

## Science Activities

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### 1. Raisin' Raisins

#### **You will need:**

Large jam jar, a few raisins, vinegar, bicarbonate of soda

#### **What to do**

- 1 Fill the jar  $\frac{3}{4}$  full with water; add 4 tbsp vinegar and 3 tsp bicarbonate of soda.
- 2 Drop a few raisins in the water. They will sink to the bottom.
- 3 Wait a while and soon they will start to rise and fall.

#### **How does it work?**

The bicarbonate of soda makes bubbles of carbon dioxide. These stick to the surface of the raisin, making it lighter so it rises to the surface. At the top the bubbles burst so the raisin sinks again.

#### **Extra**

This also works with lemonade instead of the water / vinegar / bicarbonate mix. Why not use this as a novelty drink at your next party?!

### 2. Multicoloured Spinner

#### **You will need:**

Thin white card, felt tips, scissors, string, sharp pencil

#### **What to do**

- 1 Draw a circle with a diameter of approximately 10 cm on the card.
- 2 Carefully cut out the circle.
- 3 Divide the circle into several equal-sized sections (so that it looks like pie pieces) using a ruler for straight lines. Colour each pie section with a different colour. Do this on both of your white circles.
- 4 Carefully push the pencil point through the centre of the card
- 5 Spin the pencil - what happens to the colours?

#### **How does it work?**

When the spinner spins really fast you see light reflected from all its colours, but your brain cannot separate them. So you see a mixture of all colours, which is white or grey. The grey colouration is because your colours are not pure.

### 3. Growing Salt Crystals

#### You will need

Table salt (sodium chloride), jam jars, water, pencil, string

#### What to do

- 1 Fill a jar three-quarters full with hot water - not boiling! Take special care not to spill it or scald yourself.
- 2 Stir in the salt slowly, about a teaspoon at a time. Don't rush this step.
- 3 Continue until the salt is no longer dissolving but is starting to collect at the bottom of the jar.
- 4 Tie one end of piece of a string around a pencil.
- 5 Place the pencil over the jar so that the string hangs down and almost touches the bottom of the jar.
- 6 Allow jar to sit somewhere it will be undisturbed.
- 7 Check after about 24 hours and you'll see crystals forming in cubical shapes on the string.
- 8 Leave to stand for several days and see what happens.

#### How does it work?

As the salt solution cools it becomes super-saturated and the salt cannot stay dissolved. Crystals form on the string. The more slowly they form, then the bigger the crystals form.

### 4. Vinegar and sodium bicarbonate volcano

#### You will need

Vinegar, sodium bicarbonate, jam jars, red food colouring, bowl in which to stand the 'volcano'

#### What to do

- 1 Half fill the jar with vinegar and add colouring to give a deep red colour
- 2 Stand the jar in a bowl - this is going to get messy!
- 3 Carefully add the sodium bicarbonate
- 4 Stand back and watch what happens!

#### How does it work?

Vinegar (dilute ethanoic acid) and sodium bicarbonate react together to give lots of carbon dioxide gas. This gas is released as little bubbles, which give the fizzing effect of the volcano.

### 5. Paper Chromatography

#### You will need

Jam jars, water, felt tip pens, filter paper (e.g. blotting paper, or coffee filter paper), tape, pencils

#### What to do

- 1 Cut out a rectangular shaped strip of paper from a coffee filter or from a sheet of absorbent paper.
- 2 Tape one end of the paper to a pencil. The strip of paper just needs to be long enough so that the other end is just above the bottom of an empty glass when supported by the pencil.

- 3 Make a mark with a water soluble coloured pen about 2 cm from the free end of the paper. Let the pen dry and repeat a few times to get a good concentration of colour.
- 4 Fill your glass with about 1 cm of water.
- 5 Carefully place your strip of paper into the glass so that it is vertical and is supported by the pencil which rests on top of the glass.
- 6 It is important that your coloured mark does not go below the water when you put the pencil on top of the glass.
- 7 After a few moments the water will start moving up the strip of paper by capillary action. As the water is moved upward between the paper fibres it will carry the coloured dye from your pen.

#### **How does it work?**

The different colours move upwards at different rates. Some colours are more attracted to the paper than other colours. This separates a mixture of colours into pure colours.

### **6. Lava in a cup**

#### **You will need**

A clear drinking glass, 1/4 cup vegetable oil, table salt, teaspoons, water, food colouring

#### **What to do**

- 1 Fill the glass about 3/4 full of water.
- 2 Add about 5 drops of food colouring
- 3 Slowly pour the vegetable oil into the glass. See how the oil floats on top
- 4 Sprinkle the salt on top of the oil.
- 5 Watch blobs of lava move up and down in your glass!
- 6 Add another teaspoon of salt to keep the effect going.

#### **How does it work?**

First of all, the oil floats on top of the water because it is lighter than the water. Since the salt is heavier than oil, it sinks down into the water and takes some oil with it, but then the salt dissolves and back up goes the oil!

The above experiments are just examples. Get on the internet! There are loads of simple science experiments that can be carried out either at home or at your meeting place, using simple, non-toxic items that can be found in your kitchen.

Science is great fun! There is a scientific explanation for everything that happens - you just have to find it!