

BUILD A BEAVER DAM



A Hands-On Engineering Activity

Activity Summary

Students become "beavers" by building miniature dams using natural materials. After constructing their dams, they test them by adding water and observing how effectively their structures slow, store, or redirect water. This activity introduces students to the engineering skills of North American beavers while encouraging experimentation, problem solving, and observation.



Learning Objectives

Students will be able to:

- Explain why beavers build dams.
- Describe how dams change the movement of water.
- Investigate how different building materials affect dam performance.
- Apply the engineering design process by building, testing, and improving a structure.
- Make observations and communicate findings.

Recommended Age

Grades K–5 (can be adapted for older students)

Time required

30-60 minutes

Materials

Per group:

- Plastic tub, tray, or shallow container
- Water
- Small sticks and twigs
- Sand, soil, or mud (play dough or modeling clay works well indoors)
- Plastic cup or watering can
- Towels for cleanup

Optional:

- Toy beavers
- Measuring cup
- Stopwatch
- Small leaves, rocks, or moss for additional building materials

Background Information

North American beavers are ecosystem engineers. Rather than simply building homes, they build dams to slow moving water and create ponds. These ponds provide protection from predators, improve access to food, and create safe places to build their lodges.



Activity Instructions



Step 1: Introduce the Challenge

- Tell students:

"Imagine you are a beaver. Your goal is to slow the flow of water by building the strongest dam you can using only natural materials."

- Discuss why slowing water might be helpful for a beaver.
 - a. Beavers are big! They can weigh 70lbs+ and have webbed back feet and that big tail. They're much safer and more agile in water. Spending most of their time in the water protects them from predators.

Step 2: Build

- Provide each group with building materials.
- Allow 10–20 minutes for students to design and construct their dam across the width of the container. Encourage creativity and teamwork.

Step 3: Test

- Slowly pour water upstream of the dam.

Observe:

Does the dam hold back water?

Does water leak through?

Does the dam wash away?

Does a pond begin to form?



Step 4: Improve

Ask students to modify their design after observing the first test.

Test again and compare the results.

Explain that real beavers constantly repair and strengthen their dams as water conditions change.