# SEND
# WATER WALKING

## Create a rainbow relying on the properties of cohesion and adhesion

### What you'll need:

- Paper towel
- 7 see-through cups
- Water
- Food colouring (red, blue and yellow)

**Careful:** Food colouring can stain.

### Activity setup:

1. Take six sheets of paper towel and fold them into 2-inch strips.
2. Set out your seven cups. They can be in a straight line, in a circle or any position you want.
3. Fill every other cup about three-quarters full of water.
4. In the first and seventh cups, add five or six drops of **red** food colouring.
5. In the third cup, add five or six drops of **yellow** food colouring.
6. In the fifth cup, add 5 or 6 drops of **blue** food colouring.
7. Take one of the paper towel strips and fold it in half. Dip one end into the first cup and the other end into the second cup. Make sure the paper towel touches the bottoms of both cups.
8. Now put the other paper towel strips into cups. Make sure each cup has at least one end in it like the photo above.
9. Watch what happens. Leave it for 20 minutes. What has changed?
10. Leave it for an hour. Now what has happened?

### How does it work?

Water travels from one end of the paper towel to the other thanks to a process called capillary action. When water molecules stick to each other, it's called **cohesion**. When they stick to other substances, it's called **adhesion**. Capillary action occurs when adhesion is stronger than cohesion.

Paper towel is made from cellulose fibres, which has tiny gaps. The gaps act like capillary tubes, pulling the water upwards. Water flows upward because it adheres strongly to the walls around these gaps. This same process explains how water climbs up from a plant's roots to its leaves.

During this experiment, you see the water and the food colouring travel up the paper towel. Adhesion is overpowering cohesion. When the paper towel can't hold any more water, the power balance shifts: adhesion is no longer more powerful than cohesion. Gravity takes over, and the water is released back into the empty cups. The colours mix in the empty cups, creating a rainbow.

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