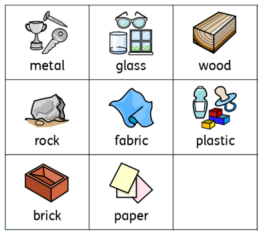
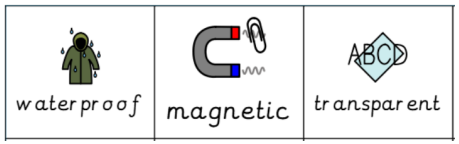
Transformations

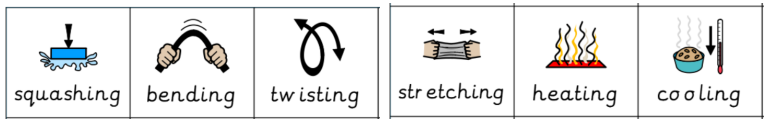
What should I already know?

- Name different materials.
- Describe properties of different materials including...

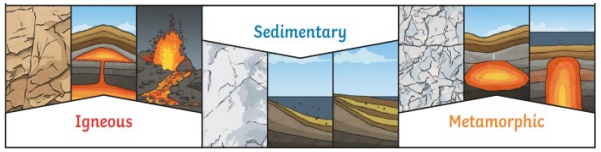




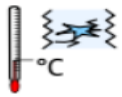
- Describe how some objects and materials can be changed and these changes can be desirable or undesirable.
- A material's physical properties make it suitable for particular purposes, such as glass for windows and brick for building walls. Many materials are used for more than one purpose, such as metal for cutlery and cars.
- Some objects and materials can be changed in different ways including...



- Name and talk about how different rocks are formed.



Vocabulary

Condensation		The process of a gas cooling to become a liquid
Evaporation		The process of a liquid becoming a gas by heating
Freezing		The process of a liquid becoming a solid by cooling
Matter		A physical substance that takes up space
Melting		The process of a solid becoming a liquid when it is heated
Particle		An extremely small piece of *matter.*
States of matter		Materials can be one of three states: solids, liquids or gases.
Viscosity		How runny or thick a liquid is and how much it flows.
Water Vapour		A gas or very small drops of liquid that result from heating a liquid.

By the end of the topic we will be able to...

Talk about the different states of matter and how some materials can change state. I will use this to create items and packaging to sell at the Christmas enterprise sale.

States of Matter

Properties of solids

- Solids can be held.
- They keep their shape and do not flow.
- They always take up the same amount of space.
- They cannot be compressed.


metal


wood


plastic

Properties of liquids

- Liquids cannot be held easily.
- They flow and can be poured.
- They take the shape of the container they are in.
- They cannot be compressed.


water


oil


milk

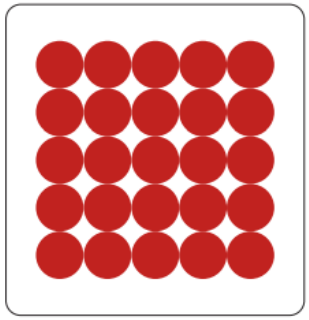
Properties of gases

- Gases cannot be held.
- They have no fixed shape and fill the available space in the container.
- They can be compressed.
- They are normally invisible.


air

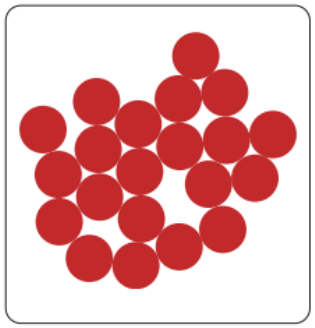

helium

Particle theory



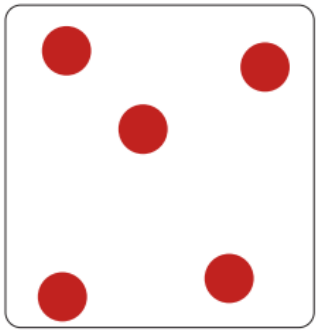
In a **solid**, the particles are close together, arranged in a regular pattern and cannot move around each other.

This arrangement means that solids keep their shape, always take up the same amount of space and cannot be compressed.



In a **liquid**, the particles are close together but arranged randomly, which means they can move around each other.

This arrangement means that liquids can flow, take the shape of the container and cannot be compressed.

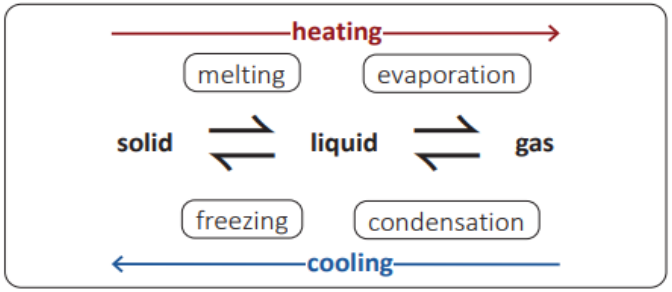


In a **gas**, the particles are far apart, randomly arranged and can freely move.

This arrangement means that gases have no fixed shape, fill any container and can be compressed.

Changing state

Materials can exist as solids, liquids or gases. However, some materials change state when heat is added or removed. The processes involved in changing state are melting, freezing, evaporation and condensation. These changes are reversible.



When a solid is heated, it melts into a liquid.

When a liquid is heated, it evaporates into a gas.

When a gas is cooled, it condenses into a liquid.

When a liquid is cooled, it freezes into a solid.