6 week STEM clubs

co-ordinated by merseySTEM

QUICKSAND

Focus: Chemistry

A 'colloid' is made up of tiny, solid particles suspended in water. Some colloids are also 'non-Newtonian fluids'. If a hard or quick force is applied to a non-Newtonian fluid, it will become more viscous and behave as a solid. When a gentle or slow force is applied, it will behave as a liquid. Quicksand is a non-Newtonian fluid. If you ever find yourself sinking in a pool of quicksand, the slower you move, the more chance you'll have of escaping!

AIM *For students to investigate the properties of non-Newtonian liquids.*

Equipment:

- 150cm^3 custard powder or cornflour.
- 250cm^3 plastic beaker or bowl.
- 100cm^3 measuring cylinder.
- 75cm^3 water
- stirring rod (not glass).
- newspaper or bin bags

Instructions:

1. Cover your work area with newspaper or a bin bag.
2. Put the custard powder or cornflour into the bowl.
3. Add a drop or two of food colouring.
4. Add water slowly, mixing the custard powder/cornflour and water with your fingers until all the powder is wet.
5. Keep adding water until the mixture feels like a liquid when you're mixing it slowly.
6. Try tapping on the surface with your finger or a spoon. When the mixture is just right, it won't splash, it will feel solid. If your mixture is too powdery, add a little more water. If it's too wet, add more custard powder or cornflour.

Discuss:

1. Sink your fingers slowly into the mixture then try to pull them out quickly. What happens? Why?
2. Take a blob and roll it between your hands to make a ball, then stop rolling. What happens? Why?
3. Smack your mixture hard with a spoon. Does it splash? Why?
4. Could you walk on it if there was enough available? Why do you think this?

Tweet or email your conclusions or your findings to:

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