

STREAM TABLES ACTIVITY 4

Introduction:

Most of us have seen streams or rivers. When we're walking or driving, we cross them by using bridges, or we look for good locations to cross them such as stone outcrops. Stone outcroppings occur because they are more resistant to wearing away by water than the rocks around them. Sometimes, stone outcroppings create ledges that make the streams flow certain ways. In this activity, you will explore how an outcropping in the streambed can affect the flow of the stream.

Objectives: Upon completion of this activity, the student should be able to . . .

1. Identify the types of stream path
2. Name at least three factors that affect the path a stream takes due to a rock outcropping

IL State Standards: The IL State Standards addressed by this activity are . . .

- 12.E.3a – Analyze and explain large-scale dynamic forces, events and processes that affect the earth's land, water, and atmospheric systems.
- 13.B.3d – Analyze the interaction of resource acquisition, technological development and ecosystem impact

Materials:

- | | |
|---|--------------------------------------|
| 1 Wallpaper tray or square dish pan | 1 Gallon of fine sand |
| 2 Wood blocks same size | 1 Long wood block for smoothing sand |
| 3 One-gallon buckets | 1 Plastic cup for dipping |
| 1 Tube, narrow and flexible, 60 cm long | 1 Paraffin or plastic block |
| 1 Acetate or plastic dam | 6 Cotton swabs |
| 1 Box food coloring | Paper towels and water |

Procedures:

- A. For the Fourth Activity, re-set the tray again as it was for the First Activity. During this run, you will use a paraffin block to represent a rock layer or rock outcropping that is resistant to erosion. Smooth the sand with the extra wood block, and about half way down the stream's path, carefully insert the paraffin into the sand. The paraffin should be "slid" into the sand horizontally so it is like a "stair step" buried in the sand. Then, use your finger to make a shallow trough from where the siphon tube will touch the sand down to where the paraffin block is located. Let the water flow, and again make your observations and record them the Data Sheet below (see Figure 1).

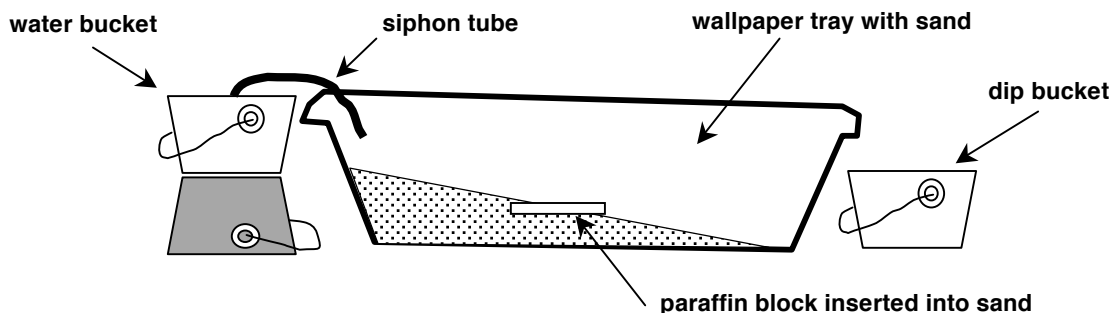
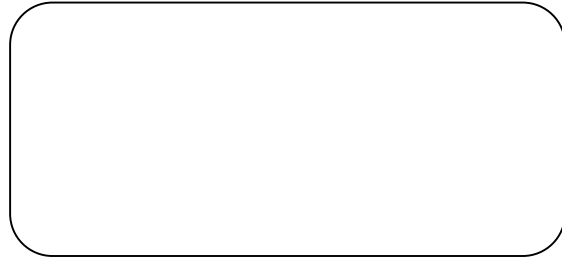


Figure 5

Data Sheet:**Activity #4: “With resistant layer”**

Observations:

Draw the stream path:

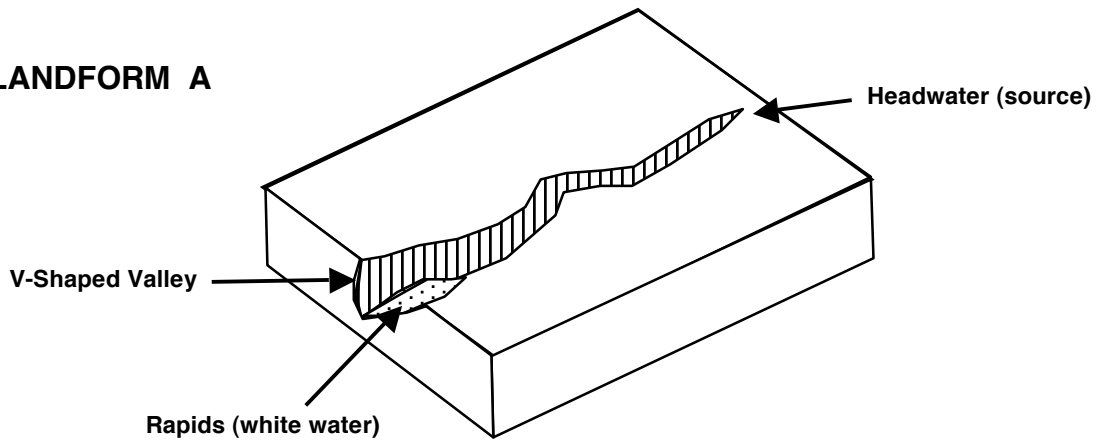
**Questions:**

1. How does increasing the slope, or steepness, or a stream affect the path it makes with a resistant rock outcropping?
2. In this activity, you examined the effects of a stream moving across a rock layer that is resistant to erosion.
 - a. Where was erosion of the sand most pronounced around the resistant layer?
 - b. If this occurred with a real stream, what would we call the physical feature that was formed by the stream at the resistant layer?
3. Sometimes, the amount of water moving in a stream has an effect similar to that of increasing the slope of a stream. How does increasing the amount of water moving in the stream affect the path of a stream as its water passes over a resistant rock outcropping?
4. Look at the page of “Geologic Landforms” on the next page. Which Geologic Landform is most likely to occur with a stream that contains resistant horizontal rock outcroppings? Explain why you think so.

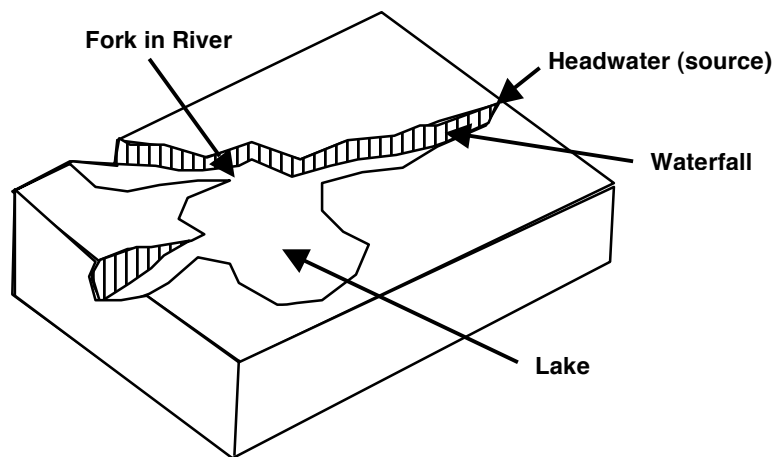
Resource: Great Exploration in Math and Science. (1989). *River cutters*. Berkeley, CA: Lawrence Hall of Science, California State Board of Regents.

GEOLOGIC LANDFORMS

LANDFORM A



LANDFORM B



LANDFORM C

