


# Knowledge Organiser - Science


## Do the properties of a material affect its use?

Key word	Definition
properties	The properties of a material include anything that can be measured e.g. colour, weight, length etc.
material	A material is a substance or mixture of substances that form an object.
fair test	A fair test is a test which controls all but one variable when trying to answer a scientific question.
insulator	A material (like rubber or glass) that is a poor conductor of electricity, heat or sound.
thermal conductor	A material that allows heat to travel through it easily.
thermal	Used to describe simple heat energy caused by moving molecules.
transparent	A material that allows light to pass through.
opaque	A material that doesn't let light through and does not reflect light.
absorption	When something takes in another substance.
variables	Both dependent and independent variables are key parts of scientific experiments.
porous	A material that is able to easily absorb fluids or allow liquid to pass through.
non-porous	Does not allow liquid or air to pass through it.
electrical conductor	A material that allows electricity to flow through it easily.
electrical insulator	Materials that do not conduct electricity very well are called insulators— examples are wood, glass, plastic and rubber. Rubber or plastic coats the wires to protect us from the flow of electricity through our bodies.

**Thermal Insulators** - Do not let heat travel through easily such as fabrics, wood and plastics. Can keep heat in or out.



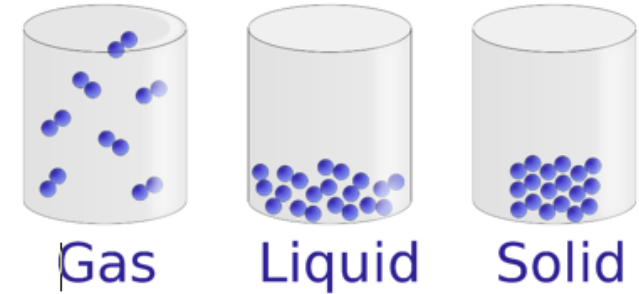
**Thermal Conductors** - Lets heat travel easily through such as metals.



When things get hot, atoms start to vibrate. Heat produces energy. This could cause them to change state!

**Three states of matter**

**GAS:** particles far apart and randomly arranged / move around  
**LIQUID:** particles close but randomly arranged / move around  
**SOLID:** particles very close together / vibrate around a fixed position

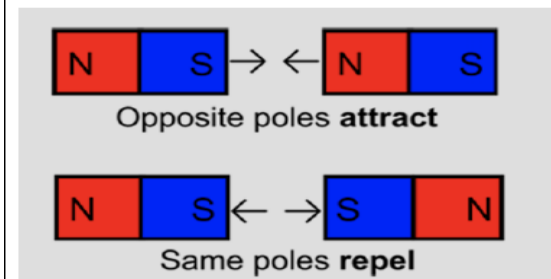


Examples	Examples	Examples
Steam (water vapour) Hydrogen Carbon Dioxide Oxygen	Water Milk Washing up liquid Juice	Ice Wood Glass Diamond

Magnetic Materials	Non-Magnetic Materials
Iron Steel Nickel	Aluminium Copper Gold Silver

**How magnets work**

Magnets have a North and South pole. North is often Red while South is often Blue. Arrows show the direction of the force in this diagram.



INDEPENDENT VARIABLE

What I **CHANGE**

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DEPENDENT VARIABLE

What I **OBSERVE**

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CONTROLLED VARIABLE

What I **KEEP THE SAME**