

Worksheet answers

1. How did you know when no more sugar was dissolving?

The solution is continuously stirred but particles of sugar remain in suspension. When stirring stops these particles fall to the bottom of the beaker.

2. What did you notice about mass of the water compared with mass of the solution?

Mass of the solution was greater than that of the water.

3. Explain what happened to the sugar as it dissolved?

Sugar particles are broken down by water into smaller particles that cannot be seen with the naked eye.

4. There is a small amount of undissolved solute in your solution. Explain what you need to do to find out the correct mass of sugar that has dissolved in the solution.

Weigh a piece of filter paper, then filter the solution, leave the filter paper to dry with the undissolved sugar then weigh. Subtract weight of plain filter paper from weight of filter paper with undissolved sugar on the paper.

5. Complete this table for some common solutions, then add some of your own.

SOLUTION	SOLVENT	SOLUTE
coffee	hot water	coffee powder
sea	water	salt
bubble blower solution	water	detergent
cordial	water	syrup

6. Describe some ways that sugar can be taken out of solution.

Sugar can be extracted from solution by evaporating the water. To get water out of solution it can be distilled.

7. List some cleaning solvents that are commonly found in the home.

methylated spirits, turpentine, propanone (acetone)

8. Do you think more or less sugar can be dissolved in hot water compared with cold water? Explain your reasons for this prediction.

More sugar can be dissolved in hot water than cold water because at a higher temperature, the water molecules collide more with sugar particles, this leads to more successful collisions.

9. Did more sugar dissolve in hot or cold water? Use the particle model to explain why this is the case.

More sugar dissolved in hot water than cold.

The solubility of sugar in water increases with temperature. This is because water particles are moving at greater speed and collide with sugar particles more often, resulting in more successful collisions.

10. Describe what happened as the beaker of solution cooled.

As the beaker cools, the sugar starts to crystallise slowly out of solution.

11. Describe what you see after a few days.

The string dangling into the water has clumps of sugar crystals attached to it.

12. Explain what you think has happened.

As the solvent evaporates, some sugar that was dissolved has come out of solution forming crystals.

13. What did you notice about the temperature change of the flask as crystallisation occurred? What do you think is happening?

The flask got hotter as crystallisation occurred.

14. Describe what crystallisation looked like.

The flask contents turn from clear liquid to solid white crystals, spreading out quickly from the centre of the flask where crystals were dropped.