

MATERIALS

Key vocabulary

- **transparent** – an object or material that allows all light to pass through it



- **translucent** – an object or material that allows some light to pass through it



- **opaque** – an object or material that does not allow any light to pass through it



- **magnetism** – a non-contact force created by a magnet



- **hardness** – a measure of how resistant a solid is to a change of shape or indentation when a force is applied



Factual knowledge

- An electrical conductor is a material that allows electricity to flow through it.
- An electrical insulator is a material that does not allow electricity to flow through it.
- Metals are good electrical conductors.
- Plastic, wood and paper are electrical insulators.

Key vocabulary

- **electrical conductor** – a material that lets electricity pass through it



- **electrical insulator** – a material that does not let electricity pass through it



- **circuit** – a complete path that allows electrical energy to flow



- **cell** – a single device which produces electricity



- **bulb** – a part in a circuit that produces light



Factual knowledge

- Materials can be transparent, translucent or opaque.
- A harder material will scratch a softer material.
- Most metals are non-magnetic. Only a few metals are magnetic, such as iron and steel.

Key vocabulary

- **properties** – the qualities and characteristics of a material



- **wood** – a natural material that is generally hard and comes from the stem or branches of trees and shrubs



- **metal** – a material that can typically conduct electricity and heat



- **plastic** – a man-made material that is often strong, lightweight and can be formed into many shapes



- **lifespan** – the length of time that a material or object is useful for before it must be replaced

Factual knowledge

- Materials have specific uses.
- Metals are good conductors of electricity and heat.
- Plastics are good insulators of electricity.

WORKING SCIENTIFICALLY

Experiment variables

- **independent variable** (what will change) – the material that the beaker is wrapped in



- **dependent variable** (what will be measured) – the temperature of the water over time



- **controlled variable** (what is kept the same) – the temperature of the water in each beaker at the start of the experiment, the number of layers of insulation wrapped around the beakers, the volume of water in the beakers and the shape and size of the beakers



Key vocabulary

- **thermal insulator** – material that does not let heat pass through it quickly/efficiently/easily



- **thermometer** – a piece of equipment used to measure temperature



- **control beaker** – a beaker that is not wrapped in material so it can be used for comparison with other beakers



- **temperature** – the measure of how hot or cold something is

Key vocabulary

- **thermal insulator** – material that does not let heat pass through it quickly/efficiently/easily



- **data** – facts and numerical information collected

Insulating material	Temperature (°C)			
	0 min	5 min	10 min	15 min
aluminium foil	45	41	38	36
felt	45	43	40	37

- **temperature** – a measure of how hot or cold something is



- **conclusion** – what has been found out during an investigation

- **anomalous result** – a result that does not fit in with the pattern of the other results

