

HOW DOES VENTILATION WORK?

Air and lots of air pollutants are invisible and don't smell, so it is difficult for humans to detect how ventilation works. In this activity you are going to use water and squash to demonstrate how clean air can be used to dilute the concentration of pollutants in dirty air. If you don't have squash, you could use juice, food colouring or even paint, **just please don't drink the water if you are using paint!**



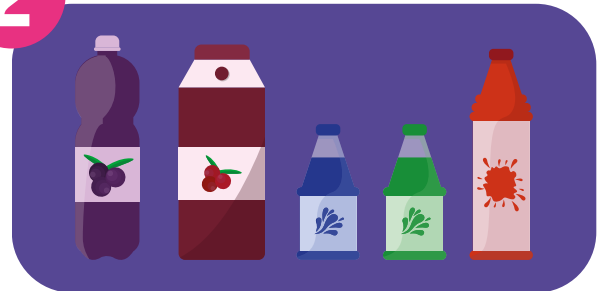
You will need:

1. 3 cups, preferably transparent and about the same size
2. Squash, dark colours like blackcurrant flavour work best. If you don't have any squash, you could use juice, food colouring or paint.
3. Water
4. A sink to pour the liquid away if you don't want to drink it
5. One elastic (rubber) band
6. Optional: A piece of white paper

1



2



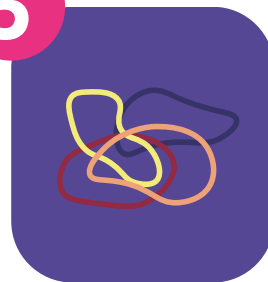
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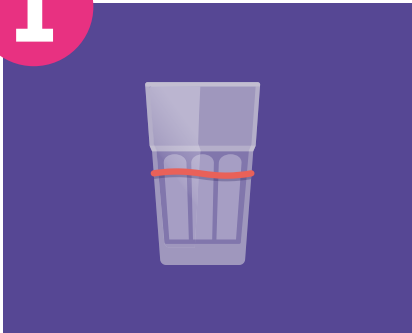


About this worksheet: In the RCPCH RCP 2020 publication *The Inside Story: Health effects of indoor air quality on children and young people*, on page 15, #TeamCleanAir&Us said: "Children and young people want clear, factual and accessible information about what the potential harm is from poor indoor air quality and what we (children, young people, parents and carers) can do to avoid or reduce indoor air pollutants". Many of the Indoor Air Quality Working Party members were contributing authors to this publication and have produced these worksheets as a first step towards addressing this request from children and young people.



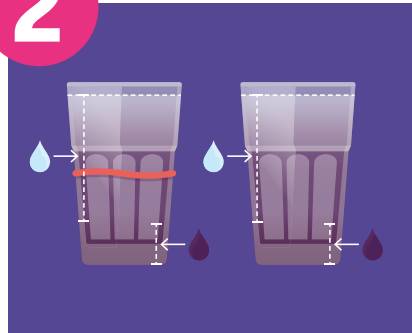
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1



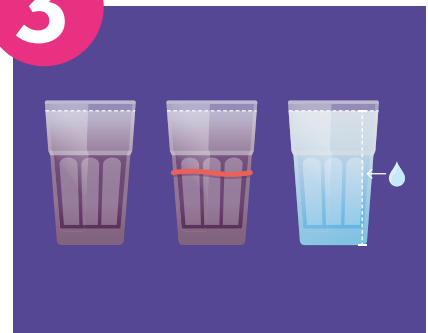
Step 1: Take one cup and put the elastic band around it about half way up. You will use this to measure the amount of liquid in the cup.

2



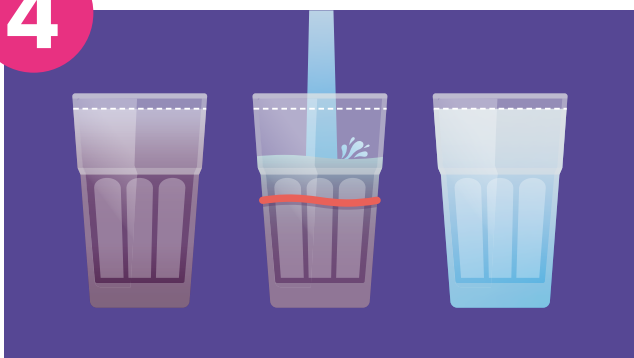
Step 2: Take this cup and one other and make up the squash in each using the instructions on the bottle. You should try to use exactly the same amount of squash and water in each so both cups of are identical.

3



Step 3: Fill the other empty cup with water. The two cups that don't have the elastic band around them are your controls, you can use these to compare to the middle cup with the elastic band after each step.

4



It might help to hold a piece of white paper behind the cups to see the colour better.

Step 4: Empty out or drink half of the squash in the cup with the elastic band, so that the contents comes up to the elastic band. Fill it back up to the top with clean water.

What has happened to the colour of the squash?

What does it taste like?

Compare it to the cup of squash and the one of water. What do you notice?

5

Step 5: Repeat step 4, emptying out half of the mixture and refilling it with water. After each time you do this, write down what has happened to the colour and the taste. Keep repeating it over and over until you have cleared the pollutant, keeping a tally of how many times you refilled with clean water:

How many times did you have to replace the liquid to clear the 'pollutant'?

In this test a cup is used to model a room. The water is clean air and the squash (or food colouring) is a substance or pollutant that has been released into the air. Emptying out some of the liquid and replacing it with water is like what happens when you open a window or turn on a fan to provide ventilation. Using ventilation for longer is like half emptying the cup and refilling it more times.