

Building a Dam (Grades 1-3)

Kimberly Kirk¹

¹Affiliation not available

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Lesson Overview

In this 50-minute lesson, students will learn about how water flows naturally. They will also learn about how man-made or animal-made structures can redirect the flow of water.

Standards & Objectives

- K-ESS2-2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs..
- K-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool
- K-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
- CCSS.MATH.CONTENT.2.MD.A.3 Estimate lengths using units of inches, feet, centimeters, and meters

Resources & Materials

- Video on Beaver Dams <https://www.youtube.com/watch?v=yJjaQEx0PPY>
- Video on Building the Hoover Dam https://www.youtube.com/watch?v=n9Gy_1Ppw5U
- Video on How Water Flows <https://www.youtube.com/watch?v=RqZbsr32n0c>
- Materials: bottled water, construction paper, blocks, wire, string, Playdoh, tape, scissors, pipe cleaners, popsicle sticks (a variety of scraps and building supplies)

Lesson

Stage 1: Observations & Comparisons (10 min)

Watch videos and look at pictures of dams, both man made and those occurring naturally. Compare the sizes, shapes, and materials used. Discuss why humans might build a dam. Discuss what happens to the water flow when a dam is put in place. Question how adjusting the size, shape, or position of the dam could change the flow.

Stage 2: Designing & Building (30 min)

Imagine city workers need to adjust the flow of a river to put in new electrical poles. You will need to design a dam that will redirect the river to another location. Consider what materials you can use that will withstand water flow for this project. Sketch and design a city dam structure. List materials, and design the model.

Stage 3 Testing & Reflection (10)

Test each design by creating a “river” with water flowing into the structure. Discuss height and direction of water flow. What adjustments need to be made? Which materials worked well for this project. Compare to real-world scenarios: What materials would be needed for a real river?