

Properties and changing materials

What I should already know

The physical properties of a variety of everyday materials and to explain why a certain material was used to make the item. Know the difference between a solid, liquid and gas and know which metals are magnetic.

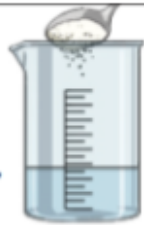
Dissolving

A solution is made when **solid** particles are mixed with **liquid** particles.

Materials that will dissolve are known as soluble.

Materials that won't dissolve are known as insoluble. A suspension is when the particles don't dissolve.

Sugar is a soluble **material**.



Sand is an insoluble **material**.



Key Vocabulary

Materials	The substance that something is made out of for example wood, plastic and metal.
Insulator	A material that does not let heat or electricity travel through them.
Transparency	A transparent object lets light through so the object can be looked through for example glass.
Solubility	Ability for a substance to be dissolved, especially in water.
Solution	When a substance is mixed with water and transparent(see -through)liquid is called a solution
Conductivity	The degree to which a specified material conducts electricity, calculated as the ratio of the current density in the material to the electric field which causes the flow of current.
Reversible change	In a reversible change a material turn into something that looks and feels different, but it is not changed forever. It can change back to its original state.
Dissolve	Some substances dissolve when you mix them with water. It might look like it disappeared
Insoluble	Incapable of being dissolved.

Key facts.

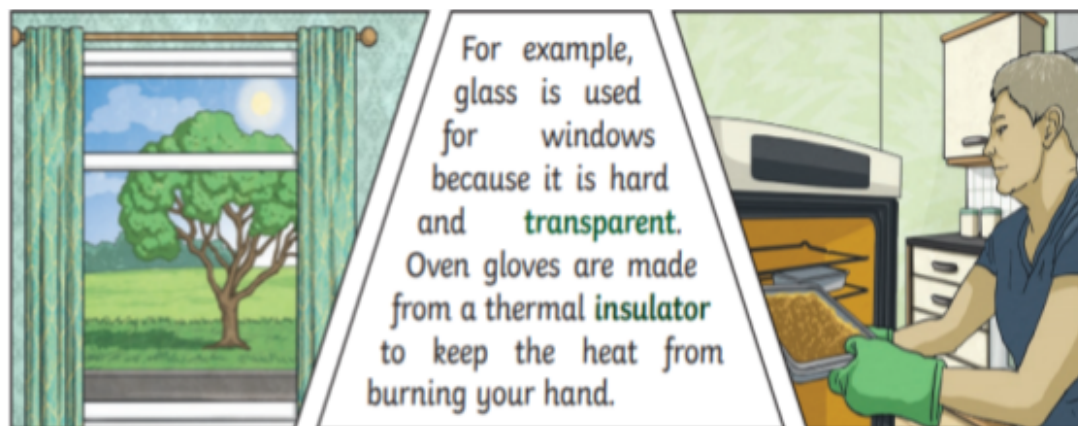
Different materials are used for particular jobs based on their properties electrical conductivity, flexibility, hardness, insulators, magnetism, solubility, thermal, conductivity and transparency.

Burning is an **irreversible chemical change**. When you burn wood, the carbon in the wood reacts with oxygen in the air to create ash and smoke, and energy in the form of light and heat.

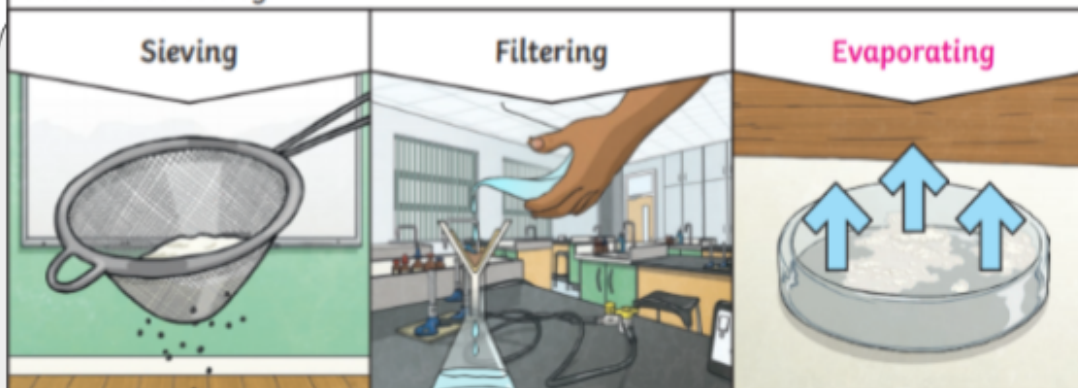
Rust happens when iron, water and oxygen mix together. This process is called oxidation. Rust is a **chemical reaction** because it makes a new substance called iron oxide.

Not all metals are **magnetic**. Any metal with iron in it will be attracted to a magnet but most other metals, like aluminium, copper and gold are not magnetic.

Scientists use chemical reactions to create new, useful materials. One example is Aerogel, a super light **insulating** material that can be used to line winter coats.



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



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.