

Creating Sand Dunes

An Educator's Reference Desk Lesson Plan

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These lesson plans are the result of the work of the teachers who have attended the Columbia Education Center's Summer Workshop. CEC is a consortium of teacher from 14 western states dedicated to improving the quality of education in the rural, western, United States, and particularly the quality of math and science Education. CEC uses Big Sky Telegraph as the hub of their telecommunications network that allows the participating teachers to stay in contact with their trainers and peers that they have met at the Workshops.

Grade Level(s): 4, 5, 6, 7, 8, 9

Subject(s):

- Science/Earth Science

OVERVIEW: Many Mid-western students are not familiar with formation or movement of sand dunes. Students watch demonstration of the effects of wind (from hair dryer) on plain sand, then sand with stones and grass, and record and justify conclusions. They then examine their thinking as they figured out how to justify each conclusion.

PURPOSE: This experience will also demonstrate to students the importance of proper dune management for conservation purposes.

OBJECTIVES:

1. Students will be able to explain how sand dunes are formed.
2. Students will be able to explain the different circumstances that effect the movement of or formation of sand dunes.
3. Students will be able to relate the information gathered to soil conservation.

ACTIVITIES:

- Inquire what students know about sand dunes. Connect experiences with shapes of the dunes.
- Explain that this experiment is to determine what factors affect the kinds of sand dunes the wind creates. Do the following experiment on a table, the floor, or outdoors.
 - a. Label the pans A and B. Place 1.5 liters of sand in each.
 - b. In pan B arrange stones and grass in different areas throughout the sand.
 - c. Turn the dryer on low speed. Hold it at a 45 degree angle, 10 cm from one end of pan A. Hold it for 1 minute. Record all observations. Repeat with pan B.
 - d. Change to high speed on dryer. Hold it at a 45 degree angle, 10 cm from one end of pan A for one minute. Record the effect. Repeat with pan B.
 - e. Sketch a diagram of the appearance of the sand in each pan.
 - f. Level the sand in pans A and B. Repeat steps c-e for each, blowing the air for 3 minutes each time.

RESOURCES/MATERIALS: For each group: 2-speed hair dryer, 2 flat pans, small grass clumps, angular stones, 3 liters clean sand, and dustpan and broom for clean-up.

TYING IT ALL TOGETHER: Students will have the opportunity to share results and conclusions with the other groups. The groups can make comparisons and contrasts. It is important to draw conclusions as to how this information might be of interest to those concerned with soil conservation.

Depending on the curriculum into which this activity is integrated, the teacher might wish to expand it by the use of other conservation techniques or into the study of the rock cycle.