Knowledge Organiser | Subject: Science | Topic: States of Matter | Year 4

Key Knowledge & Vocabulary

Materials can be grouped together according to whether they are **solids**, **liquids** or **gases**.

Some materials **change state** when they are **heated** or **cooled.** The **temperature** at which this happens depends on the **material**.

Changes in water temperature cause **evaporation** (a liquid turning into a gas) and **condensation** (a gas turning into a liquid).

Reversible changes mean that a material can change state from a gas into a liquid into a solid and back. **Irreversible changes** cannot be reversed. New materials are made and the former materials cannot be regained.

Working Scientifically

Which did you use in science lessons and why?

- Fair testing 
- Observing over time 
- Researching 
- Classifying, identifying and comparing 
- Exploring 
- Seeking patterns 

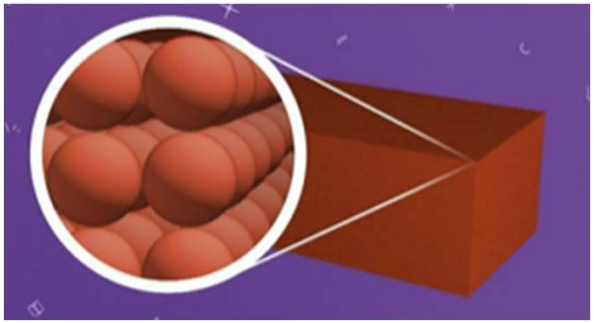
Key Concepts

Material	Solid	Liquid	Gas	Reversible change	Irreversible change
Materials have different properties that make them useful for different jobs. Natural materials, such as wool and wood, come from living things or the ground. Synthetic materials, like plastic, are made from chemicals.	Solids stay in one place and can be held. Solids keep their shape. They do not flow like liquids. Solids always take up the same amount of space. They do not spread out like gases. Solids can be cut or shaped.	Liquids can flow or be poured easily. They are not easy to hold. Liquids change their shape depending on the container they are in. Even when liquids change their shape, they always take up the same amount of space. Their volume stays the same.	Gases are often invisible. Gases do not have a fixed shape. They spread out and change their shape and volume to fill up whatever container they are in. Gases can be squashed.	A reversible change is a change that can be undone or reversed. If you can get back the substances you started the reaction with, that's a reversible reaction. A reversible change might change how a material looks or feels, but it doesn't create new materials.	A change is called irreversible if it cannot be changed back again. In an irreversible change, new materials are always formed. Sometimes these new materials are useful to us. Burning is an example of an irreversible change.

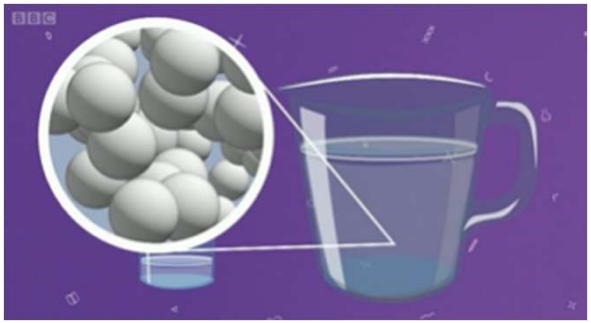
Linking Thinking Across Our Learning Journey

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cause and effect	Cause and effect	Everyday materials	Everyday materials	Rocks	States of matter	Properties and changes of materials	Forces

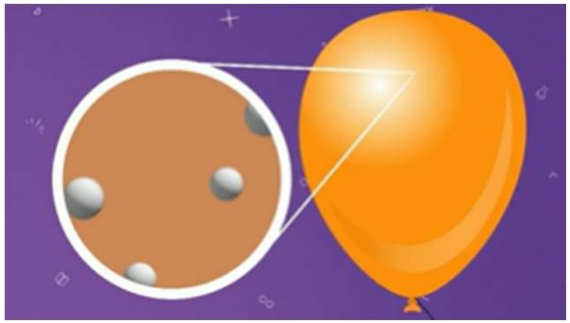
Particles in a solid



Particles in a liquid

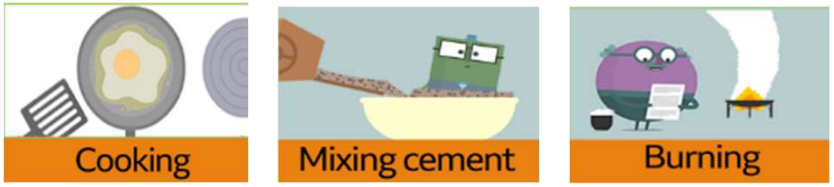


Particles in a gas



Reversible changes

Irreversible changes



Evaporation and condensation