HANDS-ON EXPERIMENTS

DENSITY TOWER

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PHYSICS Volcanic Rock

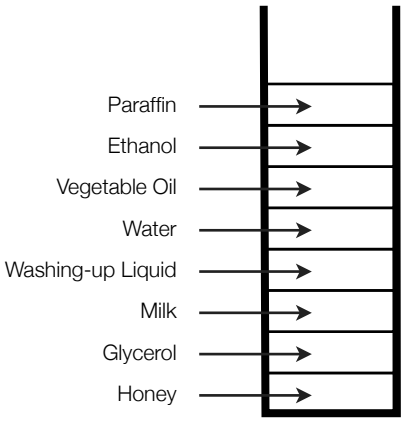
The incredibly hot conditions in a volcano results in rock formation that we don't see anywhere else. Pumice is one of these rocks and is incredibly light due to the air bubbles that are trapped in it as it cools from lava.

Describing density - how heavy or light a set amount of a substance is - can be difficult so in this experiment you'll visualise density changes and then investigate the density of volcanic rock.

Procedure

What you'll need: A cylindrical vase or measuring cylinder - the taller the better, pumice stone broken into small pieces, equal amounts of the following (use enough so that the total nearly fills the cylinder):
Honey (not set honey), glycerol, milk, washing up liquid, water, vegetable oil, ethanol or surgical spirit, paraffin

- Pour each liquid into the cylinder, in order, starting with the honey. You'll need to pour very slowly and always into the middle - don't dribble the liquid down the side of the cylinder.
- Wait a while and the the liquids should form separate layers based on their different densities - the result is a very nice looking effect.



Investigation

- If you drop a small piece of the pumice stone into the cylinder, it should stop at the liquid that matches its density. you can predict this by calculating the densities of the different liquids and the pumice stone - can you design a method to do this?
- Does the size of the pumice stone piece affect which layer it floats in?
- Try some other objects and predict where they will float first - good objects to try are plastic beads, nuts and ball-bearings

Safety Considerations:

- You should wear safety googles when handling ethanol.

VIDEOS FOR THIS RESOURCE AT:

INTRODUCTION:

Clickable Link:
https://youtu.be/pZtaMvyrsHk

CONCLUSION:

Clickable Link:
https://youtu.be/Unkd6bGXrPA

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