

PROPERTIES AND CHANGES OF MATERIALS

Knowledge Organiser



Year 5 Properties and Changes of Materials
Science Strand: Chemistry

Key Vocabulary

conductor (thermal or electrical)	Allows heat/electricity to pass through
dissolve	A solid that completely mixes in with a liquid and cannot be seen
insoluble	Solids that do not dissolve in a liquid
insulator (thermal or electrical)	Does not allow heat/electricity to pass through
non-reversible change	Changes that can not be reversed back to their original state
reversible change	Changes that can be switched back and are not permanent
soluble	Solids and gases that dissolve in liquids

What will I know about properties and changes of materials by the end of this topic?

- Compare and group together everyday materials on the basis of their properties.
- Know that some materials will dissolve in liquid to form a solution and be able to describe how to recover a substance from a solution.
- Use existing knowledge of solids, liquids and gases to decide how mixtures might be separated.
- Demonstrate that dissolving, mixing and changes of state are reversible change
- Provide evidence based reasons (from comparative and fair tests) for the particular use of everyday materials including plastic and wood.
- Explain that some changes result in the formation of new materials which are usually not reversible (changes associated with burning and the action of acid on bicarbonate of soda).

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

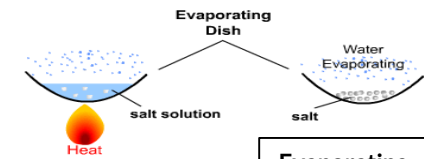


For example, glass is used for windows because it is hard and transparent.

Oven gloves are made from a thermal insulator to keep the heat from burning your hand.

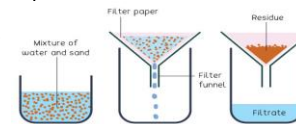


Separating Materials



Evaporating
The liquid changes into a gas, leaving the solid particles behind.

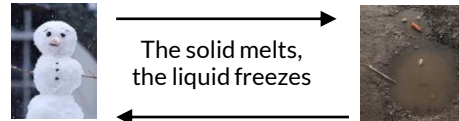
Filtering
The solid particles will get caught in the filter paper but the liquid will be able to get through.



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



Changes of State

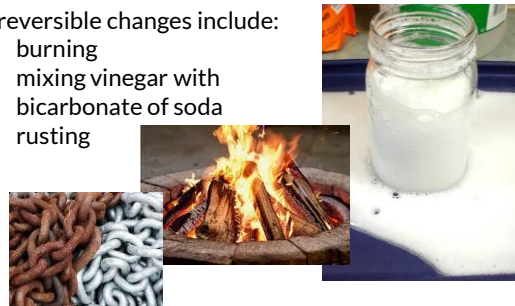


Irreversible Changes

Irreversible changes often result in a new product being made from the materials.

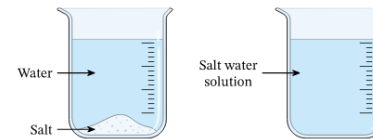
Irreversible changes include:

- burning
- mixing vinegar with bicarbonate of soda
- rusting



Dissolving

Dissolving Salt in Water



Materials that will dissolve are known as soluble.
Materials that do not dissolve are known as insoluble.
A **solution** is made when solid particles are mixed with liquid particles.

Scientific Enquiry Approaches that we can use this term:

