

MATERIALS



- Any substance that is used to make something is a material.
- You can have natural or man-made materials.
- Natural materials, such as stone, wood and cotton are used or worked with in the way they are found in nature.
- Synthetic or human-made materials are made from natural materials, but are altered with the help of heat or chemicals. Some examples include plastics, polyester and Kevlar.
- Materials can be mixed together in different ways.
- Some materials can be separated from each other.

PROPERTIES



- The words used to describe a material are known as its properties.
- Electricity can travel easily through electrical conductors, but some materials do not let electricity pass through them. These are known as electrical insulators.
- Heat can travel easily through thermal conductors. Metals are good thermal conductors, as they allow heat to move through them.
- Thermal insulators do not let heat travel through them easily.
- Some fabrics, wood and plastics are good thermal insulators.
- Some materials are soluble, which means they will dissolve.
- Some materials are insoluble, which means they will not dissolve.

INSPIRATIONAL PEOPLE AND EVENTS



- Charles Macintosh (29 December 1766 – 25 July 1843) was a Scottish chemist and invented waterproof fabric in 1824. The Mackintosh raincoat is named after him.
- John Logie Baird (13 August 1888 – 14 June 1946) was a Scottish engineer and inventor. Known as 'The Father of Television', he is most famous for being the first person to demonstrate a working television on the 26th January, 1926.

ENQUIRE



- By testing different materials, you can check their properties, such as whether they are insulators or conductors.

CHANGES



- A variable is any factor or condition that will change or can be changed in the investigation.

PROCESSES



- In dissolving, the solid mixes into the liquid to make a new liquid, called a solution. Dissolving doesn't need heat to occur. When a material dissolves, it looks like it disappears. But it has actually made a transparent solution.
- In melting, the solid changes into a liquid that is the same material. Melting needs heat to occur.
- Sieving, filtering, evaporating are processes to separate mixtures of materials.

CONDUCT



- Materials can be tested for their properties by looking at their magnetism, hardness, flexibility, transparency, permeability and thermal conductivity.

Key Scientific vocabulary and meanings

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

***Evaporation** happens when a liquid substance becomes a gas. When water is heated, it **evaporates**.

Electrical conductor - Materials which let electricity pass through.

Electrical insulator - Materials which do not let electricity pass through them.

All materials have some **electrical resistance**. Resistance is the opposition to the flow of electricity through a material.

Thermal conductors - Materials which let heat pass through.

Thermal insulators - Materials which do not let heat travel through them easily.

A **variable** is any factor or condition that will change or can be changed in the investigation.

Materials that will dissolve are known as **soluble**.

Materials that won't dissolve are **insoluble**.