Cornflour slime

Liquids are everywhere. Can you hit a liquid? Think about how many liquids you have used today and how these liquids flow at different rates.

What you need:

- Container
- 1 cup of cornflour (maize, not wheaten)
- 1/2 cup of water
- Spoon

What to do?

- Pour the cornflour into a container and slowly add water.
- Mix gently. It is hard to mix the cornflour and water.
- Stir the cornflour slime very slowly using the spoon. Then stir it quickly. Which is harder?
- Using two fingers, hit the cornflour slime very quickly. What happens? Now slowly place your fingers into the slime. What is different?
- Pick up a blob of slime and roll it into a ball between your hands. How does it feel? Now stop rolling… How does its behaviour change?
- Try adjusting the amounts of cornflour and water you use and notice the effects.

What's going on?

The cornflour and water mixture is a stir-thickening or shear-thickening liquid. When you mix the cornflour particles with water they can move around each other easily and flow like a liquid.

If you apply a slow force, like stirring the mixture very slowly, the water can still move between the cornflour particles so they can slide around each other. If you apply a sudden force, like stirring or hitting the liquid quickly, the particles "jam" together not allowing the water to lubricate the particles and so the mixture acts like a solid.

Explore more

The cornflour mixture is similar to sand and water. If you run along the beach, it is much easier to run on wet sand than on dry sand. However if you stand still on the wet sand you start to sink.

- Investigate other unusual liquids that behave differently when you apply a force.
- Do some liquids get thinner? Why?