

Y3&4 – Lesson Plan 1

Which solids dissolve in water?

Aim: To be able to explain which solids can easily be dissolved in water. To be able to explain why water at different temperatures can dissolve more / less solid material.	Key Words: - solids - liquids - dissolve - particles - solution	Preparation: - water (hot) - water (cold) - transparent containers - substances to dissolve (e.g. sand, sugar, salt, coffee)
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Prior Learning: children will have already learnt that some solids can dissolve in water.

WC / PT	<u>Warm-up:</u> What does the word 'dissolve' mean? Can you think of any real-world examples where solids dissolve in water? Children may consider how their parents make coffee in the morning or how salt is dissolved in the sea.	0-5 mins
WC / PT	<u>Main Teach:</u> Some solids will dissolve in liquids. Model to the children how salt can dissolve in water to form a new solution. What solid materials could we use in our experiment? Make a list of possible solids together. Collect the solid items together and draw a chart for recording results.	10-15 mins
I / S	<u>Activity:</u> - Add a teaspoon of whichever solid you are testing to a glass of cold water and a glass of hot water, stir and observe the difference. - Look to see if the solid dissolves in the hot water and cold water and if one is better than the other. - Can you design a chart to record your observation?	30-40 mins
I	<u>Extension Challenge:</u> Things like salt, sugar and coffee dissolve in water. They are soluble. They usually dissolve faster and better in hot water. Pepper and sand are insoluble, they will not dissolve even in hot water.	0-15 mins
WC	<u>Plenary:</u> Discuss the science behind the experiment. Why do some solids dissolve and how / why does temperature affect the rate (and amount) of solid that dissolve? <i>Everything is made of particles which are always moving. When a soluble solid (solute) is mixed with the right liquid (solvent), it forms a solution. This process is called dissolving. Two things that affect the speed at which the solid dissolves are temperature and the size of the grains of the solid. Caster sugar, which is made of fine particles will dissolve quickly, but bigger sugar particles will take longer. Solids dissolve faster in hot water as in hot water the water molecules are moving faster, so bump into the solid more often which increases the rate of reaction.</i>	5 mins

WC – Whole Class

PT – Partner Talk

I – Independent

S – Support

Challenge A	Construct a pair of glasses designed to fit the wearer safely and securely.
Challenge B	Create a catapult which can be used to fire a chosen projectile without the operator either touching the object or propelling it forward with their own power.