

# Build an Aqueduct

## Best for Ages

5+

## Workspace

Outdoor area

## Is electricity required?

No

## Description

Become an engineer and try your hand at building an aqueduct! Don't worry, you won't need steel, we're going to build our water bridge with everyday items that are found around your home. What system will you create to move water from one place to another?

## Materials

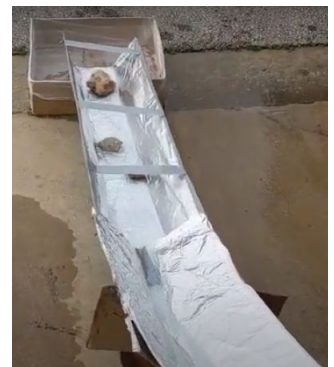
- **Structural Materials:** cardboard, plastic bottles, PVC pipes, toy car tracks, paper towel tube
- **Waterproofing materials:** plastic wrap, foil, plastic bags
- **Adhesive:** tape, glue
- **Water Source:** hose or fill a bucket, plastic storage container, or beverage pitcher with water

## Concepts Explored

- Engineering
- Design Thinking

## What to Do

1. Gather materials and plan your design. You might want to sketch your plan on paper before you begin building. When creating your design, keep in mind that aqueducts are structures that transport water over long distances from a source to a destination. Aqueducts are often used to carry water across a valley or ravine. An extra challenge-most are at the same level at each end which means it's not just simple downhill chute!
2. Use your structural materials to create a pathway for the water. Add waterproofing materials to keep the structural materials dry.
3. Now it's time to test your aqueduct! Slowly pour water from the source and watch closely as the water flows through the aqueduct. What do you notice?
4. Modify your aqueduct based on your observations to make the water flow better or to fix leaks.



# Build an Aqueduct

## Troubleshooting Tips

- If your aqueduct is wobbly, try mounting it to something. Flowing water can create a lot of force.
- If your material gets soggy, try adding a layer of plastic or aluminum foil to make it resistant to water.
- If your first attempt doesn't work, try again! There is a long human history of aqueduct use so research some external resources to help you design.



Which materials work best for building an aqueduct?

What did you find most difficult with your aqueduct?

How can you make the water move uphill?

## What is Happening?

- **Engineers** are everyday problem solvers who think outside of the box to create solutions. Engineers identify challenges then they design, build, and test solutions to those challenges.
- **Design thinking** is a series of steps that inventors use to create solutions. They figure out their audience and its problems, design solutions to the problem, and then tweak their design based on the feedback they receive. How did you use design thinking when building an aqueduct?

## Taking it Forward

- **Connect this activity to the real world:**

Aqueducts are an ancient technology that we still use today. Research ancient Roman aqueducts and compare it to modern day examples such as the longest aqueduct system in the world which is found in California.

- **Learn more about aqueducts-** check out these books at a local library:

*Aqueduct: Colonialism, Resources, and the Histories We Remember* by Adele Perry

*Roman Aqueducts & Water Supply* by A. Trevor Hodge