

Weathering and Erosion

Weathering is the force that break down the Earth's crust into smaller particles. **Erosion** is the picking up and carrying away of the smaller materials or particles caused by weathering. Joined together, they are responsible for the many changes the Earth's crust encounters over many, many thousands and millions of years.

Some examples of weathering include streams cutting through rock to form canyons, rocks splitting when water seeps in and freezes, and windblown sand raking down rock. It is **physical weathering** when the Earth's crust is exposed to water, air, and temperature changes. This can occur immediately or over a long time period. An example may be roots from plants breaking apart rocks in the soil.

Another example may be the rapids of a water fall breaking apart the solid rock as it makes its way down a path. Water dissolves the minerals from the Earth's crust, and the moving water acts as a force breaking down the pieces of rock into smaller and smaller pieces.

Physical weathering can also be caused by the wind. Heavy winds may cause much damage to the Earth along with rain and extreme temperature changes. If the temperature drops low enough, rainwater can freeze and expand, causing cracks in rocks, possibly splitting the rocks apart.

Chemical weathering occurs when chemicals affect the Earth's crust, whether found in the air or in the water. An example may be rain mixed with chemicals causing rust. Rust is formed when the oxygen in the air reacts with iron. This is an example of chemical weathering and can affect objects made with out of metal.

Chemical weathering also occurs when chemicals in the air such as oxygen, carbon dioxide, sulfur dioxide and others cause acids to eat away at rocks. Salt can be a cause of chemical weathering, it is made up of a chemical called sodium chloride.

Physical and chemical weathering can be caused by living organisms, too, such as by burrowing animals or the roots from plants. Physical and chemical weathering is also responsible for the formation of sand. Sand is typically made mostly of varying amounts of material weathered rocks from the land and transported to the beach by the wind or in rivers. The chemical weathering usually takes place in hot and humid climates.

Erosion takes place following the weathering of rocks and other particles of the Earth's surface. This force carries the rocks from the places where they were weathered. Most erosion is caused by water, wind, or ice. The ice is usually in the form

of a glacier. A glacier can erode the land. On some mountaintops, they move downhill and across the land picking up everything in their path. Water is the major cause of erosion. Moving water carries away soil and slowly washes away rock fragments. Streams and rivers wear away their banks, creating larger and larger valleys.

In summary, weathering and erosion are closely connected and are related to each other but they are not the same. Weathering is the process where rocks are worn away or broken down into smaller pieces by wind, water, plants and other forces. Erosion, on the other hand, occurs when these broken rocks and sediments are picked up & moved to another place by ice, water or wind. Weathering and erosion can change the shape of coastlines, form canyons, create valleys, and change the Earth's surface over time.

Weathering and Erosion Quiz

1) Which of the following is the force that break down the Earth's crust into smaller particles?

- A:** Weathering
- B:** Erosion
- C:** Physics
- D:** Transporting

2) Which of the following is **NOT** an example of physical weathering?

- A:** Ice movements
- B:** Wind-blown sand
- C:** Rust
- D:** Water

3) Which of the following is **NOT** an example of chemical weathering?

- A:** Rust
- B:** Salt damage
- C:** Acid damage
- D:** Wind-blown sand

4) Rust is formed when oxygen in the air reacts with which of the following?

- A:** Iron
- B:** Salt
- C:** Plastic
- D:** Trees

5) Which of the following is the cause of erosion?

- A:** Wind
- B:** Water
- C:** Ice
- D:** All of the above

6) Which of the following is the major cause of erosion?

- A:** Wind
- B:** Water
- C:** Ice
- D:** Sand

Answer Key

1) Which of the following is the force that break down the Earth's crust into smaller particles?

Weathering

Correct Answer: A

2) Which of the following is **NOT** an example of physical weathering?

Rust

Correct Answer: C

3) Which of the following is **NOT** an example of chemical weathering?

Wind-blown sand

Correct Answer: D

4) Rust is formed when oxygen in the air reacts with which of the following?

Iron

Correct Answer: A

5) Which of the following is the cause of erosion?

All of the above

Correct Answer: D

6) Which of the following is the major cause of erosion?

Water

Correct Answer: B