**Y6 to Y7 transition Project: Teacher Notes**

**Project:**

This project involves students investigating the rate of dissolving can be affected by various factors. In year 6, students will investigate how the size of the solid affects the rate before then deepening their understanding of dissolving in year 7 by looking at temperature, mass and various solvents as factors that can affect this process. At KS3 students will also begin to determine if there is a point at which no more solid can be dissolved (saturation). Through self and teacher assessment, students will be able to monitor their progress and understanding while developing experiment skills between the KS2 and KS3 curriculum.

It has been documented in literature (Braund, M. 2008) that Transition Projects can allow students to build on their early successes in primary school and demonstrate their understanding in the context of work they completed in year 6. It can also ensure teachers are better informed about student’s strengths and weaknesses and can use the transition lessons to confirm the assessments from primary school and allow teachers to meet the needs of the new students. Transition projects have also been seen to give greater continuity and progression with less repetition of work (DfES, 2002a: 3).

**Purpose:**

The purpose of this project is to further student’s scientific investigative skills while preparing them for science lessons in secondary schools. It will also provide secondary school teachers with assessment data relating to student scientific skills and understanding. The concepts taught in this investigation will be further developed at the start of the year 7 curriculum to deepen understanding of key concepts and provide a foundation to help support students in their KS3 science curriculum.

**Prior knowledge:**

The investigation chosen for this transition project involves investigating the process of dissolving. For this project it is assumed students are already familiar with the concept that some materials mix and combine with water being known as dissolving. They should also be aware that some materials dissolve in water, while others do not.

**Skills:**

In terms of the skills students will focus on scientific terminology, making and recording observations, and ensuring a fair test is carried out before concluding and evaluating the investigation. There is an opportunity to draw graphs using their results but this may be dependent on time available. They will then develop this further by evaluating their investigations and suggesting how it can be improved and extended.

**Resources:**

Included in the transition project pack are the following resources:

* Teachers Notes
* Year 6 Lesson Slides (Both Smartboard and Powerpoint versions)
* Year 6 Student Worksheet (Powerpoint and PDF versions)
* Year 6 Self and Teacher Assessment Sheet
* Year 6 Extension Lesson linking dissolving to making jelly
* Year 7 Lesson Slides (Both Smartboard and Powerpoint versions)
* Year 7 Student Worksheet
* Year 7 Self and teacher Assessment Sheet

**Investigation Equipment:**

* Printouts of worksheets
* Each group will need
  + Magnifying glass
  + Beaker
  + stopwatch
  + stirrer
  + teaspoon
  + 1 sugar cube (x3)
  + 1tsp of icing sugar (x3)
  + 1tsp of caster sugar (x3)
  + 1tsp of granulated sugar (x3)
  + Water (warm works better as dissolving is faster but tap water would also work)
  + Measuring jug (measuring cylinder)

**Investigation Method:**

1. Collect all equipment needed
2. Measure out 50cm3 (50mL) water using measuring jug (measuring cylinder) and add to beaker
3. Add a sugar cube and one person to start stirring while the second person starts the stopwatch
4. Once all the sugar cube has dissolved stop the stopwatch and record the time in the table
5. Repeat steps 2 to 4 twice more to be able to get an average reading
6. Repeat steps 2 to 5 with the other types of sugar.
7. Once all the data has been collected, calculate the average time for each type of sugar and record this in your table.

**Assessment of Student Work:**

Students will carry out self assessment of their work and skills, before teachers will complete their own assessment. Students will grade themselves on a scale of 1-4 based on how much support tyhey feel they need for each success criteria. 1 being they need help with this most of the time, 4 being they do not need help at all. This will be passed to secondary school science teachers to allow them to see the skills students have developed and their ability.

**Development in Year 7:**

In year 7, using particle diagrams to represent dissolving will be further investigated. Students will discuss and reason how different variables affect the rate of dissolving. This will lead into students looking at whether there is a point where no more solid can be added to a solution (saturation). Further explanations as to why a solvent can only dissolve a set amount of solid will be devised and particle diagrams used to prove this.