

# Year 5 – Properties and Changes of Materials

## Language for Learning

Through the activities in this topic, pupils should **understand and use key scientific words precisely** - spelling these words correctly. This includes - words with precise scientific meanings (e.g. weight and mass), words with different meanings in scientific and everyday contexts (e.g. drag) and words relating to scientific enquiry (e.g. variable).

## Key Scientific Words

Key Word	Definition (Meaning)
<b>Materials</b>	A substance that can be used to make something
<b>Property</b>	A characteristic of a material ('What it is like/What it does')
<b>Hardness</b>	How hard a material is
<b>Solubility</b>	The amount of a material that can dissolve in another material
<b>Electrical Conductor</b>	A substance that allows electricity to pass through it
<b>Electrical Insulator</b>	A substance that does not allow electricity to pass through it
<b>Thermal Conductor</b>	A substance that allows heat to pass through it
<b>Thermal Insulator</b>	A substance that does not allow heat to pass through it
<b>Magnet</b>	A material that can attract magnetic materials
<b>Mixture</b>	A material made up of two or more substances that are not chemically bonded
<b>Dissolve</b>	When a material goes into a solution and appears to have disappeared
<b>Solution</b>	The mixture produced when a material dissolves in a liquid
<b>Sieving</b>	Separating materials using a piece of equipment with a mesh
<b>Filtering</b>	Separating materials using a material that allows a liquid to pass through but does not allow a solid to pass through
<b>Evaporation</b>	The process by which a liquid turns into a gas
<b>Reversible Change</b>	A change that can be undone
<b>Irreversible Change</b>	A change that cannot be undone

## Key Concepts

Materials can be **compared** and **grouped** together based on their properties.

Property	Meaning
<b>Hardness</b>	How hard a material is
<b>Solubility</b>	The amount of a material that can dissolve in another material
<b>Electrical Conductivity</b>	How well a material allows Electricity to flow through it
<b>Thermal Conductivity</b>	How well a material allows Heat to flow through it
<b>Response to Magnets</b>	Whether a material is attracted to a magnet or not

For example, some **Electrical Conductors** will produce a **brighter bulb** in a circuit and some materials will feel **hotter** than others when a heat source is placed against them.

We can give **reasons** for the particular uses of everyday materials - **based on our investigations**. For example, **Copper** may be used for **electrical wires** as it is a good **Electrical Conductor**.

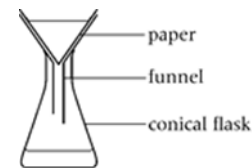
A **mixture** is a substance made up of two or more substances that are not chemically bonded.

When a material **dissolves** in a liquid it appears to have disappeared into the other substance. When a material dissolves in a liquid it forms a **solution**.

**Melting and Dissolving are different processes.**

Some materials will dissolve in a liquid and some will not. For example, **Salt** dissolves in water to form a solution. **Sand** does not dissolve in water.

We can use our knowledge of solids, liquids and gases to decide how mixtures might be separated. This may include using - **Sieving, Filtering or Evaporation**.



Filtering

A **Reversible Change** is a change that can be undone. The substance can be changed back to the original substance without creating any new materials. Changes of State, Mixing and Dissolving are **reversible changes**.

An **Irreversible Change** is a change that cannot be undone. New substances are formed by irreversible changes. Burning and the action of acid on bicarbonate of soda are **irreversible changes**.