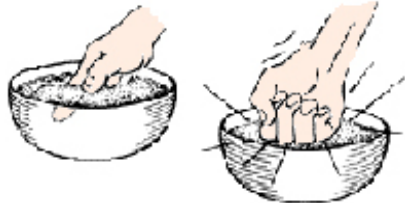


Experiment With Nature

Starch Molecules

What you need:

1 1/2 cups cornflour
1 cup water
Bowl
Heavy spoon
Rubber glove
Scissors



What to do:

Mix the cornflour and water in the bowl. Slowly dip your finger into the goopy mixture; then try slapping it hard with your hand or a heavy spoon. Then try letting some of the goo flow across a piece of rubber sheet cut from a rubber glove. Stretch the rubber slowly, then stretch it fast, and notice what happens each time. Pour some of the mix from a spoon. Can you snip the stream with the scissors?

What happens and why?

The molecules in the starch (the cornflour) are very large compared with the molecules of water, or other ordinary molecules. When you slap the surface quickly, the large and small molecules get tangled in each other, and this stops them splattering. In this way the mixture behaves more like a solid. If you move them slowly, or let them flow, they can run past each other, and so the starch behaves like a liquid. (Custard can also be used for this experiment but splashes may stain!)

Here are some activities you can try at home or at school. Please ask for permission from a grown-up before you begin.

No Sucker

What you need:

A jar, with a lid
A drinking straw
Plasticine



What to do:

Fill the jar with water. Poke a hole in the lid big enough for a straw. Put a straw into the water through the hole in the lid and seal up the space around the straw with plasticine. Now try to suck water through the straw. Be sure there are no leaks.

What happens and why?

When you drink from an open glass of water, air pressure allows the water to travel up the straw. When you reduce the pressure inside your mouth (by sucking on the straw), the surrounding air pressure pushes down on the water and forces the liquid up the straw. But when the air pressure on the water is blocked (when you seal the jar lid), there is no air pressure to help push the water up the straw.

Stacking Liquids

What you need:

1/3 cup golden syrup or treacle
1/3 cup oil
1/3 water
A glass jar
A piece of plastic
A grape
A small cork



What to do:

Pour the golden syrup into the glass jar, followed by the oil, followed by the water. Drop in the piece of plastic, then the grape and then the small cork.

What happens and why?

The liquids have different densities.

The most dense (golden syrup) will be at the bottom, the least dense (oil) will be at the top, with the water in between. Each object will sink to the level of the liquid that has the greater density than the object. The object will then float on that layer.

The water and golden syrup will mix, which is why you add the oil first, so the water just drifts down and sits on top of the syrup. The syrup will slowly diffuse into the water over time, and vice versa.