

Creating Your Very Own Sand Dunes

Grade Level(s) (5th, 7th)

Many students are not familiar with formation of movement of sand dunes. Students watch demonstrations of the effects of wind on sand with stones and grass as stabilizers. They will record and justify their conclusions. They examine their thinking as they 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.

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.

Reference:

Ask Eric. Retrieved November 28, 2001, from <http://askeric.org>

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South Carolina Science Curriculum Standards (Grades 5,7)

Area I: Inquiry

National Science Education Standards* Grade 5	S.C. Components*
Identify process skills that can be used in scientific investigations	
Observe	1
Classify	2
Infer	5
Predict	6
Design and conduct a scientific investigation	B
Develop descriptions, explanations, predictions, and models using evidence.	B
Think critically and logically to make relationships between evidence and explanations	A
Communicate scientific procedures and explanations	C

National Science Education Standards* Grade 7	S.C. Components*
Identify process skills that can be used in scientific investigations	
Observe	1
Classify	2
Infer	1
Predict	4
Design and conduct a scientific investigation	A,H
Develop descriptions, explanations, predictions, and models using evidence.	B
Think critically and logically to make relationships between evidence and explanations	A
Communicate scientific procedures and explanations	C

Grade	Area	Unit of Study	National Science Education Standards *		S.C. Components
5	III. Earth Science	Changes in the Earth's Surface: landforms and oceans	A. Structure of the Earth System	1. Land forms are the results of a combination of constructive and destructive forces.	J
7	III. Earth Science	The Abiotic Environment	A. Structure of the Earth System	1. Landforms are the result of a combination of constructive forces (e.g., deposition of sediments) and destructive forces (e.g., weathering and erosion).	C

*Refer to South Carolina Science Curriculum Standards, adopted by the S.C. Board of Education January 12, 2000, for complete national standards and S.C. components.