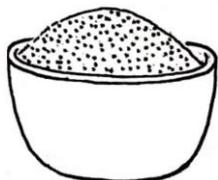


Modeling Erosion (page 1)

Activity

Introduction: The Earth's surface is constantly changing due to the impact of mass movement. From water erosion to wave erosion and the movement of glaciers, there is some type of mass movement occurring at every instant. Due to the irregular free-flowing designs of nature, it is difficult to exactly test these movements. Yet, engineers and scientists use their mathematical models and sophisticated computers to predict these dynamics. In this activity, you will conduct trials to analyze the relationship between different variables through controlled simulations.

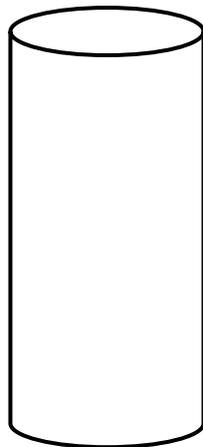
Lesson Objective: To analyze mass movement based on changes in height and width of sand mass.



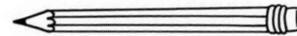
SAND



PLASTIC CUP
(FOR SAND)

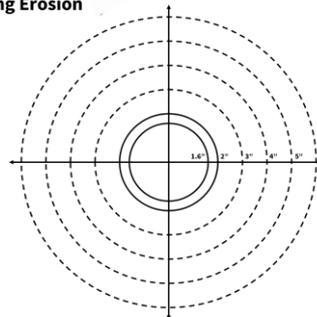


2.0" DIAMETER
CYLINDER

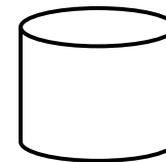


PENCIL

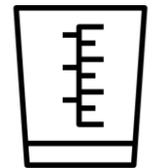
Modeling Erosion
Worksheet



WORKSHEET



1.6" DIAMETER
CYLINDER



MEASURING CUP

Materials:

1. 2.0" diameter cylinder
2. 1.6" diameter cylinder
3. Plastic cup (12 oz.)
4. Measuring cup
5. Sand (from the classroom)
6. Worksheet
7. Pencil (from the classroom)



Modeling Erosion (page 2)

Activity

Method

Part A – Preparation:

1. Fill the plastic cup more than 3/4 with sand. You will reuse the sand for each trial.
2. Place the worksheet on a flat surface.
3. Secure the worksheet with tape if necessary.

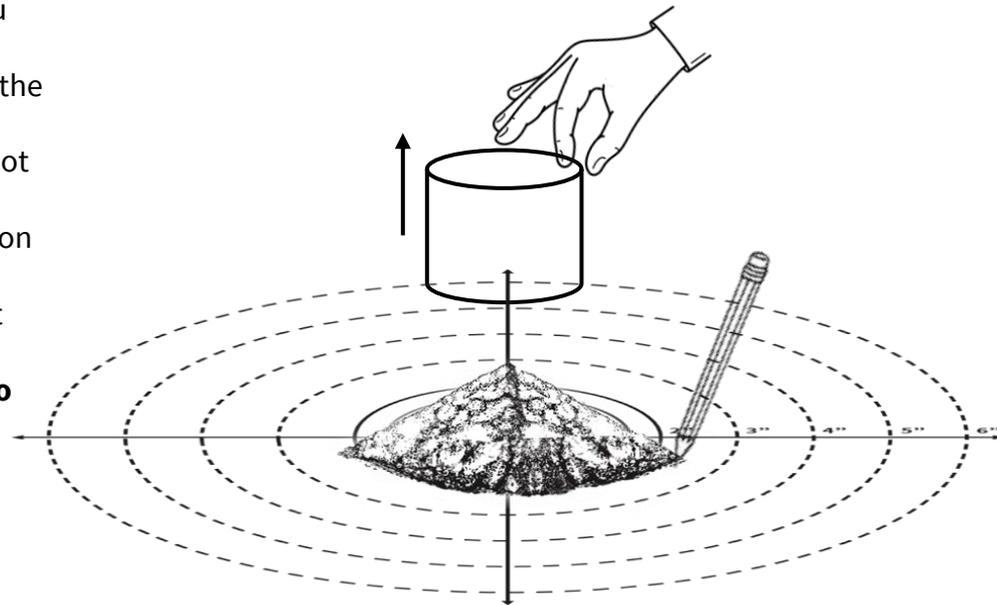


Method

Part B– Procedure:

1. Take the 1.6” cylinder and place it in the middle of the worksheet. The two (cylinder) diameters are marked for you with solid lines.
2. Using sand from the plastic cup, fill the measuring cup up to the 4oz. mark.
3. Hold the cylinder down firmly to make sure the sand does not spill out during the process.
4. Slowly pull the cylinder straight up and observe the formation of the sand hill.
5. Sketch the outline of the sand hill created on the worksheet and label the outline appropriately.
6. **Carefully fold the worksheet and pour the sand back into the plastic cup.**
7. Repeat steps 1 to 6 for the remaining trials to complete the Data Table.

Ref>(Step 4 of Procedure):
Pull the cylinder straight up



Ref>(Step 5 of Procedure): Sketch the outline
of the sand hill

Modeling Erosion (page 3)

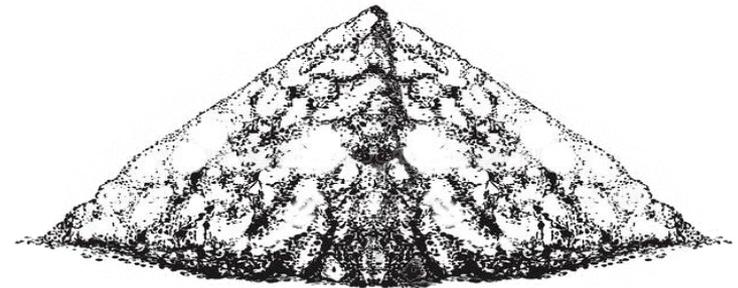
Activity

Data table

Trial	Cylinder Diameter	Measuring Cup Reference (for Sand)	Approximate Diameter Reference of Sand Travel on Worksheet
1	1.6"	4oz.	
2	1.6"	3oz.	
3	1.6"	2oz.	
4	2.0"	9oz.	
5	2.0"	6oz.	
6	2.0"	4oz.	

Questions:

1. Choose your own graphic organizer to summarize the data collected from the trials. Discuss with your partner if a chart, or a sketch, or something else best presents the results recorded in the trials.
2. How do you think the results will vary if you use moist sand instead of dry sand for this activity? You can try to conduct a couple of additional trials to test your hypothesis.



Identifying Patterns

Is there a predictable relationship between the quantity of sand in the different cylinders and the shape and height of the sandhill it produces?