

All children – regardless of gender, starting point or background – will have the opportunity to engage with a high-quality science education. They will be equipped with the knowledge, skills and vocabulary to understand how science can be used to explain what is occurring, predict how things will behave and analyse caused. We intend to inspire a sense of enjoyment and curiosity about science.

States of Matter including the Water Cycle



Spring 1

Igniting Prior Knowledge:

Materials can look the same and different.

Ice is frozen water.

Ice is hard.

Water freezes when it is very cold.

Ice melts when it gets warm.



Key Vocabulary:

- states of matter,
- solid, liquid, gas
- mass,
- change of state,
- melting,
- freezing,
- melting point,
- boiling point,
- pressure,



New Knowledge:

- Matter usually exists in one of three states; solid, liquid or gas.
- Solids are made of particles tightly packed in uniform rows; they retain their shape and have a fixed volume.
- Liquids are made of particles that have more energy so move around more freely; they have a fixed volume but take the shape of the container holding them. A liquid can be poured and keeps a level, horizontal surface.
- Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured, they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid.
- Gases are made of particles that have the most energy so move around freely and fill the space they occupy; it has no fixed shape or volume.
- Matter can change state when energy is added to it (heating, cooling or pressure). When matter changes state, the particles don't change, but the way they move does.
- Melting is a state change from solid to liquid.
- Freezing is a state change from liquid to solid. The freezing point of water is 0°C
- Evaporation is a change of state from liquid to gas that happens when a liquid is heated. The boiling point of water is 100°C.
- Evaporation happens more quickly if the temperature is higher, the liquid is spread out, or it is windy.
- Condensation is the change of state from a gas to a liquid caused by cooling.
- Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle.