Highclare School
#StayHomeSaveLives

Density Rainbow

Equipment (Get this ready before you start)

4 tall, clear glasses or jam jars
Hot water and a measuring jug
Sugar – enough for 12 tablespoons (this is around 180g)
A pipette if you have one, otherwise a drinking straw, and a table spoon
Food colouring – preferably 4 colours, but you could alternate 2

Method (What you need to do)

1. Place the four glasses in a line and number them 1-4
2. Add sugar to the glasses as shown in the table below:

Glass Number	Amount of sugar (1tbsp = 15g)
1	0
2	2 tablespoons
3	4 table spoons
4	6 table spoons

3. Add 3 drops of food colouring to each glass, use a different colour for each glass if possible. If you don't have 4 different colours you could leave one clear, or try mixing the ones you have to make different shades.
4. Use a measuring jug to add 60ml of hot water (this does NOT need to be boiling) and stir each glass until sugar has dissolved. (You could also add 4 tablespoons as each one is 15ml)
5. Use a pipette (or straw method as demonstrated in video) to collect liquid from **glass 3**.
6. Carefully place the tablespoon upside down inside **glass 4** so that the tip of the spoon is just above the liquid and touching the side of the glass.
7. Gently squeeze the liquid from glass 3 over the top of the spoon. Continue this process until you have a visible layer.

8. Repeat this layering process with **glass 2** next, and then finally with **glass 1**.

Spectacular Science!

DENSITY is a measure of how much mass (how many particles) there are in a given **volume**. You put the same amount of water in each glass and then added different amounts of sugar. When all the sugar dissolved in to the water, they increase the amount of mass in that volume of water, which means you have increased the density. So, the more sugar you put in the water, the more dense it is. The rainbow effect is achieved because the less dense liquids float on top of the more dense ones.

If you want to investigate further you could see what happens if you mix it! What else could you use instead of sugar? Could you do it with cold water instead of hot? Does it work as well? Have fun!