

Alverton School Science Knowledge Organiser Years 5 and 6 Materials and their Properties

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What we already know:

A variety of materials
 We can use properties to compare materials
 Some materials are magnetic
 All materials are made of particles
 Solids, liquids and gases have different structures.
 Materials can change when they are heated

Core Knowledge

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

Thermal insulators keep things warm.
 Thermal conductors allow heat to pass through.

When a substance dissolves into a liquid it becomes completely incorporated into it.
 The substance can only be recovered by evaporation of the liquid.

There are three states of matter: solid, liquid and gas. Heating or cooling can make a substance change from one state to another.

In a reversible change, materials can return to their starting state. In an irreversible reaction they cannot. Burning is an example of an irreversible reaction.

Certain conditions can speed up or slow down processes such as dissolving and evaporating

Materials that are not dissolved can be recovered by filtering.

Key Vocabulary

Solid	Something that keeps its shape
Liquid	In a form that flows easily
Gas	In a form that rapidly spreads out.
State	The structure of something
Thermal	Relating to heat
Irreversible	Impossible to reverse
Reversible	Able to turn it back.
Dissolve	When a substance becomes part of a liquid
Soluble	Able to be dissolved
Evaporation	To turn from liquid to gas
Condensation	To turn from gas to liquid
Conductor	Allows heat or electricity to pass through.
Insoluble	Unable to dissolve
Particles	A tiny piece

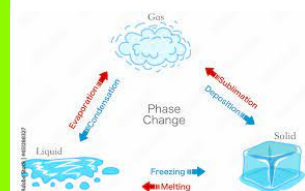


Reversible	Irreversible
States of matter	Burning
Solid + Liquid	Rusted metals
Solid + Solid	Heating food
Soluble solid + Liquid	Mixed ingredients

Properties of Materials

Describing the properties of a material helps us to communicate how it behaves. The properties of a material also help us decide why it is a good or bad option for a particular use.

flexible bends easily without breaking	brittle hard but can break easily	malleable able to be shaped without breaking	rigid unable to bend, stiff
fragile easily broken or damaged	absorbent soaks up liquid easily	soluble can be dissolved, especially in water	insoluble cannot be dissolved
transparent allows light to pass through	translucent allows some light to pass through	opaque does not allow light to pass through	magnetic attract objects made of iron or steel
permeable allows liquid to pass through it	impermeable does not allow liquid to pass through	insulator does not allow heat and/or electricity to travel through	conductor allows heat and/or electricity to travel through



SOLID	LIQUID	GAS
<ul style="list-style-type: none"> Rigid Fixed Shape Fixed Volume Cannot be squashed 	<ul style="list-style-type: none"> Not Rigid No Fixed Shape Fixed Volume Cannot be squashed 	<ul style="list-style-type: none"> Not Rigid No Fixed Shape No Fixed Volume Can be squashed