Year 5 Science — Chemistry: Properties and changes of materials

What we already know:

The physical properties of a variety of everyday materials (including those that are transparent) and to compare and group materials on the basis of these properties.
How materials are suitably used based on their properties.
How magnets and electrical circuits work.
I know that some materials are magnetic.
How shapes of solid objects can be changed by squashing, bending, twisting and stretching.
I know about the different particle structures of solids, liquids, and gases.
I know some materials change state when they are heated or cooled and the temperature at which this happens.

What's next?

Next term, we will focus on the properties of light and how it reflects, produces shadows and what light sources can emit light. We will also look at how light travels and contains seven colours.
In year 6, we will be exploring electricity, are further our knowledge of circuits, how they can be created and adjusted.

Properties of materials

How to group materials based on their properties using more complex vocabulary.

What is dissolving?

- 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.

Can materials be separated after they have been mixed?

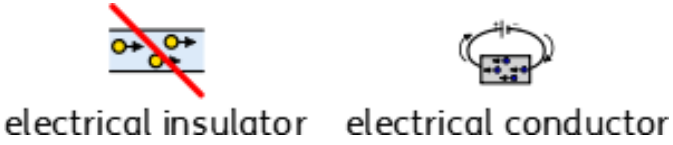
- Some materials can be separated after they have been mixed based on their properties - this is called a reversible change.
- Some methods of separation include the use of a magnet, a filter (for insoluble materials), a sieve (based on the size of the solids) and evaporation.
- When a mixture cannot 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.

Insulators and conductors

ELECTRICAL:

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.

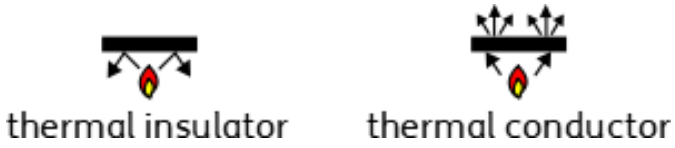


THERMAL:

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. E.g., woollen clothes and flasks for hot drinks.



Vocab

Tier One

Gas
Liquid
Solid
Melting
Temperature
Flexible
Electricity

Tier Two

Circuit
Dissolves
Magnetic
Particles
Transparent
Thermal
Solution
Soluble
Evaporation
Condensation
Resistance
Reversible
Filtering
Process
Properties

Tier Three

Permeable