Granny’s Cup of Tea

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| **Topic:** Dissolving |  |
| **Curricular Link(s):**  Properties and changes of materials   * Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution   Working Scientifically   * Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary * Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat reading when appropriate. | **Learning Objective(s):**  ALL – To know that some materials will dissolve in liquid.  MOST – To know that there are number of factors which affect dissolving.  SOME – To understand that dissolving is a reversible change. |
| **Risk Assessment:**  Hot water could cause scalding – use tap water, and water below 60°C. | **Essential Question(s):**  What things do you think will affect how quickly sugar will dissolve in a cup of tea?  Does it matter what type of sugar George chooses from the kitchen cupboard? |
| **Equipment Required:**   * Sugar: granulated, icing, caster, cubes * Stopwatches * Medium beakers * Plastic spoons * Mass balances * 250ml measuring cylinders * Weighing boats * Sugar paper and pens * Thermometers (if required) | **Resources Needed:**   * Granny’s Cup of Tea powerpoint * Granny’s Cup of Tea investigation worksheet for predictions, observations, and diagram |
| **Lesson Procedure:**   * Introduce relevant book extract using powerpoint   “’How much sugar in your tea today, Grandma?’ George asked her.  ‘One spoon,’ she said. ‘And no milk.’”   * Say: Granny does not like to be kept waiting – how can George make sure the sugar dissolves quickly? * Elicit discussion on how to speed up the rate of dissolving using concept cartoon (slide 4) * Say: George finds 4 different types of sugar in the cupboard. Can we help George find out which sugar from the cupboard he should use?   GROUP WORK   * Provide groups of students with sugar paper to plan the investigation * Encourage students to look at the equipment around the classroom and/or on equipment slide (slide 7) to help them   INDIVIDUAL WORK   * Students make predictions on worksheet   GROUP WORK   * Introduce practical   + Use at least 200ml of warm water to dissolve each type of sugar   + Sugar can be weighed and water temperature measures as control variables   + Students time how long it takes to dissolve each type of sugar OR number of stirs it takes to dissolve each type of sugar   + Students should record their observations on their worksheets   INDIVIDUAL WORK   * Students write a conclusion to George’s dilemma using worksheet * Students could draw a diagram to represent their observations * Conclude lesson with relevant book extract   “George went into the kitchen and made Grandma a cup of tea with a teabag. He put one spoon of sugar in it and no milk. He stirred the sugar well and carried the cup into the living room.  Grandma sipped the tea. ‘It’s not sweet enough,’ she said. ‘Put more sugar in.’”   * (Challenge) Say: George accidentally put two more spoons of sugar in Granny’s tea! How might George be able to remove it? | |