WIND EROSION

PURPOSE: To show students how wind erosion occurs and what variables can affect the amount of erosion

BACKGROUND: Weathering, erosion and deposition are key processes that break down and move sediments to form sedimentary rocks. Erosion is the *movement* of sediments by wind, water, or ice. This activity demonstrates to students how environmental factors affect the movement of materials.

VIRGINIA STANDARDS OF LEARNING

ES.7 The student will investigate and understand geologic processes

Developed by C.P. Anderson

WIND EROSION LAB

Time:

Goal: In this lab you will explore the effects of wind erosion and use your knowledge to try and slow it down.

Materials:

Goggles	Pan A (sand only)	Pan B (wet sand)	Pan C (sand and gravel)
Hair dryer	Protractor	Sponge	Water
Ruler	Sticks	Aluminum foil	

Procedure:

1. **PUT ON YOUR GOGGLES. YOU MUST WEAR THEM AT ALL TIMES DURING THIS LAB.**
2. Rest the end of the dryer on the edge of pan A at an angle of 45. This will be your 10 cm mark. Hold the hair dryer in that position and turn it on high.. Without moving the hair dryer, direct a stream of air onto pan A for 30 seconds.. Record what you observe in your data table.
3. Change the angle of the hair dryer to 10 degrees but keep the distance 10 cm. Hold the hair dryer in that position and turn it on High. Without moving the hair dryer, direct a stream of air onto pan A for 30 seconds. Record what you observe in your data table.
4. Repeat this process for the other two pans.
5. Smooth out the soil in all three pans. .
6. Use the ruler and measure 10 cm from the edge pan A at an angle of 45. Hold the hair dryer in that position and turn it on High. Without moving the hair dryer, direct a stream of air onto pan A for 1 minute. Record what you observe in your data table.
7. Repeat for other two pans.
8. Repeat steps 6-8 at an angle of 10 with a distance of 20 cm.
9. Make a small pile of sand in the middle of your pan A (dry sand). Measure the height of the pile and record in data table 2.
10. Using the hair dryer, blow on your "hill" for 30 seconds. Measure the height and record.
11. Rebuild your "hill" but add any materials you think may slow down wind erosion. Record the materials you used in the data table and then repeat step 12.
12. Repeat using the pan of wet sand..

Data and Observations:

Data Table 1

Pan	10 cm		20 cm	
	45	10	45	10
Pan A				
Pan B				
Pan C				

	Height of Hill				
	Before Erosion		After Erosion		
	Dry	Wet	Dry	Wet	Materials Used
First Trial					None
Second Trial					
Third Trial					

Data Table 2

Analyze and Conclude:

1. Describe the differences between how the wet and dry sand reacted to the wind (when you blew on them with the hair dryer).
2. How did the addition of gravel affect its reaction to the wind?
3. What type of wind erosion was modeled here, abrasion or deflation? Why?
4. How does the change in force (distance of dryer to pan) affect movement of sediment grains? How did the angle of the wind affect the sediment?
5. Is wind a more effective erosional agent in wet or dry climates? Give examples from your data to support you answer.