

Partner names: \_\_\_\_\_

## Investigating Sediment Transport

### Background

We are investigating the role that weathering, erosion and deposition play in shaping the surface of the earth. **Weathering** is when rocks are broken down into sediments by either physical processes like abrasion or by chemical processes like acid rain. **Erosion** is when those sediments are moved by agents such as water, wind, ice or gravity. **Deposition** is when those sediments are left in a new place after being eroded. During this lab, you are going to investigate how sediment size affects transport by an erosion agent, in this case wind you cause with your breath.

### Pre-lab questions:

1. What are the four agents of erosion?
  
2. Which erosion agent can only move small sediments?
  
3. Where have you seen erosion with your own eyes?

**Materials:** marked chart paper, straw, ruler, sand, rice, sugar, pebbles/gravel, meter stick

### Procedure

1. Measure the size of a single grain of each type of material, classify them according to the table to the right and predict how far you will be able to move them by blowing through the straw.

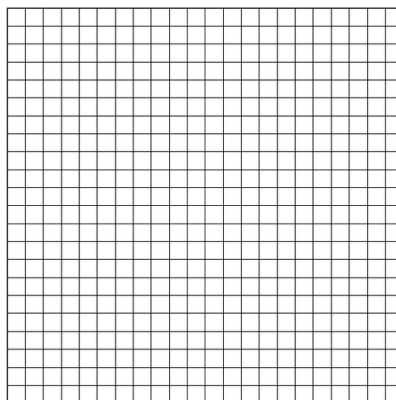
Material	Average diameter of grains
Cobbles	64 – 258 mm
Pebbles	2 – 64 mm
Sand	0.0625 – 2 mm
Silt	0.004 – 0.0625 mm

Material	Size	Sediment Category	How far do you predict you will be able to move it? (cm)
Sugar crystals			
Pebble/gravel			
Rice			
Sand			

2. When you are completed with Step 1, put a spoonful of each material in the appropriate circle. Have one of your lab partners hold two folders or books or rulers in parallel on each side of the material to make a track keeping the material in a straight line. Keeping the edge of the straw at the starting circle, blow through the straw as hard as you can to move the material down the paper. Measure the furthest distance that a piece of the material moved with the meter stick and record results in the table below. Repeat this step with each material. Attempt to use the same strength of breath for each material as much as possible.

Material	Distance it moved before it deposited (cm)	Material	Distance it moved before it deposited (cm)
Sugar crystals		Rice	
Pebble/gravel		Sand	

3. Graph your results on a bar graph with materials on the horizontal x-axis and distance moved on the vertical y-axis. Make sure to label the graph and the axes, including units.



### Analysis Questions:

1. Were your predictions correct? Why or why not?
2. What would have happened if you had increased the strength of the wind?

3. What would have happened if you had decreased the strength of the wind?
  
4. Sediment erosion in water works the same way as sediment erosion in wind.  
Therefore, will fast water be able to move more or less sediment than slow water?  
Why?
  
5. As stream velocity decreases, the amount of sediment carried will (circle one):  
decrease / increase / stay the same
  
6. The diagram below shows an overhead perspective of a stream as it enters a lake.  
Using large circles, medium circles and dots, draw the general location of the different  
sizes of the sorted sediments. Also put the words "fast," "medium," and "slow" in the  
river and lake indicating stream velocity.

- Pebbles (large circles)
- Sand (medium circles)
- Clay and silt (dots)

