STEM ACTIVITY: SWEET DENSITY RAINBOW
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Equipment
- 500ml water
- 1 teaspoon measuring spoon (15g)
- 4 glasses or jars
- 60g sugar (caster sugar works best)
- Red, yellow, green & blue food colourings, liquid or gel
- 1 Tall glass (e.g. pint glass, jar)
- Straw (roll an A4 sheet of paper, quite tight, may need a few!)
- 4 popsicles stick or spoons, for stirring
- Optional, warm water from tap / kettle

Instructions:
1) Measure 125ml of tap water into the 4 glasses/jars, then add 4-6 drops of food colouring to each of the 4 glasses.
2) Add the sugar to the glasses in this way:
   - To the glass of blue, add 6 teaspoons of sugar.
   - To the glass of green, add 4 teaspoons of sugar.
   - To the glass of yellow, add 2 teaspoons of sugar.
   - To the glass of red, leave as just water.

*You can reverse the rainbow by adding 6 teaspoons of sugar to the red water, 4 to the yellow, 2 to the green and none to the blue water.
Instructions:

3) Stir each glass until the sugar dissolves, giving you a coloured sugar and water solution – compare the water levels, do you notice any differences? Why is this?
4) Pour the blue water into the bottom of your tall glass.
5) Use your straw to gently move the green water on top of the blue water.
   • Do this by putting the straw into the green water, put your thumb on top. **DO NOT LET GO!**
   • Move to the tall glass, place the straw to the side just above the blue layer and slowly release your thumb from the straw, adding the green water.
   • You want to add the layers to the glass very slowly otherwise it’ll mix muddling the layers too much! It took me about 10 minutes to finish.
   • To make the blue water denser, put it in the fridge for 30 minutes – colder water is more dense. To make the red water less dense, make this with warm water.
6) Add the yellow layer next using the same method and, finally, add the last red layer.

*Stand back and admire your beautiful rainbow.*
*Putting it in a window really shows off the array of colours.*