



Slow Changes to Earth

Week 24 — Monday | Weathering and Erosion



Reading Time

Earth is always changing, but most changes happen so slowly that we cannot see them in a single day or even a single year. Mountains, canyons, valleys, and beaches all formed through slow processes that take thousands or even millions of years. The two main forces behind these slow changes are **weathering** and **erosion**.

Weathering is the breaking down of rocks into smaller and smaller pieces. Think of a big cookie being crumbled into tiny crumbs. Weathering happens in several ways. Water that seeps into cracks in rocks freezes and expands, slowly splitting the rock apart. This is called **ice wedging**. Wind carrying sand grains hits rocks over and over, slowly wearing them smooth like sandpaper. Rain contains weak acids that slowly dissolve rock. Plants growing in cracks push rocks apart as their roots grow bigger. Temperature changes also cause weathering: rocks expand in the heat and shrink in the cold, which creates tiny cracks over time. These tiny cracks get bigger and bigger until the rock breaks into pieces.

Erosion is the movement of weathered rock, soil, and sand from one place to another. Weathered material does not just stay where it broke apart — water, wind, ice, and gravity carry it away. **Running water** is the most powerful force of erosion. Rain washes soil downhill. Streams and rivers carry sediment for miles, depositing it in deltas at the ocean. **Wind** picks up sand and dust and carries it across deserts, creating sand dunes. **Glaciers** are massive rivers of ice that slowly move downhill, carving valleys and grinding rocks into tiny particles called **rock flour**. **Gravity** causes landslides when steep hillsides collapse and soil rushes downhill.

Weathering and erosion work together to reshape our planet. Weathering breaks rocks into smaller pieces, and erosion moves those pieces to new locations. Over millions of years, these two forces have carved the Grand Canyon, shaped coastlines, built beaches, and created the landscapes we see today. Understanding these processes helps us protect soil, prevent floods, and manage our environment wisely.



Reading Questions

1. What is the difference between weathering and erosion?

2. Name three ways that rocks can be weathered.

3. Which force is described as the most powerful cause of erosion?

4. Explain how weathering and erosion work together to change the land. Use the cookie crumb example or your own example to show the connection.



Vocabulary Grid

Write a definition or draw a picture for each word.



Weathering



Erosion



Ice Wedging



Sediment



Glacier



Sand Dune

Weathering or Erosion?

Read each situation. Write W for weathering or E for erosion.

Situation	W or E?
Water freezes in a crack and splits a rock apart.	
A river carries sand downstream to the ocean.	
Wind blows dust across a desert.	
Tree roots grow into cracks and break a sidewalk.	
Rain washes soil from a hillside.	
Sand in the wind smooths the edges of a rock.	
A glacier moves downhill and grinds rocks into powder.	
Warm sun and cold nights cause a rock to crack over time.	

Weathering vs. Erosion Comparison

Fill in the chart comparing weathering and erosion.

Feature	Weathering	Erosion
What it does to rocks		
Does it move material?		
What causes it		
Example		

Forces of Erosion Sort

Match each force of erosion with an example of what it does.

Force	What It Does
Running Water	Carries sediment from mountains to the ocean
Wind	
Glaciers	
Gravity	
Ocean Waves	

✓ True or False — Circle Your Answer

- ☐ 1. Weathering breaks rocks into smaller pieces.
- ☐ 2. Erosion moves weathered material to a new location.
- ☐ 3. Ice wedging happens when water expands as it freezes.
- ☐ 4. Wind is the most powerful force of erosion.
- ☐ 5. Glaciers are massive rivers of ice.
- ☐ 6. Weathering and erosion happen quickly, usually within hours.
- ☐ 7. Sediment is small pieces of weathered rock and soil.
- ☐ 8. Plant roots can cause weathering by growing into rock cracks.

Fill in the Blanks

Word Bank: weathering erosion ice wedging sediment glacier sand dune running water gravity

- 1. The breaking down of rocks into smaller pieces is called _____.
- 2. The movement of weathered material from one place to another is _____.
- 3. When water freezes in cracks and splits rocks, it is called _____.
- 4. Small pieces of weathered rock and soil are called _____.
- 5. A huge mass of ice that moves slowly downhill is a _____.
- 6. Hills of sand formed by wind are called _____.
- 7. _____ is the most powerful force of erosion on Earth.
- 8. _____ pulls soil downhill when hillsides collapse.

Observe Weathering Around You

Look around your house or neighborhood. Can you find examples of weathering?

Where You Looked	What You Saw
Sidewalk or driveway cracks	
Old rocks in a garden	
Soil on a hillside	
Any other location	

Think About It

Imagine a large mountain that has never been touched by humans. Over millions of years, how will weathering and erosion change that mountain? Describe the process step by step.
