



Erosion - Grades 3-5

Nebraska Science Standards

5.4.2.a Describe the characteristics of rocks, minerals, soil, water, and the atmosphere

5.4.2.b Identify weathering, erosion, and deposition as processes that build up or break down Earth's surface

5.4.4.a Describe how slow processes (erosion, weathering, deposition) and rapid processes (landslides, volcanic eruptions, earthquakes) change Earth's surface

Objective: Students will identify and describe characteristics of Earth's materials and their changes over time through erosion and weathering.

[Erosion Worksheet](#)

Materials:

Provided by Student:

- Thick textbook (or other item to prop up a pan)
- Pencil for worksheet (colored pencils optional)

Provided by CSM:

- Sand
- Water
- Pans
- Rulers
- Paper Cups
- Scissors
- Tape
- Worksheet (linked above)

Discussion:

What are the different types of landforms? What do you know about them? (if there is a white board have the students volunteer to come up and draw them)

- Mountains
 - Mountains could be formed when molten rocks from deep within the earth rise to the surface, pouring out in the form of lava from volcanoes.

- Sometimes the **tectonic plates** (if the students don't know this word please explain it) on the earth's crust move towards each other, rocks deep below the earth's surface are squeezed up to form mountain ranges
 - Ex of mountain range: Rocky Mountains, ex of a mountain is a volcano
- Hills
 - Covered with grass
 - Lower than mountains but higher than surroundings
- Valleys
 - Low lying areas between mountains or hills
 - Formed by water wearing down rocks to carve out grooves or by glaciers
 - Ex: A narrow valley is called a canyon. Can you name an example? Grand Canyon
- Plateaus
 - Flat top, high with steep sides
 - Formation is similar to mountains but the rock doesn't break
- Plains
 - Flat land -- what you are used to seeing
 - Nebraska is part of the great plains
- Islands
 - Land that is surrounded by water on all sides
- Deserts
 - Hot
 - Sand dunes - huge hills of sand formed by the winds

What types of things can cause a change in landforms over time?

- Wind
- Water
- Ice (like glaciers)
- Gravity

What is weathering?

- Weathering is the breaking down of rock (called sediment)
 - Weathering agents: water, wind, ice, growing plants.

What is erosion?

- Erosion is the movement of sediment (broken rock from weathering) from one location to another
 - Erosion agents: water, wind, ice, gravity

What is deposition?

- Deposition is the dropping of sediment in a new location
 - Broken rock from weathering is moved through erosion and ends up as a deposit in a new place
 - Ex: wind can drop sand to form sand dunes

Activity:

Students will predict how erosion works by building their own landforms in sand and observe how the flow of water (river) can change their structures

Set up:

Set up the materials at the front of the class. Have the students come up when it is their turn to get materials

Students will work in small groups. Provide each student with a [worksheet](#) and walk them through Steps 1-7 as you have them do the procedure. Before they put the water in their cup have them complete Step 8 (hypothesis). Once they are done pouring the water in they can finish the worksheet.

Procedure:

1. Fill each pan with sand (2-3 inches) and provide one to each group
2. Students will work together to make a few landforms
 - Some landforms include hills, mountains, volcanoes, and caves
3. Have students tape a ruler near one end and a cup on top of it.
 - The students will poke a hole in the cup with their pencil so that water can drip out onto the sand slowly.
4. Next, have children prop up the pan on one end with a book (a thick science book works great!)
5. The pans came with plastic lids, so ensure they are under the pans, just in case the water overflows
6. Let the students fill up their cups, ensuring they don't overfill
7. Let the students sit and watch for a few minutes as water trickles out forming a "river" and finally collecting to form a bigger body of water.
 - There are no mistakes with this activity. If the students have their water go straight down and ends up under the sand they have just created groundwater!
8. Ask the students if the water (river) is acting as a weathering agent or eroding agent?