

Year 5/6 Home Learning

Below are some experiments you can try at home. Please choose at least 1 of the experiments to complete and then write about what you have found out. You could write up your experiment just like a scientist, or present your findings as a poster. The choice is yours! Please make sure you bring in evidence of your home learning by Monday 10th February.

Mixing solids and liquids

Solids can behave differently when they are added to a liquid.

You will need:

- A large bowl
- A cupful of flour
- A jug of water
- A teaspoon and a fork

Think about what happens when solids mix with liquids. When soil mixes with water it makes mud. If you mix powder paint with water it makes liquid paint. What other changes can liquids make to solids?

How does a liquid change a solid?

1. Pour the flour into the bowl. Can you build the flour into a shape like a cube?
2. Add a few teaspoons of water to the flour and stir it in thoroughly with a fork. What happens to the flour? Can you make a shape with it now?
3. Add more water and keep on mixing. Now what happens?

Can you explain why the flour acts differently at the different stages of your experiment?

Dissolving solids

Some solids mix so well with liquids that it looks as if the solid has disappeared. When this happens, we say that the solid has *dissolved*.

You will need:

- A pencil, ruler and paper
- A jug of water
- Some empty glass tumblers
- Some test materials (e.g. salt, peas, pasta shapes, soil, powder paint, sand, flour, sugar)
- A teaspoon

Think about adding sugar to a drink. If you stir sugar into a hot drink, the sugar dissolves and seems to disappear. The sugar is *soluble*. What other solids are soluble?

Which solids dissolve?

1. Use the pencil and ruler to make a table with three columns on your paper. Head them: 'material', 'guess' and 'result'. Use this to quickly predict whether you think your materials will dissolve or not.
2. Half fill each glass with water. Stir a spoonful of a different test material into each one.
3. What happens to the solid in each glass? In the results column, tick the test materials that did dissolve. How many did you guess correctly?

Can you explain why some of the materials have dissolved and why others haven't?

The logo for 'ART OF SCIENCE' is displayed in a large, bold, pink font. Each letter is filled with a pattern of smaller, pink, circular shapes, giving it a textured, bubbly appearance. The words 'ART OF SCIENCE' are arranged horizontally across the bottom of the page.

Heating and cooling

Solids melt into liquids when they are heated. They *solidify* when they cool down.

You will need:

Greaseproof paper
Baking tray
Pastry cutters
Half a bar of chocolate
A glass jug
Coloured sweets
A helpful adult

Think about how chocolate shapes are made. Can you change the shape of solid chocolate by heating and cooling it?

How can heat change the shape of a solid?

1. Cover the baking tray with greaseproof paper. Put the pastry cutters on the tray with the patterned edge face down.
2. Break the chocolate into squares. Put the pieces into a jug and ask an adult to melt the squares until the chocolate is runny.
3. Pour the chocolate into the pastry cutters so that it is about half a centimetre deep.
4. Put the baking tray in the fridge until the chocolate has nearly set. Then decorate the chocolate shapes with sweets before putting them back into the fridge.
5. When the chocolate has set, gently push out the shapes. What shape is the chocolate now?

Can you explain why you've been able to change the shape of the chocolate?

Changed forever

Some materials can melt and solidify over and over again. This is known as a *reversible change*. Others can only be changed once.

You will need:

An adult to help you
150g soft butter
150g caster sugar
A mixing bowl
A wooden spoon
1 tablespoon milk
1 teaspoon golden syrup
1 teaspoon bicarbonate of soda
150g plain flour
125g rolled porridge oats
A greased baking tray

Think about how solids and liquids change. Butter is a solid at room temperature, melts when it's heated and then cools to a solid again. A raw egg is liquid at room temperature, becomes solid when it is heated, but doesn't become liquid again when it cools. How does heating change some solids forever?

How can heat change the shape of a solid?

1. Heat the oven to 150°C (Gas Mark 2). Mix the butter and sugar in a bowl until creamy and fluffy. Then stir in the milk, syrup and bicarbonate of soda.
2. Mix in the flour and the oats to make a dough.
3. Roll lumps of dough into small balls and put them on the baking tray, spaced well apart.
4. Put the biscuits in the oven for 20-25 minutes or until they're golden brown, then let them cool.

Can you explain why the ingredients that you've combined cannot be separated again?

Useful words:

Dissolving Insoluble Irreversible change Liquids
Melting point Reversible change Solidify Solids
Temperature

Melting
Soluble

