

Blooming!

LINKED CHALLENGE

To use water absorption to open a paper flower

ACTIVITY OVERVIEW

Demonstrate how water can travel along a material, using a shallow bowl of water and two different strips of paper towel, each one half in/half out of the bowl. Encourage children to observe the water being absorbed by the towels and identify the paper towel that is completely wet first. Draw out observations on the material, why it is drawing up the water from the bowl and what this is called: capillary action (see key facts below).

Explain to the children that they are going to see capillary action working and will explore different liquids and materials. Encourage children to work in pairs, drawing around a basic flower template on two different types of paper or card. (This could be thin cardboard, different weights or colours of paper and should be the children's choices.) After cutting around the outline of the flower, petals of each flower are folded into the centre, one after another.

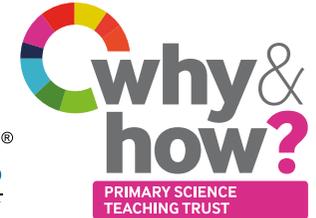
Set the children a challenge: They are to explore what happens when they place their closed flowers on the surface of a shallow container of water: when the paper/cardboard absorbs water it swells, making the flower open. Their paired challenge is to explore different liquids and weights of paper/cardboard, to create a flower that opens in under 8 seconds.

After the children have explored and found their quickest design, run a race across the group to see who has found the fastest capillary action in their combination of liquid and paper/cardboard. Why was it the quickest? How do the properties of the material/liquid change the action?

KEY FACTS/SCIENCE

Molecules (small particles) in a liquid are attracted to each other - we say there is *cohesion* between them. Water molecules are strongly cohesive. When molecules in one material are attracted to those in another, different material, we say there is *adhesion*. *Capillary action* occurs when adhesive forces are stronger than cohesive forces and this causes a liquid to travel through another material. You may see water rising up against gravity due to this force.

Paper is made of tiny, interwoven wood fibres to which water molecules readily adhere and this results in capillary action of the water through the paper. When the paper (or cardboard) of the flower absorbs the water (through this capillary action), it swells; this creates the force that causes the flower to open.



RESOURCES

2 different sheets of paper towels	Scissors
shallow bowl	Shallow containers
Different coloured paper	Jugs of water
Different coloured light cardboard	Different liquids (e.g. milk, washing-up liquid)
Simple flower template	Timers



QUESTIONS/FURTHER LEARNING

- What is making the flower open?
- Which flower opened first? Why might that have happened?
- Does water travel more quickly through paper than card?
- Does different coloured paper/card make a difference?
- Do all liquids travel in the same way?
- Does the viscosity of the liquid make a difference to how quickly the flower opens?

Online supporting video:
<https://tinyurl.com/zbuojon>

