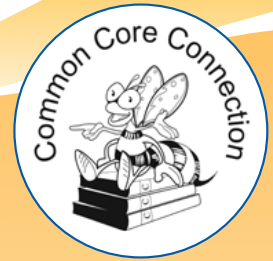


# FACTivity



## Time Needed

One class period

## Materials (for each student or group of students)

- Large disposable aluminum pan (approximately 10"x12"x2.5")
- Enough dirt to cover the pan's bottom to about 1"
- A bucket of extra dirt with water, mixed into a thick mud
- Scissors (for the educator's use)
- Plastic gallon jug filled with water
- Source of more water if needed
- Sticks of various sizes, from about pencil-sized to about  $\frac{3}{4}$ " in diameter, between 3" and 5" long
- Other natural materials, such as gravel or small rocks, leaves, bark, and grass

## Some of the questions you will answer in this FACTivity are:

How can you successfully build a model of a beaver dam? What are the similarities and differences between a beaver dam and a logjam?

A model is a representation of something. It can be a mathematical model, a map, a drawing, or a physical representation. A model car, for example, is a physical representation of an automobile. In this FACTivity, you will build a physical representation, or a model, of a beaver dam.

Beavers build dams using mud, logs, leaves, grass, stones, and just about anything they can find in the environment. To begin their dam, beavers use mud to help support the first logs.

For additional information, view this short video on how beavers build dams. Visit <http://www.pbs.org/wnet/nature/leave-it-to-beavers-video-how-beavers-build-dams/8847/>.



Photo by Ellen Wohl, Colorado State University

## FACTivity **Methods**

Your teacher will cut a 0.5” diameter hole in one end of the aluminum pan, about 0.5” from the bottom of the pan. This hole will be on one of the 10” sides.

Fill the bottom of the pan with a layer of dirt about 1” thick. The dirt should slope gently downwards toward the hole. Therefore, the surface of the dirt should be slightly higher than 1” on the side opposite from the hole and a little under 1” on the side with the hole. Keep the hole clear of dirt. Gently pack down and smooth the dirt.

Create a stream channel from one side of the pan to the other side along the pan’s length, with one end of the channel ending at the hole. The channel should be about 1” wide and 0.75” deep.

If you do this FACTivity outside, place the pan outside in the grass, making sure that it is level so that the dirt surface is still sloping downward toward the hole. If you do this FACTivity indoors, make sure the water drains into a sink or into a bucket.

Slowly pour 1 cup of water into the channel at its higher end. What happens to the water?

Begin building your dam about 3” from the end of the pan with the hole. Use the natural materials that you have collected, along with the sticks and the mud, to build your dam. When you have finished, your beaver dam should be between 6 and 7 inches wide.

Test your dam by slowly pouring water into the channel at the channel’s higher end. Make adaptations to the dam as needed.

When you have finished your dam, slowly pour water into the stream channel on the upward side of the pan. What happened to the water? Were you successful at building a beaver dam model? A successful beaver dam holds water in one area, letting only small amounts of water pass through.

If the dam was not successful, continue to make adaptations to your dam and test it by slowly pouring a jug of water into the tray.

Write a paragraph about the beaver dam model. How did you build the beaver dam? What adaptations did you need to make while building the beaver dam? What happened when you slowly poured water into the stream channel? Were you ultimately successful at building a beaver dam model? Why or why not?

Now, build a model of a logjam about 2” from the other end of the pan. Drop a few of your larger sticks across the channel. Then drop a few smaller sticks and other natural materials on the higher side of the channel-spanning sticks. Look at the photos of logjams in the article to help you build your logjam. Pour water into the channel and observe what happens.

Write a paragraph about how you built your logjam model and what happened when you poured water into the channel. Write about any modifications you had to make. Were you successful at building a logjam model?

# Logjams and Beaver Dams Graphic Organizer

Group Names: \_\_\_\_\_

**Observations and notes:**

**What made your beaver dam successful or unsuccessful?**

**Name three similarities and three differences between beaver dams and logjams.**

**Where is the carbon located in your models?**

**How could you improve the model-building activity?**