

Science Y4 Spring 2 – Materials

In this unit children will group and sort materials into solids, liquids and gases. They will observe that some materials change state when heated or cooled and will be able to name them. They will use the terms evaporation and condensation and know how these processes are linked to the water cycle.

In this unit children will:

- Understand the terms solid, liquid and gas and give an example of each.
- Use pictorial diagrams to observe the organisation of particles in materials for solids, liquids and gas.
- Understand the terms reversible and irreversible change and what objects belong in each group, when either being heated or cooled.
- Know what the terms evaporation and condensation mean and how they relate to the water cycle.

Prior Learning

F.S Similarities and differences between materials

Y1 Naming common materials and knowing simple properties

Y2 Comparing the suitability of materials

Y3 Rocks

Cross Curricular Links

Key Vocabulary

Matter – Any solid, liquid or gas that exists in the universe.

Substance – Any solid, liquid or gas is a substance.

Solid - A substance that stays the same shape whether it is in a container or not.

Liquid – A substance that can flow and take on the shape of a container.

Gas – A substance that has no fixed shape like oxygen.

Water vapour – Water that is in the form of a gas.

Evaporation – When a liquid becoming a gas.

Condensation – When water vapour in the air, changes from a gas back into a liquid.

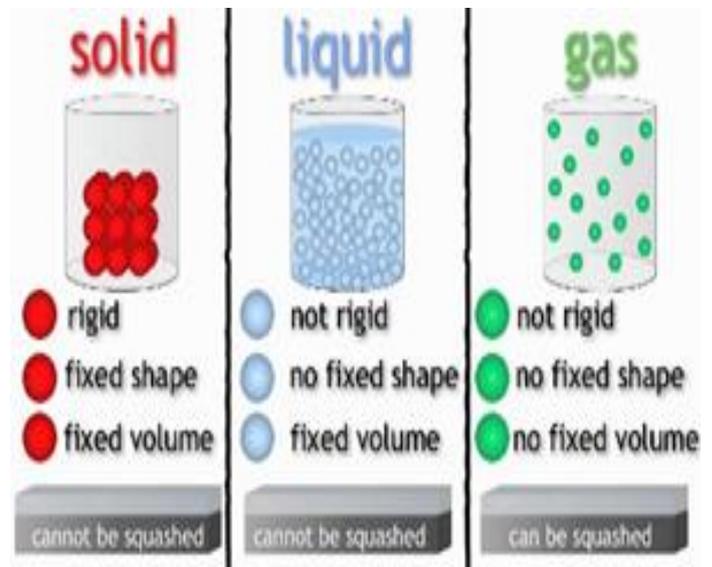
Precipitation – Any rain, snow, sleet or hail that falls to the Earth.

Particle – A very small piece of matter.

Celsius – A scale for measuring temperature, in which water freezes at 0 degrees.

Key Knowledge

- Know that a solid is rigid, is a fixed shape and has a fixed volume. It is solid at room temperature and includes wood, iron, copper and plastic.
- A liquid is not rigid, has no fixed shape but has a fixed volume. It is liquid at room temperature and includes water, milk, blood and oil.
- A gas is not rigid, has no fixed shape and no fixed volume. It is gas at room temperature and includes oxygen, carbon dioxide, nitrogen and steam.
- Water, when changing state by heating – Starts as ice and melts to form water which then evaporates and turns into steam.
- Water, when changing state by cooling – Starts as steam and condenses to form water which then freezes and turns into ice.
- The energy from the sun heats up the water in our rivers, lakes and oceans. Water then evaporates into the air, turning into a gas called vapour. The water vapour rises up into the sky where it cools, turning back into a liquid, forming clouds. This is condensation. Eventually the water droplets in the clouds become too heavy for the air to hold them and fall as rain.



- They fall back down to Earth as rain, snow, hail or sleet known as precipitation. The fallen precipitation is then collected in rivers that flow to the sea which is known as the runoff. The water cycle then begins again as the sun heats the water.

Key Questions

- Why can't a liquid be stretched or squeezed?
- What happens in the process of evaporation?
- What is a reversible change? Name a substance that can go through this process.
- What is an irreversible process? Give an example.