Year 4/5 Science: Changing Materials

Morda CE Primary School

Key Learning

Dissolving occurs when the particles of certain solids mix with the particles of certain liquids.

When a material dissolves, it looks like it disappears. But it has actually just dissolved in the liquid to make a transparent solution.

A solution is formed when a solid dissolves in a liquid.

Not all solids will dissolve, and not all liquids will allow solids to dissolve.

Dissolving doesn't need heat to occur.

Melting involves only a solid.
In melting, the solid changes into a liquid that is the same material.

Melting needs heat to occur.

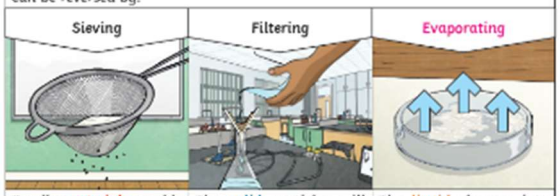
Melting, freezing, evaporating, condensing and dissolving are examples of reversible physical changes.

Reactants are the materials that you start off with, before an irreversible chemical change happens.
Products are the materials that are formed in the chemical change.

Reversible and irreversible

Key Knowledge

Reversible changes, such as mixing and dissolving solids and liquids together, can be reversed by:



Sieving	Filtering	Evaporating
Smaller materials are able to fall through the holes in the sieve, separating them from larger particles.	The solid particles will get caught in the filter paper but the liquid will be able to get through.	The liquid changes into a gas, leaving the solid particles behind.

Irreversible changes often result in a new product being made from the old materials (reactants). For example, burning wood produces ash. Mixing vinegar and milk produces casein plastic.

Key Scientific Vocabulary

Key Vocabulary	
conductor	A conductor is a material that heat or electricity can easily travel through. Most metals are both thermal conductors (they conduct heat) and electrical conductors (they conduct electricity).
insulator	An insulator is a material that does not let heat or electricity travel through them. Wood and plastic are both thermal and electrical insulators.
transparency	A transparent object lets light through so the object can be looked through, for example glass or some plastics.

melting	The process of heating a solid until it changes into a liquid.
freezing	When a liquid cools and turns into a solid.
evaporating	When a liquid turns into a gas or vapour.
condensing	When a gas, such as water vapour, cools and turns into a liquid.

Investigation Questions

What is a reversible change?

What is an irreversible change?

Which substances are soluble?

How does temperature affect dissolving?

Common Misconceptions

Solid is another word for hard or opaque.

Solids are hard and cannot break or change shape easily and are often in one piece.

Substances made of very small particles like sugar or sand cannot be solids.

Melting, as a change of state, is the same as dissolving.

Solids dissolved in liquids have vanished and so you cannot get them back.