



## Glass - What is glass?

### Fact

- Glass is a material that's usually transparent (see through) or translucent (it lets light pass through it).
- The ingredients for glass are silica (which is found in sand), soda ash (which is soda that has been heated up until it turns to ash), lime (from lime stone) and extreme heat.
- A kiln, which is a special oven, heats up the mixture to 1,800 degrees Celsius to melt all the ingredients together.
- Once the liquid glass is shaped and cooled it goes very hard. But although it seems to be solid it is a lot like a liquid. When glass liquid turns into a solid there are still lots of gaps between the particles so you can see through glass.

### Do you know

- You need 6 times the amount of heat that an oven or microwave can put out to get the right heat to make glass.
- To make coloured glass you add the colour to the ingredients after they've melted.
- Glass was first made about 4000 years ago. One story has it that a Roman merchant was trying to light a fire on a beach which didn't have any rocks so he used some lumps of soda that he had on his ship. When the soda melted with the heat of the fire it melted and mixed with the sand making the first glass!

### Experiments you can do

Make your own edible windowpanes.

#### What you need:

A baking tray

A sheet of pre-rolled flaky pastry

Crushed "Sparkle" lollies

An adult to help you

#### What you do:

Get the adult to help you cut the pastry into strips and place them into the design of a four-pane window on the baking tray. Crush the Sparkle lollies and put the lolly crumbs into the windowpanes. Cook the edible window at the temperature suggested on the packet until the pastry is slightly golden. Get the adult to lift the windowpanes out of the oven for you because the tray will be very hot. Make sure the windowpanes are cold before you eat them. What happened to the sparkles as they heated up?

### Other Investigations

Have a look at the different glass items around your house or your school. How many different colours, patterns and shapes are there? See if you can find out how molten glass gets blown into different shapes.

If you know someone living in an old villa have a look at the glass in the window panes. If it's the original glass (and it's very old) the glass at the bottom will be thicker than the glass at the top. This is a good example of the liquid type movement of glass

### Jokes

What did the glass say when it got broken? What a pane (pain!)