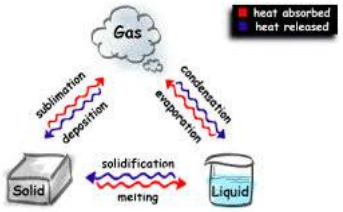
Year Groups: Years 5 and 6 (KS2) **Date:** Monday 20th April 2020

Subject: Science – Properties & Changes of Materials

LO: I understand that some materials will dissolve in liquid to form a solution



Prior learning: What are the characteristics of solids, liquids and gases?

Key Facts:

- Heating and cooling materials can bring about changes in state. If the change is just physical then it can be reversed. However, the change could be chemical and is likely to be permanent.
- A mixture is formed when two or more materials have been mixed and are physically not chemically combined, and can be separated by physical means (sieving, filtering, evaporation, etc).
- When materials dissolve they form a solution. The solid material is called the solute and the liquid is called the solvent.

Pre-Learning Activity:

Complete the pre-learning task on **Purple Mash – 2do – Solids, Liquids and Gases.**

Activity 1: What affects how well sugar dissolves?

Introduce the children to dissolving. To ensure that children do not think that sugar disappears in water, allow them to mix sugar in a clean cup of water. Even though they can no longer see the sugar, they should be able to taste it.

Activity 2: What are the best conditions for dissolving sugar in the fastest time?

Create the context for an investigation- 'Teachers moaning in the staffroom that their sugar takes too long to dissolve!' What is the best temperature for dissolving sugar? Firstly, discuss the table below and use this to support.

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Show the children the table of results. You could reveal each column of results one at a time. Each time, ask the children to explain what the results are showing. Do their explanations change as more data is revealed? Can they spot any dodgy data?

How does the temperature of the water affect the time it takes for the sugar cube to dissolve?

Temperature of water (degrees Celsius)	1st try Time to dissolve (seconds)	1st try Time to dissolve (seconds)	1st try Time to dissolve (seconds)	1st try Time to dissolve (seconds)	Average time to dissolve (seconds)
15	30	31	20	31	
25	27	29	29	28	
35	24	27	25	25	
45	21	27	23	24	

Activity 3: Investigation (parental guidance required!)

Children investigate the time it takes for a set amount of sugar (1 teaspoon/ 2 teaspoons etc...) to dissolve in a set amount of water of different temperatures, using a thermometer (see above - doesn't have to be the same temperatures as 15/ 25/ 35/ 45 degrees Celsius). If you don't have a thermometer, use the following as suggested guidance:

- Recently boiled water in a mug (0 mins cooling time)
- Boiled water that has been left to cool for 10 mins
- Boiled water that has been left to cool for 15 mins
- Boiled water that has been left to cool for 20 mins, etc...

Collect results of different times needed to fully dissolve the sugar at different temperatures.

Activity 4: Repeat Investigation (parental guidance required!)

Repeat Activity 3, either once, twice or even three times.

Activity 5: Record

Children record their investigation using **Purple Mash - 2do - Fair Test.**

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