

Suitable for primary aged children

Build a Rainbow Water Bridge

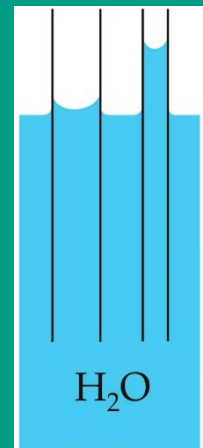
Water is an amazing compound, without it there would be no life on Earth. It's composition and molecular structure mean that it behaves like no other chemical.

One of water's unique properties is that it is sticky! Water molecules are attracted to each other and to other substances in a particular way. This is why water forms droplet shapes and runs in little rivulets down our windows when it rains. There are two forces at play here; cohesion, which means that water molecules like to touch each other, and adhesion, the water molecules like to stick to other things too. These two forces combine to create **capillary action** which is very important in many ways. Without it plants and trees would not be able to draw water up their roots, against the force of gravity.

Definition:

Capillary action is the movement of water within the spaces of a porous material due to the forces of adhesion, cohesion, and surface tension.

Capillary action occurs because water is sticky, thanks to the forces of cohesion (water molecules like to stay close together) and adhesion (water molecules are attracted and stick to other substances). This allows water to move through small spaces even against larger forces such as gravity.



We are going to watch capillary action happen by making a water bridge!

What you will need:

2 cups
Water
Water colour or washable markers
Paper towels

DO:

Fold your paper towel over a few times to make a strip that is around 5cm wide.

On both ends of your paper towel use the markers to colour thick stripes. These only need to extend about 5cm from the edge of the paper towel.



Make a horizontal rainbow strip at each of the ends of your paper towel (or use any colours you fancy).

Once your paper towel is coloured, add water to both of the cups so that the paper towel can rest between them with just the tips of the coloured edges touching the water. You may need to adjust the volume of water as you add the paper towel, but it should sit spanning the two cups like a bridge.

Now watch as the water slowly creeps along the paper towel, it will stick to the marker ink and carry it along as it moves spreading the rainbow across your water bridge!



Discuss what happened?

It is because of the water molecules' liking to stick to other things (adhesion) and also liking to stick together (cohesion) that the molecules are able to build a bridge across the paper towel from one glass to the next. This flow is what we call **capillary action**.

Follow-up

Now that you have made a beautiful rainbow water bridge you can experiment some more with capillary action by making other water bridges! Try leaving one glass empty and see what happens.

Don't forget to share pictures of your results with us on Facebook!
<https://www.facebook.com/macduffmarineaquarium>