

Objectives:

Students will learn about wind erosion and observe the landform-changing effects of the wind with interactive dioramas. They will use them to explain and understand how wind causes erosion and deposition of sand and soil and this way can cause the formation of sand dunes. They will also learn what we can do to prevent unwanted erosion. At the end of the lesson students should be able to explain wind erosion and write about it by answering this writing prompt: “How does the wind erode the soil, and what can we do to prevent this?”

Materials:

Shoebox with lid
Clay and popsicle sticks (about 8 popsicle sticks)
sand
dry soil
rocks
tape
straws – one for each student

Tell the students you are going to be doing a scientific investigation into the effects of wind erosion by creating a miniature environment in which wind (provided by the students) has the ability to erode sand and soil.

Procedure:

- 1.) Use a pencil to poke a hole in one short end of the shoebox. (this hole will be used to insert straw). The lid can be set aside for now.
- 2.) Push each craft stick into a small ball of clay. Stand the craft sticks up as trees on the bottom of the box. Cut the sticks in half if necessary for the top of the shoebox to fit on.
- 3.) Place thin, even layers of soil and sand on the bottom of the box. Scatter rocks on top of the soil. (soil on one side, sand on the other so that $\frac{1}{2}$ the popsicle/clay trees are surrounded by soil and $\frac{1}{2}$ are surrounded by sand)
- 4.) Make a mark on each craft stick as to the level of the sand or soil.
- 5.) Draw a picture of what the materials look like in the box.
- 6.) Place the lid on top of the box and tape it closed.
- 7.) One student should take their straw and place it in the end of the box and blow once. Each member of the group should repeat this step with their own straw.
- 8.) Without shaking the box around, remove the lid and observe the soil's surface. Record your observations.
- 9.) Make new marks on the craft sticks with a different color marker as to the level of the soil in the box. Be sure to compare this mark to the initial mark in your observations.

Some questions you may want to ask the students are:

- 1.) What were the effects of the air movement from the straws? (Wind can erode the soil and the sand. This creates new landforms, such as sand dunes.)
- 2.) What effect did the “trees” and rocks have on this process? (The trees and rocks got in the way of the wind and slowed it down or blocked the sand and soil from traveling any farther.)
- 3.) If you wanted to prevent erosion around your house or in a certain area, what could you do?

You can also get math involved by having them measure the differences in the lines drawn on the craft sticks in their boxes and see just how much erosion and deposition they experienced.

Target Observations:

Students should observe that the wind they created eroded the soil and sand in their shoebox and deposited it somewhere else.

Students should also notice that soil/sand piled up around the rocks and trees or was prevented from being blown completely away from these obstructions.

Credit: Wind Erosion and how we can prevent it by:

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