Kitchen Sink Science

Ideas for fun science experiments for young children that can be done at home with simple ingredients and equipment.

Melting and Freezing

Place ice cubes in saucers or pots in different locations around the house (e.g. on a radiator, on a sunny windowsill, in the fridge, in the bathroom). See how long it takes for each one to melt.

*Try predicting which ice cube will melt first, or rank them all in order of melting. Afterwards, see if you were right. Talk about freezing and melting as the change in state from liquid to solid and solid to liquid. Freezing and melting are not permanent changes – water will freeze to ice, and when it melts it will be water again.

Get Baking

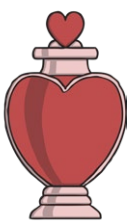
Bake a cake or some biscuits. Talk about how the ingredients change as you mix them and then when they are in the oven. Alternatively, bake bread and watch the action of the yeast in making the dough rise.

*Baking leads to permanent change – the ingredients change during baking and cannot be returned to their original state. Cakes rise either because they contain a raising agent such as baking powder which releases bubbles of carbon dioxide, or because the mixing process beats air in. Bread rises because of the action of yeast, which releases carbon dioxide as it 'feeds' on sugars in the dough.

Magic Colour-Changing

Finely slice half a small red cabbage and boil in water for five minutes or so. Discard the cabbage and put the cooled purple water into a bottle. Place some vinegar in one clear cup or glass and some bicarbonate of soda mixed with water in another. Pour some of your cabbage water in and see what happens!

* Vinegar is an acid, and bicarbonate of soda is an alkali. The cabbage water acts as a pH indicator and changes colour when mixed with an acid or an alkali.



Fizz Inflator

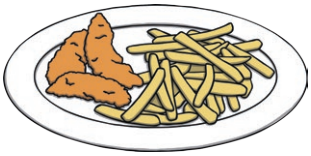
You will need a balloon, a small plastic drinks bottle, some vinegar and bicarbonate of soda. Pour a small amount of vinegar into the bottle (about 50-100ml) and carefully put a heaped teaspoon of bicarbonate of soda into the balloon. Quickly attach the neck of the balloon to the neck of the bottle, allowing the bicarbonate of soda to fall into the bottle. Watch your balloon inflate!

* The bicarbonate of soda reacts with the vinegar to create carbon dioxide gas which inflates the balloon.

Healthy Food

Cut out pictures from magazines and stick them on to a paper plate to make a healthy meal. See if you can make your healthy meal for real.

*A balanced meal contains some protein, carbohydrate, dairy and fruit or vegetables.



Shiny Pennies

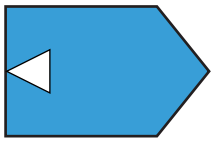
Collect some copper coins, the dirtier the better. Soak them overnight in vinegar, then rinse, dry and give them a polish. You can achieve a similar effect with cola.

* The acidic effect of the vinegar or cola 'eats' away at dirt on the surface of the coins, leaving them shiny. If using cola, have a discussion about what drinking too much of it might do to our teeth!

Soap-Powered Boat

You will need a sheet of polystyrene, a toothpick, some washing-up liquid and a shallow bowl or tray filled with water.

Cut out a small boat shape from the polystyrene. Then, cut out a triangular notch from one end so that it looks like this:



Use a toothpick to smear some washing-up liquid onto the sides of the notch you cut out, then carefully place the boat on the surface of the water and see what happens.

*The soap breaks down the surface tension of the water, which creates enough force to push the boat across the surface. Try using different shaped boats, different materials or cooler/warmer water and see what happens. (You will need to start with a fresh tray of water each time.)

Lava Lamp

You will need an empty two-litre pop bottle, some vegetable oil, food colouring and a fizzy tablet.

Fill the bottle around three-quarters full with water, then add half a cup of oil. Wait while the oil settles on top of the water. Now add a few drops of food colouring and watch as they sink into the water.

Next, pop in a fizzy tablet – and the lava lamp effect will begin! To get an even better effect, shine a torch through the base of the bottle.

*Oil is less dense than water, and so floats on top. When the fizzy tablet hits the water, it begins to release bubbles of gas, which rise up, taking food colouring with them. As these bubbles reach the top, the gas is released and the food colouring sinks back down into the water. You can recreate this over and over again just by adding another fizzy tablet.