STREAM TABLES
ACTIVITY 3

Introduction:

Most of us have seen streams or rivers. Many of us have seen dams on streams and rivers. Some are earthen dams, and others are large concrete structures. We sometimes use dams to try to control for flooding and water movement, and others are designed for capturing the energy of water to use in the production of hydroelectric power. Whenever dams are constructed and used, they impact the paths that rivers and streams follow. In this activity, you will explore how a dam can affect the flow of a stream.

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

1. Identify at least two types of stream paths
2. Name at least three effects a dam can have on the path a stream takes

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

Procedures:

A. For this Third Activity, re-set the tray as it was for the First Activity. During this third activity, you will be using a plastic dam (see Figure 1 on next page). Smooth the sand with the extra wood block. Insert the plastic dam into the sand about one-third of the way down from the "upper end" of the tray. The dam should be inserted perpendicular to the tabletop (like a vertical wall in the sand). Allow about half of the dam to be up out of the sand. Then let the water flow, and again make your observations and record them in the Data Sheet (on next page).

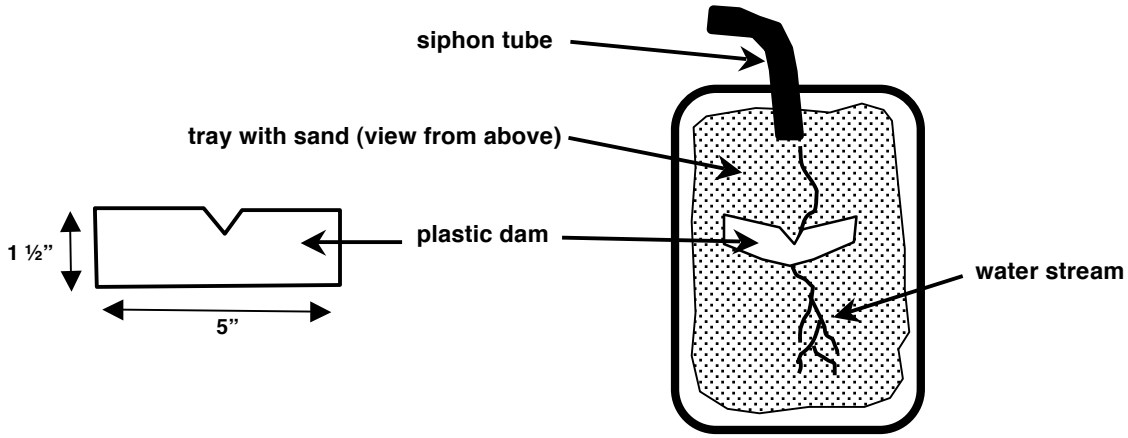


Figure 1

Data Sheet:

ACTIVITY #3: "With dam"

Observations:

Draw the stream path:

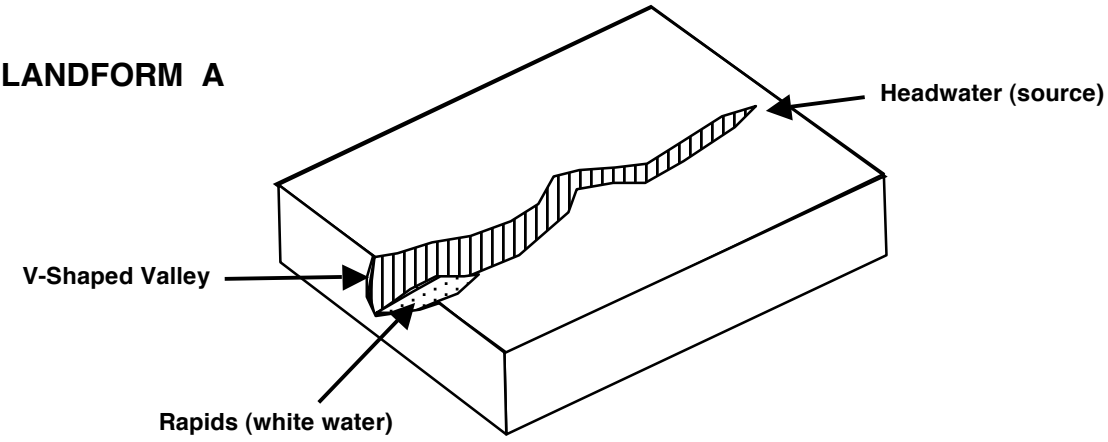
Questions:

1. How does increasing the slope, or steepness, or a stream affect the path it makes?
2. Sometimes, the amount of water moving in a stream has an effect similar to that of increasing the slope of a stream. If you could double the amount of water flowing through the tray in the First Run, what do you think the stream path would look like? Explain why you think so.
3. In this activity, you examined the effects of damming a stream.
   a. What happened to the water just behind the dam?
   b. What happened to the sand at the sides or edges of the dam?
   c. What happened to the sand in front of the dam at its base (where it met the sand)?
   d. Based on your answers to 3a, 3b, and 3c, what might cause a real life dam to fail?
6. Look at the page of "Geologic Landforms" on the next page. Which Geologic Landform is most likely to be formed by the use of dams on a stream? Explain your answer.

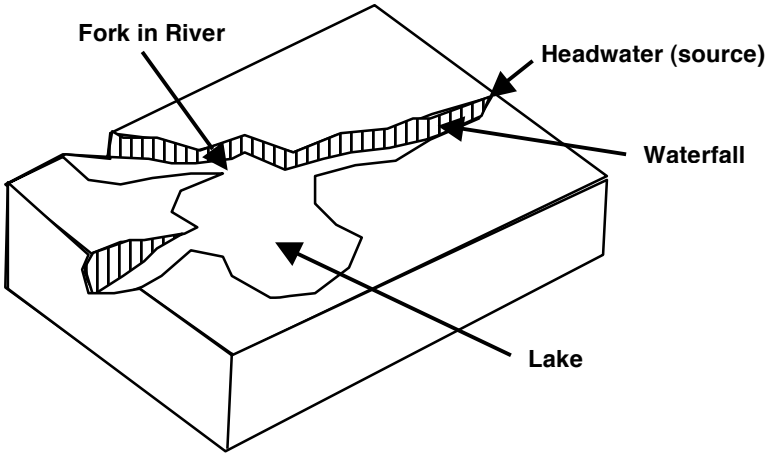
Resource: Great Exploration in Math and Science. (1989). *River cutters*. Berkeley, CA: Lawrence Hall of Science, California State Board of Regents.

GEOLOGIC LANDFORMS

LANDFORM A



LANDFORM B



LANDFORM C