

- PRIOR KNOWLEDGE:**

Pupils should be taught to:

Compare and group materials together, according to whether they are solids, liquids or gases

Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)

Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

**NATIONAL CURRICULUM:**

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**KEY VOCABULARY:**

**States of matter** - Solid, liquid and gas

**Examples of gases** (at room temperature and pressure) – Oxygen, hydrogen, helium, carbon dioxide, methane

**Examples of liquids** (at room temperature and pressure) – Water, milk, juice, petrol, oil

**Examples of solids** (at room temperature and pressure) – Wood, rocks, metal, plastic, glass, wool, leather, etc

**Processes** – Melting, condensation, evaporation, solidifying, freezing

Water cycle

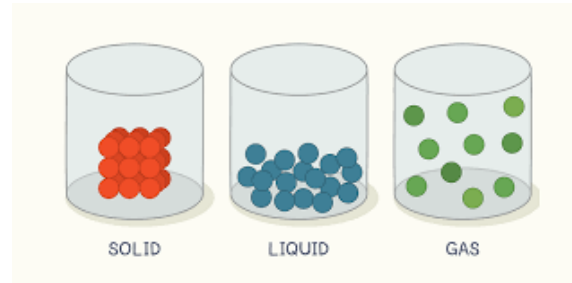
Water vapour

Steam

Heating

Cooling

## SCIENCE: States of Matter(Y4) Autumn 2



**Enquiry Questions:**

1. How do we classify materials as a solid, liquid or gas?
2. What happens to a gas when it is heated?
3. What happens to solids when they are heated?
4. What happens when heat energy is removed from water particles? (freezing)
5. What happens to water when it is heated?
6. Evaporation and Condensation within the water cycle.

**CONTEXT:**

Children study and identify whether matter is solid, liquid or a gas. They should be able to use description in terms of particles and the structure of each type of matter to explain the transfer of energy in between each particle and how loosely or tightly they are compacted which leads to the overall classification of the matter as solid, liquid or gas.

**STICKY KNOWLEDGE:**

- Children should be able to group materials as either a solid, liquid or gas
- Children should know that heat often affects the state a matter starts out as.
- Children should know that many materials can change to all three states of matter, particularly water.
- Children should know the particle structure of a solid, liquid and gas and understand that the energy given or lost within the particles changes their behaviour which leads to the material being a solid, liquid, or gas.
- Children should be able to link this to the water cycle and the process of evaporation, condensation and precipitation.

**SKILLS:**

Fair testing

Investigation

Observation of the change of matter