

## Sugar Solutions

**Approach:** One to one

**Level:** Year 4 and year 8

**Focus:** Investigate solubility rate of different forms of sugar, using a fair test, and explain results.

**Resources:** Timer, packet of raw sugar, packet of coffee sugar, 2 100ml beakers, 2 stirrers, water in a jug.

### Questions/instructions:

**Set out equipment on table so that it is visible to student.**

In this activity you are going to do an experiment to find out which type of sugar dissolves faster. You should try to make your experiment so that it is a fair test.



1. What do you think we mean in science by a "fair test"?

% responses  
y4 y8

you keep all features the same except the variable you are trying to find out about  
7 28

on the right track, but vague 37 55

Let's begin. Here are packets of two different types of sugar. Carefully tip one packet of sugar into each beaker. Don't add the water yet. Each packet has the same amount of sugar.

2. What can you tell me about the sugars. How are they different? not marked

3. Which of these two sugars do you think will dissolve faster?

raw sugar 82 81

Why do you say that?

smaller crystals dissolve faster 78 78

You need to do an experiment to find out which sugar will dissolve faster. These are the things that you will need for your experiment.

% responses  
y4 y8

### Point to equipment.

Remember that your experiment needs to be a fair test.

4. First of all tell me how you plan to do your experiment so that it is a fair test.

What would you do first?

What would you do next?

### Experiment plan:

use same amount of water 49 69

start timing as soon as water added (both beakers) 34 55

stir both beakers similarly (schedule & method) 32 51

carefully observe and time until last crystals dissolve 31 47

You can do your experiment now. The results sheet is for you to record how long it took for each type of sugar to dissolve.

**Open recording book to results sheet and give it and pen to student, then allow time.**

5. What did your experiment show? Which sugar dissolved faster?

raw sugar 85 90

6. Why do you think this happened?

Why did sugar dissolve faster than the other sugar?

not marked

7. If you were to do this experiment again, is there anything that you would do to make it a better fair test?

not marked

### Commentary:

Year 4 and year 8 students were equally capable at predicting the result of the experiment and the associate reasons, but year 8 students were better at understanding and designing a fair test.