



Activity: Using String to Move Water

What You'll Need:

Not included in the kit:

- Empty measuring cup (with a handle as well as a spout)
- A piece of yarn/string (about 2 feet long)
- Water (enough to fill your measuring cup)
- Empty glass cup

Procedure:

USING STRING TO MOVE WATER: ADHESION, COHESION & HYDROGEN BONDING
Step 1 Tie one end of the yarn or string to the handle of the measuring cup.
Step 2 Fill your measuring cup with water. It should be almost filled to the top.
Step 3 Optional: Add a few drops of food coloring to your water. Doing this allows you to better watch the water.
Step 4 Place the yarn/string in the water, making sure it is submerged all the way and very wet.
Step 5 Take the end of the wet yarn/string that isn't tied to the measuring cup and place it into the empty cup.
Step 6 Slowly lift the measuring cup into the air, enough to where the yarn/string is tight. (Note: be sure to hold the loose end of the yarn so that the yarn/string is tight.)
Step 7 Slowly pour the water and watch as the water moves down the string into the empty glass. Do you know why you were able to pour the water into the glass from a foot away?

SOURCE: Cool Science Experiments HQ



This STEAM activity was inspired by the [Why Does the Water Pour Down the String Science Experiment by Cool Science Experiments](#).

The Science Behind It:

You are able to pour water down a string because water is both cohesive and adhesive.

- **Cohesion** – the sticking together of particles of the same substance.
- **Adhesion** – the action or process of adhering to a surface or object.

Water has a strong cohesive property because of the water particles' ability to form hydrogen bonds with one another. As a result of this strong cohesive property, water droplets will stick to one another. In addition, water has a strong adhesive property because of water's tendency to stick to other molecules with a positive or negative charge. As a result of this strong adhesive property, water will stick to other things.

During step four of the experiment, the string is submerged in the water. When the string is removed from the water it is wet. This is because the water adheres (or sticks) to the string. This is adhesion.

On step seven of the experiment, the water being poured out of the glass will cling to the water that is attached to the string (this is cohesion) and will move down the string into the empty glass.

A **hydrogen bond** is a chemical bond between a hydrogen atom (positively charged) and a negatively charged atom (like oxygen). Water molecules like to form chains because the positive end (hydrogen end) of one water molecule is attracted to the negative (oxygen end) of another water molecule.