



Trailblazers Cycle A: Autumn Term 2 - Changes of Materials (Year 5) Overview, Vocabulary and Sticky Knowledge



What do I already know about Materials?

In Little Explorers, I learned...

- Freezing is when something turns from a liquid into a solid
- Melting is when a solid turns into a liquid

In Big Explorers, I learned...

- Materials have different uses.
- Solid objects can change shape by squashing, bending, twisting and stretching.
- Objects can float or sink.

In Philosophers, I learned...

- The three states of matter are solids, liquids and gases.
- Materials can change state if they are heated or cooled.
- In the water cycle, water evaporates and condenses

In Trailblazers, I learned...

- A conductor allows heat or electricity to pass through, an insulator does not.
- Something that dissolves in liquid is soluble, if it does not it is insoluble.
- Materials can be separated using magnets, sieving or evaporating.

Challenging
vocabulary.

Compound,
extraction ,
oxidation

Words to learn.

Solution, solute, solvent, reversible,
irreversible, physical change, chemical
change, filtering, sieving,

Words I should
know.

Separate, sieving, energy, change, freezing,
melting, boiling, burning, rusting,

Key facts I will learn...

- 1) Solids, liquids and gases can change state by being heated or cooled.
- 2) Irreversible changes are chemical and are permanent.
- 3) Reversible changes are physical and are not permanent.



Knowledge Organiser: Year 5 - Changes of Materials

Careers connected to changes of materials: laboratory technicians, technical associates, research analysts, chemistry teachers.



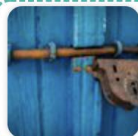
Lesson Sequence



1. Use evaporation to recover the solute from a solution



2. Recognise and describe reversible changes



3. Observe chemical reactions and describe how we know new materials are made



4. Investigate rusting reactions



5. Investigate burning reactions



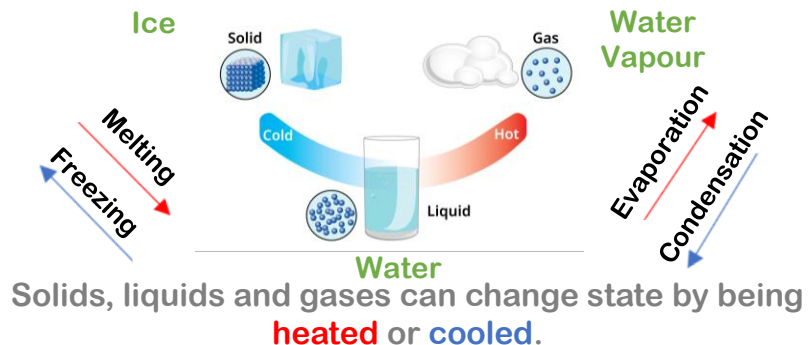
6. Investigate chemical reactions - acids and bicarbonate of soda

Evaporation



If a solid has **dissolved** in water (for example in a salt solution), **heating** it causes the water to **EVAPORATE**, leaving the solid (salt) behind.

Changes of State



Solids, liquids and gases can change state by being **heated** or **cooled**.

Irreversible Changes



These are **CHEMICAL** changes – they **cannot** be reversed as a new material has been made.

Reversible Changes



liquid chocolate
– **cool** –
solid chocolate



solid lolly
– **heat** –
liquid lolly



mixture of rice and flour
– **sieve** –
both separated



dissolved sugar
– **evaporation (heat)** –
solid sugar

These are **PHYSICAL** changes – they **can** be reversed as no permanent change has been made.