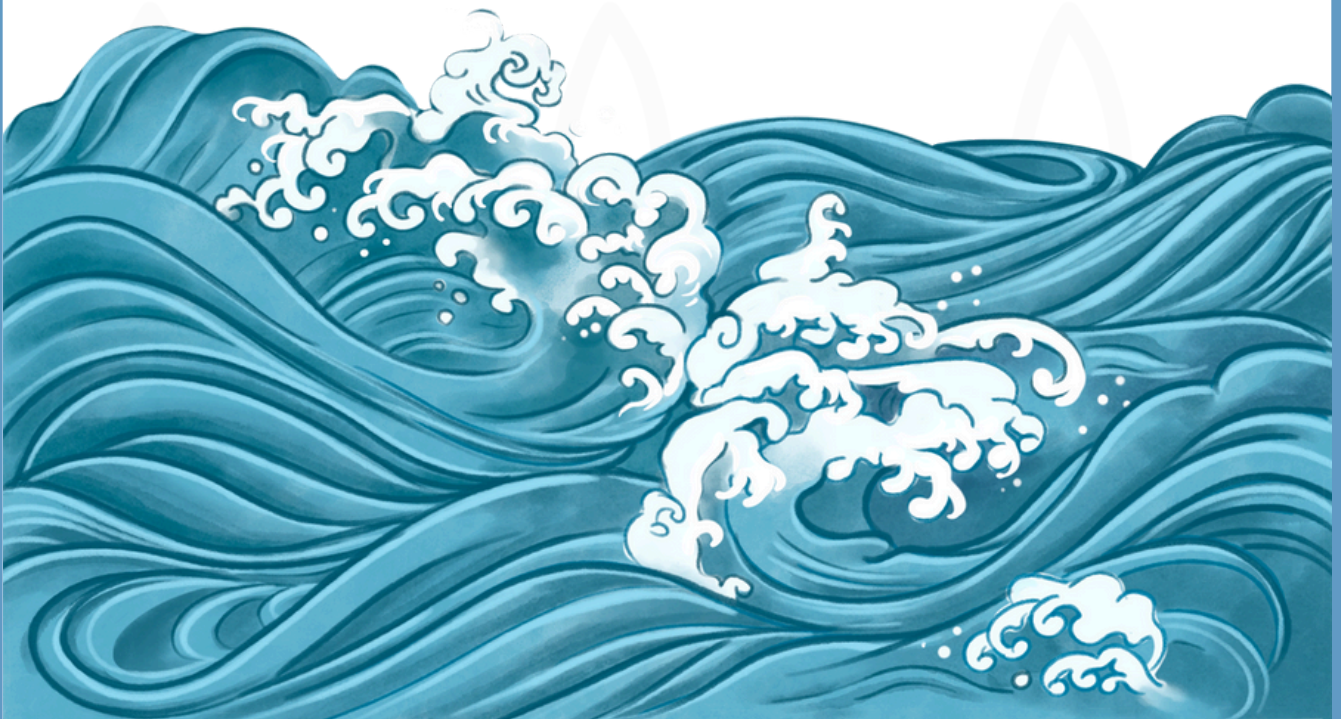




# *Movement of Water*



# Movement of Water

## Lesson Overview

In this hands-on engineering activity, families will explore how we can design systems to move water from one place to another—a challenge engineers face when building irrigation systems, managing stormwater, or designing climate-resilient cities. Using recycled and craft materials, kids will design a structure to transport water from the top of an upside-down cup to a target location below.



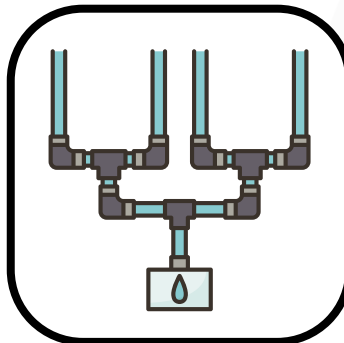
### **Fun Fact**

Ancient civilizations like the Romans built aqueducts to move water over long distances. Some are still standing today!

# *Movement of Water*

## **Why This Matters**

Moving water efficiently is critical for everything from farming to preventing flooding in cities. Engineers around the world are working on ways to direct water where it's needed (or keep it away from where it's not). This challenge gives kids a chance to think like an environmental engineer while using creativity and problem-solving skills.



# Movement of Water

## Materials Needed

1 upside-down plastic cup (Solo cup or similar)

1 tray or shallow sided pan (e.g. a cookie sheet)

Tape (to mark target area)

Cup or small pitcher of water

Assorted recycled/craft materials:

- paper
- paper towel rolls
- plastic bottles
- straws
- aluminum foil
- string
- cardboard
- pipe cleaners
- sponges
- popsicle sticks
- modeling clay



# Movement of Water

## Instructions

### Step 1: Mark Your Target



Place the cup upside down in the tray. Use a piece of tape to mark a "target spot" somewhere on the tray—this is where you want the water to end up.

### Step 2: Brainstorm + Plan

Before building, talk about the goal with your partners or team. Think about all the different ways water could move!

### Your Mission:

To get as much water from the top of the cup to the target as you can, with as little water loss as possible



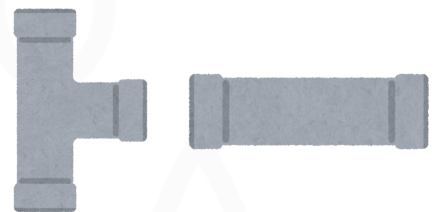
# Movement of Water

## Instructions continued

### Step 3: Build Your Water Transport System

Using the materials provided, build a system that will carry water from the top of the cup to the taped spot. Be as creative as you like—there's no one right way!

### Step 4: Test It Out!



Carefully pour water onto the top of the cup. Watch where it goes. Does it reach the target? If not, adjust and try again.

### Step 5: Reflect + Redesign



How well did it work? Where did water leak or get lost? What could you do differently to improve the design?



# *Movement of Water*

## **Think Like An Engineer**

- Where does water go when it rains?
- How do cities prevent flooding or droughts?
- What real-life materials are used to build water systems?
- Why is it important to move water in dry or flood-prone areas?



## *Special Thanks!*



This activity was created as part of the Kids' Tech University (KTU) program At Virginia Tech, which connects children with real-life researchers to explore those big “why” questions that spark curiosity. By offering exciting, hands-on science experiences in a university setting, KTU helps kids imagine themselves as the scientists, inventors, and explorers of the future. With support from students and researchers, this program brings science to life, turning wonder into discovery and learning into doing.



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