

Year 5/6 Properties of Materials Knowledge Organiser



What do I know ?

- I know that objects are made from materials. I can describe the properties of a range of materials. (Y1)
- I can identify the most suitable material for an object based on its properties. (Y2)
- I know that I can change the shape of some solid objects by squashing, bending, twisting and stretching them. (Y2)
- I can identify magnetic materials. (Y3)
- I can compare and group materials together, according to whether they are solids, liquids or gases. (Y4)
- I know that some materials change state when they are heated or cooled. (Y4)
- I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (Y4)

What will I know?

Properties of materials

- Materials are used for particular jobs based on their properties and state (liquid, solid, gas). Properties include hardness, transparency, electrical and thermal conductivity and attraction to magnets.



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

Changes of materials

- Some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment.
- Mixtures can be separated by filtering, sieving and evaporation.
- Some changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible.

How will this learning help me?

- It will help me to understand chemical reactions as the rearrangement of atoms. I will use formulae and equations to represent these reactions. (KS3)
- It will help me to define acids and alkalis in terms of neutralisation reactions. (KS3)

How will you work scientifically?

I will plan different types of scientific enquiries to answer a variety of scientific questions.



I can recognise and control variables where necessary (Y5 with support).



I can record data of increasing complexity using a table.



Common misconceptions

Some children may think that ...

- Thermal insulators keep cold in or out.
- Thermal insulators warm things up.
- Solids dissolved in liquids have vanished and so you cannot get them back.
- Lit candles only melt, which is a reversible change.
- Physical changes are irreversible if the change is permanent.

Key vocabulary

Thermal insulator	A material which does not allow heat to easily pass through it.
Thermal conductor	A material which does allow heat to pass through it.
Change of state	A physical change in matter. E.g. solid changing to a liquid.
Dissolve	When a solid (solute) is mixed into a liquid (solvent) creating a solution.
Solution	Created by dissolving materials in a liquid.
Soluble	Describes a substance that dissolves in water.
Insoluble	Describes a substance that does not dissolve in water.
Reversible change	When materials can be changed back to how they were before the reaction took place.
Irreversible change	When materials cannot be changed back to how they were before the reaction took place. A new material is created.
Enquiry	A scientific investigation. There are 5 different types of enquiry.

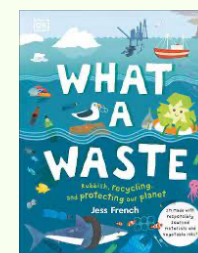
Significant Scientist



Antoine Lavoisier

He discovered that there was an element called oxygen that played a major role in combustion. He also discovered that no mass is lost in a chemical reaction. Due to the significance of his discoveries, he is known as the 'Father of Modern Chemistry'.

Read me!



What A Waste by
Jess French.

Kensuke's Kingdom
by Michael Morpurgo



<https://www.stem.org.uk/resources/community/collection/341333/kensukes-kingdom-properties-materials>