

# AT HOME!

## PROJECT NO.19

### Chemical Indicators

As family days out are put on hold, we've been thinking how we can make your family days in as much fun as possible.

Eureka! is the UK's only hands-on museum just for children aged 0-11. Full of exhibits to explore, helpful staff to engage with, activities to do and buttons to press. Based in West Yorkshire, we have brought smiles to the faces of over 8 million visitors since 1992. As families can't come to us, we are keen to bring a sample of the Eureka! experience to you.

Our expert staff have come up with a series of experiments that can be done at home, all designed to inspire children to get hands-on, have fun, and learn about themselves and the world around them.

Get experimenting and send us or share your pictures and videos using #EurekaAtHome and we'll share on our social media feeds too.

**WE'RE ALL IN THIS TOGETHER!**



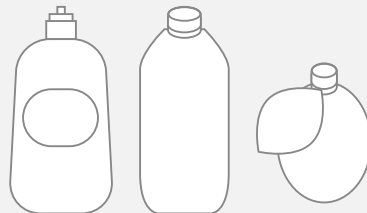
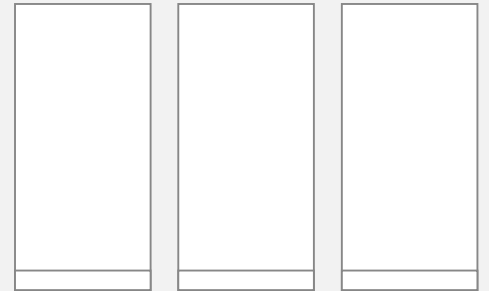
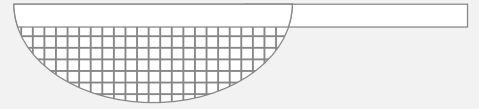
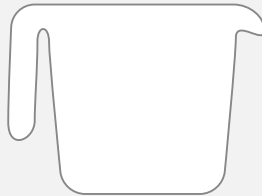
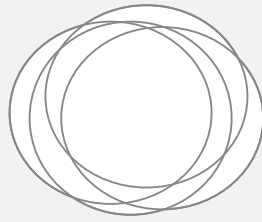
Sarah

EUREKA!

# CHEMICAL INDICATORS

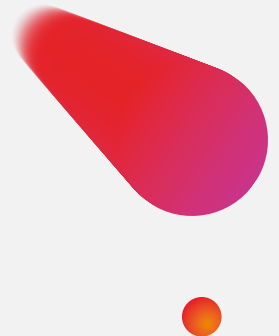
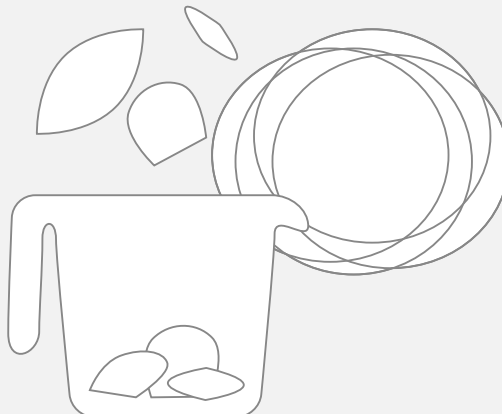
## YOU WILL NEED:

- Red Cabbage
- Sieve
- Jug
- Drinking Glasses
- Liquids from your house, start with vinegar, lemon juice and (being careful) some kitchen cleaner



## STEP 1:

Take a couple of leaves off a red cabbage and rip them into smaller pieces (don't have to be too small) then put them in a jug



## STEP 2:

Fill the jug up with boiling water and leave the water to sit for a little while. It will smell a bit but you'll be able to see the colour of the water change.



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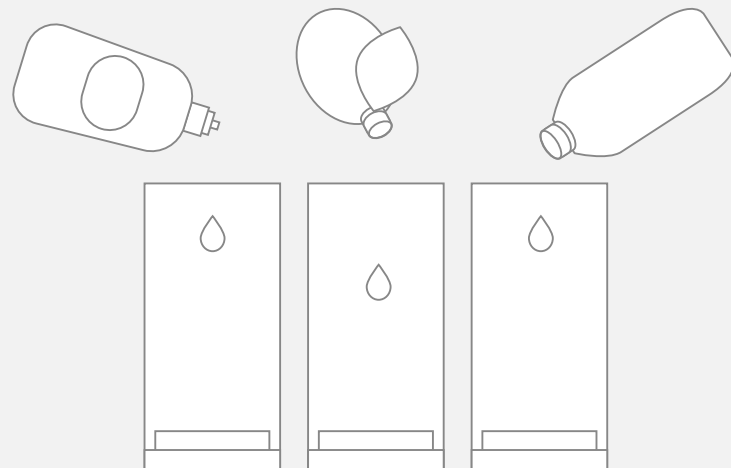
## STEP 3:

Remove the red cabbage from the water, you can do this using a slotted spoon or pouring the cabbage water through a sieve into another jug



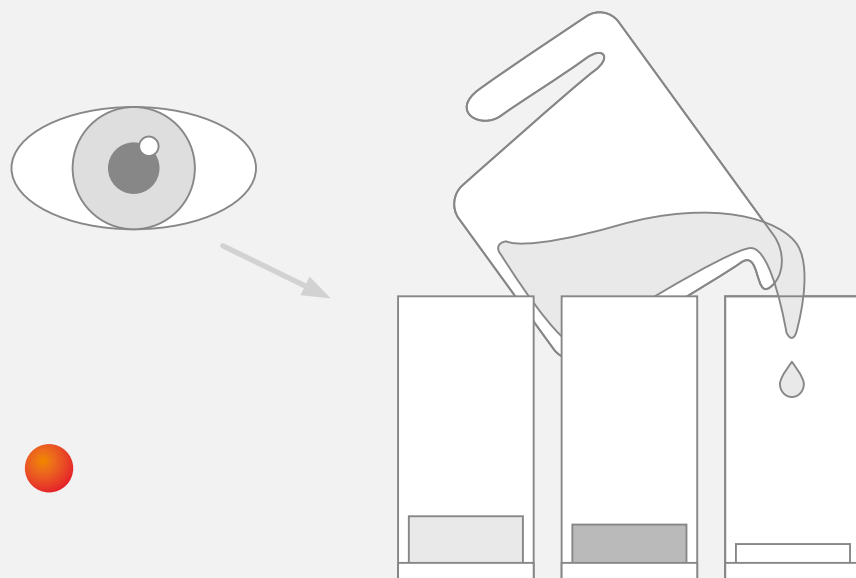
## STEP 4:

Put a small amount of the liquid you want to test in the bottom of some glasses



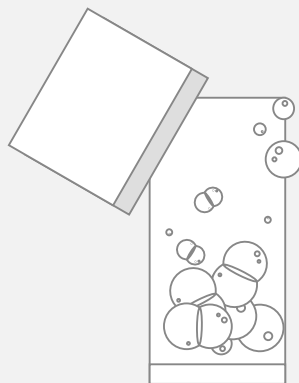
## STEP 5:

Carefully add some red cabbage water to each glass and watch the colour change!



## STEP 6:

When you're done, wash the glasses properly. Red cabbage water is drinkable (the kitchen cleaner is definitely not) but it tastes horrible so you don't want that taste sticking around!



## Why does this happen?

There is a type of chemical in purple fruit and vegetables called an anthocyanin. Along with giving them their purple colour, anthocyanins are chemical indicators. Chemical indicators change in a way that you can see (usually with a colour change) when conditions in the indicator change.

In the case of anthocyanins, they are pH indicators, meaning they change colour when acids or alkalis are added to them. Vinegar and lemon juice are both acidic, so they change the colour to a lighter red. Kitchen cleaner is an alkali, so this changes the colour to green.

## What can you do next?

Try experimenting with other liquids in your house, see if they are acids or alkalis. You should only need to use a very small amount of liquid to create a colour change.

See if you can make a colour change from other purple fruits and vegetables. Blackberries also work, although with them it's easier to blend them rather than adding hot water to them (plus blackberries smell a bit nicer!).

Acidic



Neutral



Alkaline

