



Properties and Changes of Materials

We will learn...

Materials can be grouped using more complex vocabulary. Materials which are good thermal conductors allow heat to move through them easily. Thermal conductors are used to make items that require heat to travel through them easily, such as a saucepan which requires heat to travel through to cook food. Thermal insulators do not let heat travel through them easily.

Electrical conductors allow electricity to pass through them easily while electrical insulators do not. Electrical insulators have a high resistance which means that it is hard for electricity to pass through these objects.

When the particles of a solid mix with the particles of a liquid, this is called dissolving. The result is a solution. Materials that dissolve are soluble. Materials that do not dissolve are insoluble.

Key vocabulary:

thermal	Relating to or caused by heat or by changes in temperature.
soluble	Able to be dissolved.
thermal	Relating to or caused by heat or by changes in temperature.
reversible	Able to turn or change back.
irreversible	Impossible to reverse, turn back, or change.
dissolve	When a substance is mixed with a liquid and the substance disappears.

Some materials can be separated after they have been mixed based on their properties. This is called a reversible change. Some methods of separation include the use of a magnet, a filter (for insoluble materials), a sieve (based on the size of the solids) and evaporation. When a mixture cannot be separated back into the original components, this is called an irreversible change. Examples of this include when materials burn or mixing bicarbonate of soda with vinegar.

Investigate:

- Create a variety of mixtures and use a variety of methods to separate them.
- Find the best material to stop an ice cube from melting.
- Observe and compare the changes that take place when bicarbonate of soda mixes with vinegar.



Inspirational Scientist

Mikhail Tsvet - invented chromatography (a way of separating colours).

Working scientifically

In this topic we develop the following practical skills:

- ✓ reporting and presenting findings from enquiries, including conclusions
- ✓ using test results to make predictions to set up further comparative and fair tests