Science Knowledge Organiser

Topic: Properties and changes of materials	Year: 5	Strand: Chemistry	Southwold Primary School

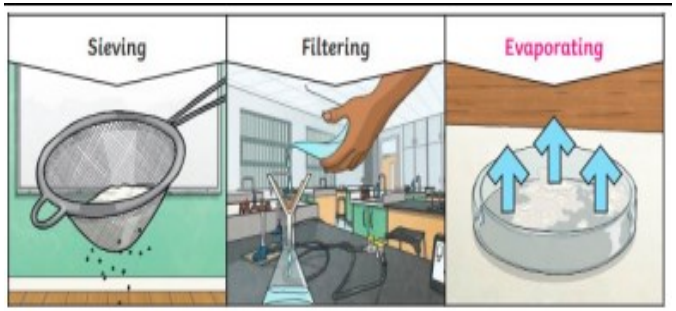
What should I already know?

- **Particles** are what materials are made from. They behave differently in **solids, liquids and gases**.
- The **water cycle** describes the cyclical process of the different states of water in our environment.
- **Condensation, evaporation, freezing** and **melting** are processes which describe mater changes states.

What will I know by the end of this unit?

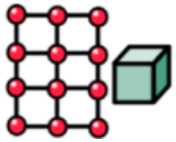
- Materials can be groups based on their properties .
- What a solution and a mixture is and how they can be separated.
- Plan and perform fair tests, present results in tables and graphs, draw conclusions based on the results and propose improvements to future tests.
- Give reasons why some materials are used for certain applications based on outcomes of fair tests.
- Understand what reversable and irreversible changes are.

Separation methods



Gas, Liquid and Solid particle model

Particles in solids:

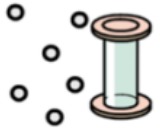


Solid materials have a fixed shape and cannot be poured. They have vibrating particles which are closely packed in and form a regular pattern .

Particles in liquids:

In the **liquid** state, materials change shape according to the container, and can be poured. The particles are close together but random .

Particles in gases:



In the **gas** state, particles can escape from open containers. Gases have particles which are spread out and move in all directions.

Working Scientifically

- Observe change in materials as the temperature changes.
- Perform a science experiment.
- Draw representations and write labels.
- Set up and perform science experiments, using tools to take measurements, presenting results in tables and graphs and draw conclusions based on outcomes.

Reversable and irreversible processes

When you can return the mater to its original state, a process in **reversable** (e.g. freezing a molten ice cube, unbending a coil).

In an i**rreversible** processes one cannot go back to the original state (e.g. boiling an egg, using petrol in a car engine, burning a log).

Vocabulary

absorb	To take in or soak up a **liquid** .
conductor	Material that lets heat or an electrical current through.
condensation	The process of **gas** turning into a **liquid.**
evaporation	The process of a **liquid** turning into a **gas.**
freezing	The process of a liquid turning into a **solid.**
gas	A state of matter where particles are free to move and move in all directions.
insulator	Material that lets heat or an electrical current.
insoluble	A solid that does not dissolve in a liquid.
irreversible	Not being able to change back into the original components.
liquid	A state of matter where particles are close together but free to move.
matter	A material, e.g. water, metal.
melting	The process of a **solid** turning into a liquid.
melting point	The temperature at which a **solid** mater turns into a **liquid.**
mixture	A mix of materials that can be separated , they are not chemically bound.
particles	The small parts a material is made from.
soluble	The mater that will be put in a liquid (=**solvent)**
solid	A state of matter where particles are close together but are limited in movement.
solution	The mix of a **soluble** in a **solvent.**