



Jerry Clay Academy Subject Knowledge Organiser

Subject: Science (States of Matter) Year Group: 4 Term: Spring

Core Learning of This Unit:

- To understand that materials can exist in 3 different states: solids, liquids and gases.
- To use a thermometer to measure how hot or cold something is.
- To explore how changes in temperature leads to changes in state.
- To know what evaporation and condensation are
- To know the different parts of the water cycle and why they occur
- To create our own mini water cycle so that we can monitor the effects

Prior Learning:

From Y1 and 2 Materials :
Children should have knowledge of properties of everyday items and how these can be grouped.

- From Year 2: Identify and compare materials and their uses
- Find out how the shapes of solid objects can change

Wolfgang Ketterle



National Curriculum Statements:

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 ($^{\circ}\text{C}$)
- identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

Key Vocabulary:

- Matter – any solid, liquid or gas that exists in the universe
- Solid – substance that stays the same shape whether in a container or not
- Liquid – substance that can flow and take on the shape of a container
- Gas – substance that has no fixed shape, like oxygen
- Temperature – how hot or cold something is, normally measured in degree Celsius ($^{\circ}\text{C}$)
- Evaporation – the process of liquid heating and changing into a gas
- Condensation – the process of a gas cooling and changing into a liquid
- Water cycle – the process of water being recycled over and over again
- Particle – an extremely small unit of matter

Significant People

Wolfgang Ketterle is a German physicist and professor of physics. His research has focused on experiments that trap and cool atoms to temperatures close to absolute zero, and he led one of the first groups to realize Bose–Einstein condensation in these systems in 1995. For this achievement, as well as early fundamental studies of condensates, he was awarded the Nobel Prize in Physics in 2001, together with Eric Allin Cornell and Carl Wieman.