

Sec: \_\_\_\_\_ Name: \_\_\_\_\_

Experiment: Wind Erosion  
(E. Science 9-8-3c)

Purpose: To determine which factors affect wind erosion of different materials.

Materials: goggles flat pans (5)  
1250 mL fine sand 1000 mL clay  
250 mL gravel hair dryer protractor  
sprinkling can cardboard sheet metric ruler

Methods:

- Put 500 mL sand into pans A and B. Put 500 mL clay into C and D. Mix 250 mL sand and 250 mL gravel and put mixture into pan E.
- Use the sprinkling can to dampen the material in pans A and C.

- Hold the hair dryer 10 cm from pan A at an angle of 45°. Tape the cardboard to the other end of the pan. Direct a stream of air into the pan for 1 minute.

**CAUTION: Wear your goggles.** Record in your table every effect of the air that you observe.

- Repeat step 3 for pans, B, C, D and E.

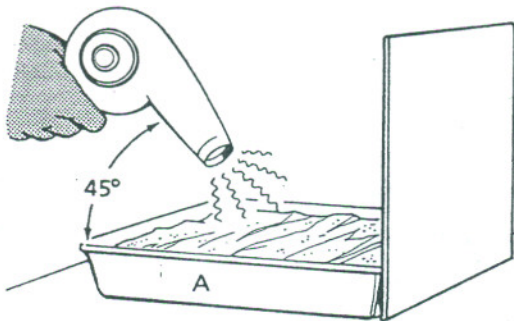
- Smooth out the "soil" in each pan.

- Change the angle of the hair dryer to 10°. Repeat step 3 for all pans using this new angle. Record all observations. **CAUTION: Wear your goggles.**

- Smooth out the "soil" in each pan.

- Repeat steps 3 through 6 for all pans from a distance of 20 cm. Hold the hair dryer at an angle of 45°. (The distance of the hair dryer to the pan represent the force).

**Caution: Wear your goggles.** You may need to redampen the "soil" in pans A and C before completing this step. Record your results in the results table.



Results

Pan	10 cm		20 cm	
	45°	10°	45°	10°
A				
B				
C				
D				
E				

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Conclusions:

1. How does dry sand and dry clay react to wind?
2. How does the addition of gravel to the sand affect its reaction to the wind?

Discussion:

1. How does the change in force (distance of hair dryer to pan) affect movement of sediment grains?
2. How does the angle of the wind affect movement of sediment grains?
3. Is wind a more effective erosional agent in wet or dry climates? Which pan gives evidence to support your answer?

4. Define each of the types of deposition by wind.

Loess

Dunes

5. Describe each of the types of wind erosion.

Deflation

Abrasion

- 6a. Read Isaiah 41: 13 - 16. Here God is reassuring Israel. God wants to do so much for Israel that what does he promise the winds to do and the gale to do?

wind

gale

- 6b. As a result what will Israel do (verse 16)?

7. Use the types of wind erosion and deposition to complete these statements.

1. Wind erosion similar to sandblasting is \_\_\_\_\_.
2. Some midwestern farmland in the United States is covered by \_\_\_\_\_.
3. The most common wind deposits are \_\_\_\_\_.
4. In \_\_\_\_\_, wind picks up and moves small sediments but leaves heavier pebbles and rocks behind.
5. Tightly packed wind deposits of fine particles are called \_\_\_\_\_.
6. Sand \_\_\_\_\_ are constantly changing and moving as the wind erodes them.
7. \_\_\_\_\_ causes the pitting and polishing of rocks and sediments.
8. Both abrasion and \_\_\_\_\_ are common in areas where there are few plants to protect sediments.