



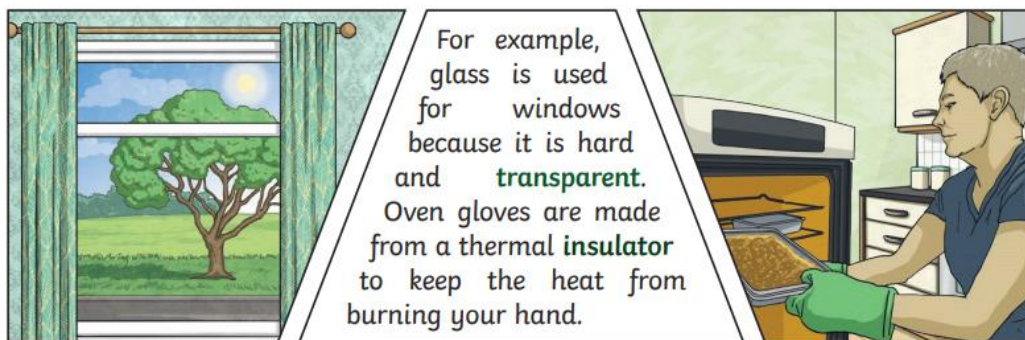
Year 5 – Properties and Changes of Materials

Element 1 – Closed Test on Properties and Changes of Materials

Why do we have different materials?

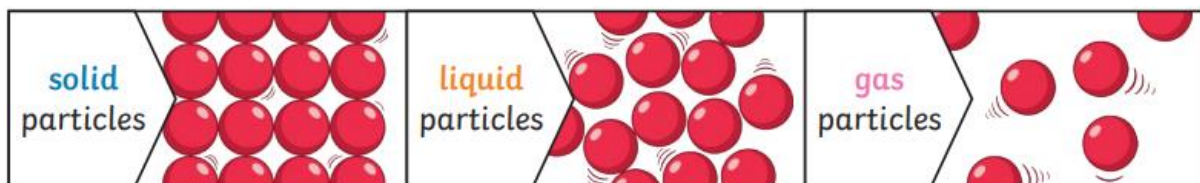
Different materials are used for particular jobs based on their properties: electrical conductivity, flexibility, hardness, insulators, magnetism, solubility, thermal conductivity and transparency. How many of these do you know? **(Look at the Key Vocabulary further down to help if you need it).**

Example:

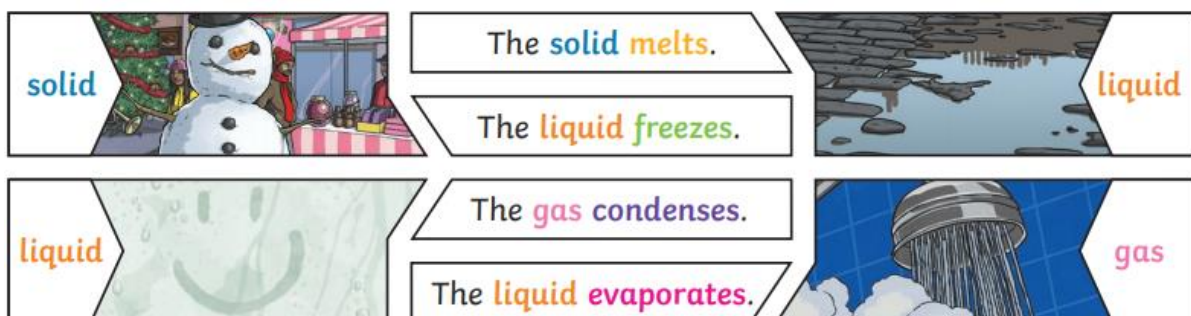


Changes of State

There are three different states of matter: Solid, Liquid and Gas. Particles in a solid are very close together and have no room to move, liquid particles have a bit of room and can move around more and gas particles are not close together and have lots of room to move around.



When certain changes are applied to the different states of matter, they change into a different one e.g.





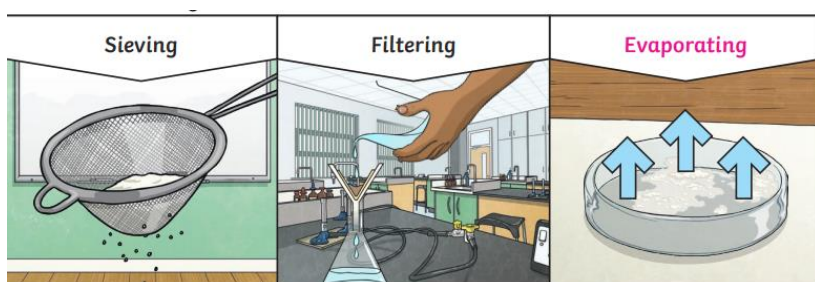
Reversible and Irreversible Changes

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

Sieving: Smaller materials are able to fall through the holes in the sieve, separating them from larger particles.

Filtering: The solid particles will get caught in the filter paper, but the liquid will be able to get through.

Evaporating: 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 Vocabulary:



Key Vocabulary

materials	The substance that something is made out of, e.g. wood, plastic, metal.
solids	One of the three states of matter. Solid particles are very close together, meaning solids , such as wood and glass, hold their shape.
liquids	This state of matter can flow and take the shape of the container because the particles are more loosely packed than solids and can move around each other. Examples of liquids include water and milk.
gases	One of the three states of matter. Gas particles are further apart than solid or liquid particles and they are free to move around. A gas fills its container, taking both the shape and the volume of the container. Examples of gases are oxygen and helium.
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 .

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.



Element 1 – Closed Test

- 1) Name three different properties of materials.
- 2) Which state of matter particles have no room to move around?
- 3) How does a liquid turn into a gas – does it a) melt b) condense or c) evaporate?
- 4) Name the three different ways a change can be reversed?
- 5) What does 'condensing' mean?

Element 2

As mentioned above, dissolving is a change that can happen with solids in liquids – can you find any examples of solids that can dissolve in a liquid?

With adult supervision, see if you can carry out some examples of dissolving at home and record your findings.

Extra (For Fun): Baking a cake or making biscuits is an example of irreversible changes – with adult supervision – have a go at making a sweet treat and see if you can write down which changes were irreversible.