

Making bubbles and smoke!

What you need:

a container of water



dry ice (solid carbon dioxide)



Universal indicator or food colouring
(Helps to see what is going on more clearly)



What to do:

1. Add a few drops of universal indicator or food colouring to your water so you have a nice colour.
2. Add some dry ice to the water. **Be careful as this is -78°C so ask a grown up to help.**
3. Watch what happens.

How and why

When you do this experiment you see lots of bubbles in the water and some smoke coming out the top of your container.

Dry ice is very special.

Most solids turn to liquid before turning to gas. You will have seen just bubbles in the liquid as the dry ice turns from solid straight to gas.

This is known as **sublimation**

If you have used universal indicator did you see the colour changing? The pH changes as the carbon dioxide dissolves in the water making the colour change. pH is a measure of how acid or alkaline something is.

Did you notice the smoke came out the top of the beaker and then sank down towards the floor? This is because carbon dioxide is heavy and sinks!

Another example of sublimation:

Water can sublime;

When the weather is really cold (well below freezing) but dry for several days straight, ice will slowly disappear even though it never melts.

Also when you open the boxes of certain kinds of frozen foods, (like frozen vegetables, pizza, frozen loafs of bread etc) you will find ice crystals clinging to the inside of the packaging. This ice was not there when it left the factory; it sublimed out of the food in the weeks in the freezer.