

# Student Investigation Sheet

## Go With the Flow

In this activity, you and your group will drip water over sugar cubes to investigate the erosion of land over time by weather, including rain and snowmelt.

### **Materials:**

Materials for each group:

- 24 sugar cubes (in 2 pre-formed bricks of 12 cubes each)
- eye dropper
- cup
- water
- plastic tray or foam plate with a flat bottom
- rulers
- paper towels
- graph paper
- 1 overhead transparency sheet, pre-printed with a graph paper grid (optional)
- writing paper or science notebook for recording ideas

### Key Question

What is the question you want to answer?	
	<i>Directions:</i> Write the question for the investigation. The question should be specific and investigable.
	<u><i>Key Components</i></u> <ul style="list-style-type: none"><li>• Is specific (one general thought, does not combine two or more questions)</li><li>• Is able to be investigated</li></ul>

### Hypothesis

What do you predict will be the result of the investigation?	
	<i>Directions:</i> Develop a claim about what you think is going to happen.
	<u><i>Key Components</i></u> <ul style="list-style-type: none"><li>• Expresses a cause-and-effect relationship</li><li>• Is testable</li><li>• Incorporates prior knowledge</li></ul>

## Plan

How will you investigate the question?	
	<p><i>Directions:</i> Describe the plan that you will use to study your question and analyze your hypothesis.</p>
	<p><u>Key Components</u></p> <ul style="list-style-type: none"><li>• Plan is easily repeatable by others</li><li>• Plan describes the use of materials</li><li>• Plan is in a logical order</li></ul>

## Data

What evidence was gathered during the investigation?	
	<p><i>Directions:</i> Record all of the evidence that has been collected. Use graphic organizers, tables, and graphs when appropriate.</p>
	<p><u><i>Key Components</i></u></p> <ul style="list-style-type: none"><li>• Data (from an investigation and/or other sources, such as observations, reading material, archived data, etc.)</li><li>• Appropriate (data apply directly to the question)</li><li>• Sufficient (uses enough data to completely answer the question and determine a finding on the hypothesis)</li></ul>

## Conclusion

What did you learn from this investigation?	
	<p><i>Directions:</i> Develop a conclusion for your investigation. The conclusion should contain clear thoughts and proper vocabulary. This section focuses on the answer to your question. It should support or refute the hypothesis by using logical reasoning to link the hypothesis to the data.</p>
	<p><u><i>Key Components</i></u></p> <ul style="list-style-type: none"><li>• Use precise and accurate language</li><li>• Use scientific vocabulary</li><li>• Provide clear logical thoughts</li><li>• Use evidence and reasoning to support or refute the hypothesis</li></ul>

### **Analysis and Conclusions**

1. Discuss how the landforms you created are like landforms that have resulted from erosion, such as the canyons in the Trans-Pecos region of Texas.
  
2. Discuss the ways that your models were similar to real erosion by water and ways in which it was different.
  
3. What sort of landform is created by water flowing down a straight riverbed? What about a meandering one – what happens to the respective shores of the river?
  
4. What does erosion by water have to do with the formation and growth of stalactites and stalagmites in caves? Why wouldn't you expect to see these formations in your experiment?