type of weathering _____ stay in the same place.
- _____ is the movement of weathered material.
- Water, both as a liquid and as ice, along with wind and gravity constantly move weathered materials to _____ places.

Erosion by Water

- _____ causes much of the erosion on Earth.

- Creeks, streams, rivers, and other bodies of water that flow through channels erode the _____ over which they move.
- Erosion by moving water depends on several _____.
- The _____ most important factors are the speed and amount of moving water.
- Erosion by water is not always _____.
- A _____ release of water, can erode large amounts of rock and sediment.
- When Mount St. Helens erupted in 1980, it spewed large amounts of _____ material out onto the mountain.
- Steams flowing over this new sediment rapidly carved a canyon _____ deep in less than a year.
- Besides speed and amount of moving water, the _____ of a stream or river also affects how it erodes the land.
- The fastest water moves along the _____ of a river bend.
- Banks will be cut away and steeper in the outer bends, and the channel will be _____.
- The slower water moves along the _____ of the bend.
- Waves and _____ are other forms of moving water that erode the land.
- As waves break against the shore, they pick up and carry weathered materials _____ into the lake or ocean.
- _____ cause erosion as they move within a body of water.
- Along the Pacific Coast of Washington, Oregon, and Northern California, the _____ onto the shore, moving of rock and sand.
- The same is _____ in many other coastal regions.

Scripture Spotlight

- *Can you find examples of weathering and erosion in **Job 14:18-19**?*