Key Stage 2 – Water efficiency

WALKING WATER INVESTIGATION

This activity is fun for all ages. If used as a science experiment, it is ideal for KS2.
It encourages children to discuss what makes a fair test, make predictions, make observations, record results and draw conclusions.

You will need

- Six transparent jars/containers/test tubes (or more depending on how many colours you want to use)
- Absorbent kitchen paper
- Food colouring (red, yellow and blue works well but you can choose whichever colours you like)
- Water
- A spoon/stirrer
- Timer (optional)

Method

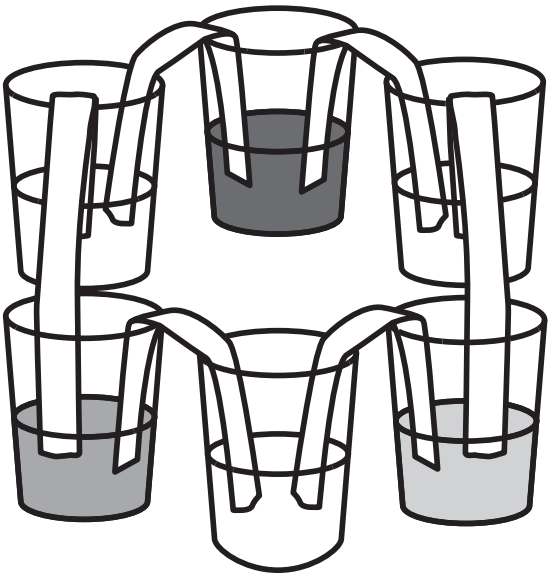
1 Take six (or more) transparent containers and fill with water. You will need to judge how much water depending on the size of your containers, but it will need to be equal amounts if you are discussing what makes a fair test.

2 Add the red (or other colour) to one container and repeat for the other colours that you are using (equal amounts of drops for fair tests). Give each container a stir. If you are using three food colourings, you will need six jars so that three other jars can be left with just clear water in them. Set the jars up so that there is one jar of clear water between each jar with food colouring. See picture for clarity.

3 Cut the kitchen paper into equal sized strips. The size of the strips will depend on the size of the containers used.

4 Place one piece of kitchen paper into one container with colouring and link it into a container with just clear water. Repeat with the other containers to create a loop, eg, red – water – blue – water – yellow – water – back to red. Before you do this, it is a good opportunity to ask the children to make predictions about what they think will happen when you add the kitchen paper.

5 The colours should begin to crawl up the kitchen paper quickly, but it can take a while for them to mix with each other in the clear water containers. You could set up a timer to see how long it takes for this to happen and record the results. You could also use it as an opportunity to get the children to start mixing water colours to see what colours will be made when they mix.



The science

As the kitchen paper **absorbs** the water, the coloured water travels up the fibres of the paper, defying gravity in the process. This is known as capillary action. The gaps in the kitchen paper are similar to the capillary tubes of a plant that pull water up from their stems. Where the primary colours meet, they mix to form a secondary colour.

Extensions

You could repeat this experiment with different materials to see whether they have a similar or different effect, eg, paper, plain fabric, wet wipes etc. You can see if you can speed up the process with different temperatures of water.

You can extend the children's understanding of capillary action by demonstrating this activity with celery or white carnations and placing them in the coloured water to see what happens.

Once you've finished with the experiment, please ensure that any kitchen paper, wet wipes, fabric etc you may have used, go in the bin and not down the toilet. Putting these items down the toilet may cause a nasty blockage.

Have a look at our website to find out what happens to the water from your experiment when you tip it down the drain and also find out more about Stop the Block **www.wessexwater.co.uk**

You'll also find more fun resources and investigations on our education page **www.wessexwater.co.uk/community/education**