

Make your own Glorious Goo



What will you do?

In this experiment you will be making a glorious goo substance with strange properties. You will explore the effect that **forces** (*pushes and pulls*) have on your goo - behaving as either a **liquid** or **solid**.

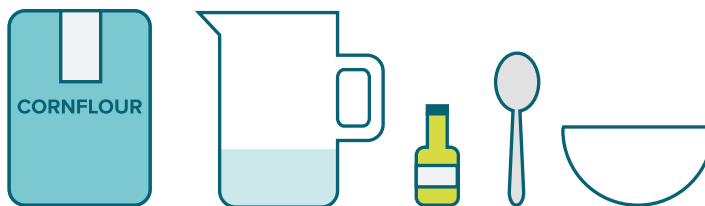
What will you need?

This experiment uses cornflour and food colourings. If used, custard powder may contain traces of milk. Although rare, in some people these foodstuffs may cause an allergic reaction.

Like all experiments, ensure you have permission from an adult and their supervision before starting. This experiment can be messy. So, it is best NOT to do it on the living room carpet!

You will need:

- Cornflour (or custard powder)
- Jug of water
- Food colouring (*optional*)
- Spoon
- Small bowl or container



How to do this experiment

Step 1. Add three heaped spoonfuls of cornflour to your bowl or container.

Step 2. Fill a jug with some cold water from the tap and to this add a few drops of food colouring (optional).

Step 3. Make a well in the middle of the cornflour. Add 20ml of the coloured water. Start to mix in a slow circular motion. You will notice that it will be very clumpy and difficult to stir at this stage. When the water has been mixed in add another 20ml of water and carry on stirring slowly until you have a thick custard-like consistency. If it looks a little too watery just add a little more cornflour.

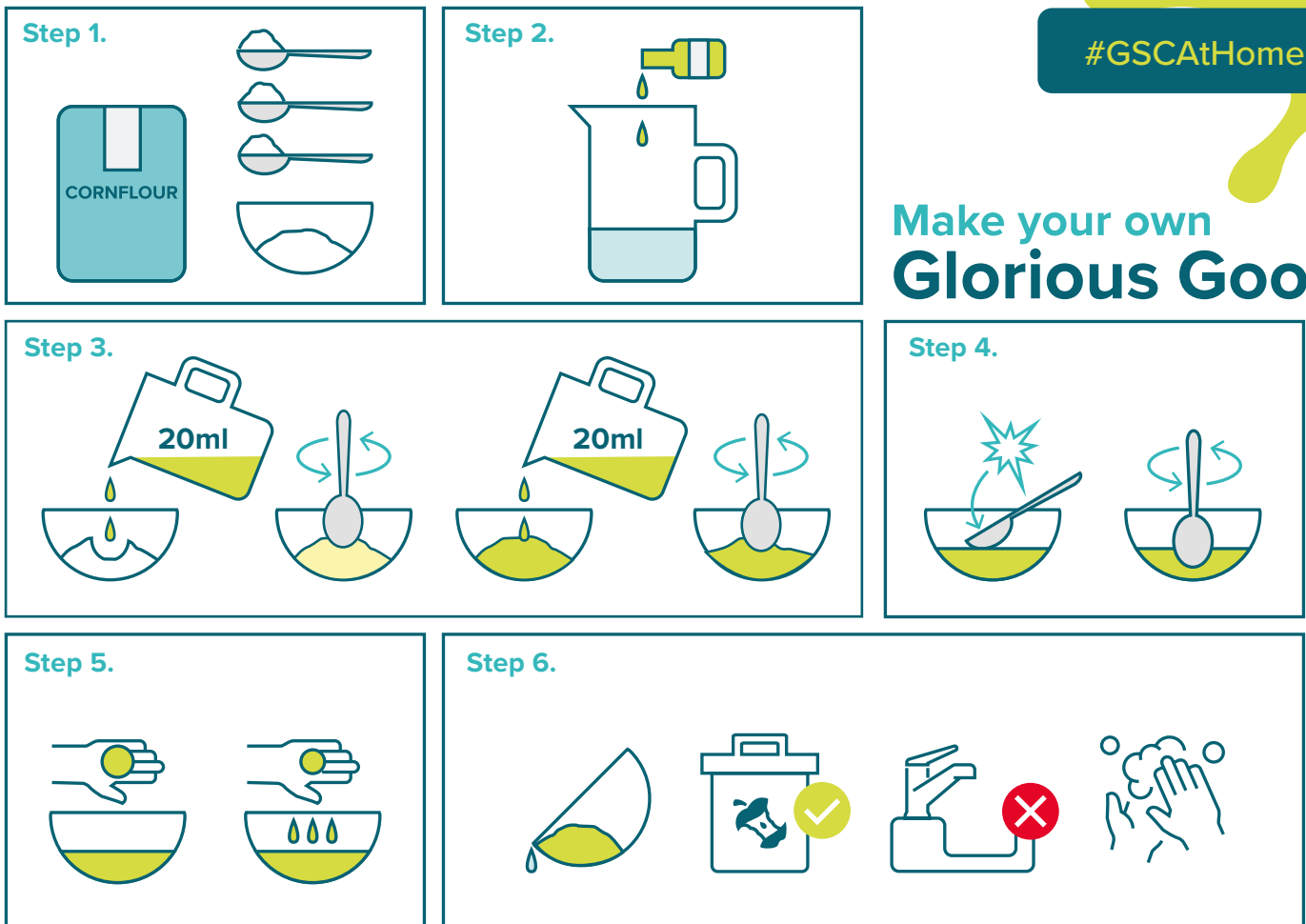
Step 4. Test that your glorious goo is ready by carefully hitting the surface of the goo with a spoon. Watch what happens when you apply different **forces** (*pushes and pulls*) to it.

The goo should resist any heavy pressure and should spring back like rubber. It should also behave like a **liquid** when stirred slowly or is picked up and allowed to drip back into the bowl.

Step 5. Have fun! Try rolling your goo into a ball and see how long you can hold its shape for until returning to liquid form and oozing through your fingers! into the bowl.

Step 6. Don't forget to clean up when you are finished! Drain off any excess water and your glorious goo can be disposed of in a food waste bin. Don't put your goo down the sink as it may cause blockages.

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More to try

Try using different colours of food colouring for your glorious goo.

Experiment with different ratios of cornflour to water to create the ultimate glorious goo. Record your results.

Can you think of any other common substances that have similar properties?

Fun facts

Your glorious goo is a substance known as a “**non-Newtonian fluid**” by scientists.

Substances like this have no fixed shape and can flow; their **viscosity** can change when under **force** to become more **liquid** or **solid**. Viscosity is a measure of the internal **friction** of a **fluid**.

In a non-Newtonian fluid, the particles in the substance are far enough apart that they can flow over one another and behave as a liquid. When enough force is applied though, the particles (which have ‘jaggy’ edges) lock together and have more friction between them so the substance behaves as a solid.

It is also sometimes called “**oobleck**” - given its appearance in a book by Dr Seuss, “Bartholomew and the Oobleck”.

Share your glorious goo experiments with us on social media using #GSCAtHome