Knowledge Organiser: Year 5 - **Changes of Materials**

Careers connected to changes of materials: laboratory technicians, technical associates, research analysts, chemistry teachers.

Lesson Sequence

1. Use evaporation to recover the solute from a solution

2. Recognise and describe reversible changes

3. Observe chemical reactions and describe how we know new materials are made

4. Investigate rusting reactions

5. Investigate burning reactions

6. Investigate chemical reactions - acids and bicarbonate of soda

Evaporation

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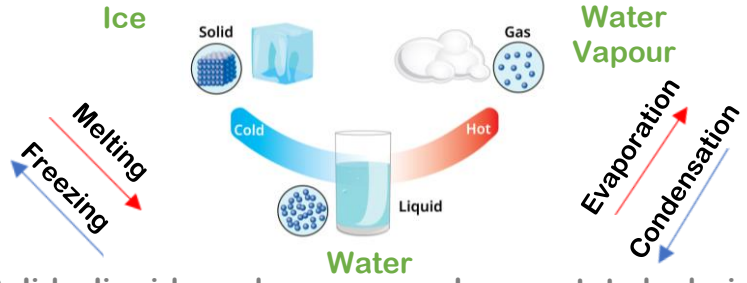
If a solid has **dissolved** in water (for example in a salt solution), **heating** it causes the water to **EVAPORATE**, leaving the solid (salt) behind.

Changes of State



Solids, liquids and gases can change state by being **heated** or **cooled**.

Irreversible Changes




These are **CHEMICAL** changes – they **cannot** be reversed as a new material has been made.

Reversible Changes

liquid chocolate
– cool –
solid cholate

solid lolly
– heat –
liquid lolly

mixture of rice and flour
– sieve –
both separated

dissolved sugar
– evaporation (heat) –
solid sugar

These are **PHYSICAL** changes – they **can** be reversed as no permanent change has been made.

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Before & After Test

Tick all the **reversible** changes.

Frying an egg.		Water turning into water vapour.	
Burning paper.		A nail rusting.	
Melting chocolate.		A snowman melting.	
Mixing bicarbonate of soda and vinegar.		Mixing vinegar and milk.	

Fill in the missing labels using the following words:

evaporation **condensation** **freezing** **melting**

Draw a line from the picture to the correct process to **reverse** it.

Melted chocolate	Sieving
raspberry frozen in water	Cooling
Rice mixed with salt	Heating
Sand mixed with water	Filtering

A lost explorer collects some water from the sea. It contains dissolved salt.

1. What is the name of the process he would use to separate the salt from the water?
2. Explain how he could do this.

Unit Rocket Words: Year 5 – changes of materials

Rocket Words

	solute	a substance that can be dissolved in liquid
	solvent	a substance that can dissolve in a solute
	reversible	a change to a substance that can be undone or reversed
	evaporate	the process where a liquid changes to a gas
	chemical change	a type of change in which a new substance is formed
	effervescence	fizzing or bubbling
	fair test	an experiment that only changes one variable
	corrosion	the reaction of a metal with oxygen
	combustion	an irreversible change where a fuel uses oxygen to burn and releases energy
	extinguish	to put out a fire
	reaction	process in which substances are converted into different substances
	carbon dioxide	gas which makes up around 0.04% of our atmosphere