Unit 13

Knowledge

What should already be in their long-term memory?

- Some materials are used for certain purposes because of their properties
- The water cycle, and the processes of evaporation, condensation and precipitation.
  (refer to units 6, 8)

- There are seven continents; Europe, Asia, Africa, North America, South America, Antarctica and Australasia
- A continent is a very large area of land that consists of many countries
- There are five Oceans; Pacific, Atlantic, Indian, Southern
- The Alps is a mountain range
- Magma is liquid rock under the Earth' surface

- Seven features of a civilisation and how these were apparent in Ancient Egypt
- What life was like in Roman Britain

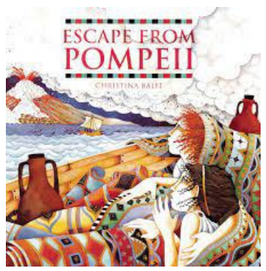
Key vocabulary:

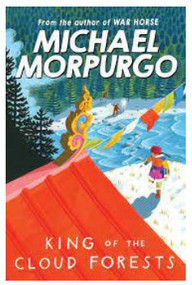
Talk like a scientist:
Tier 2: process,
Tier 3: Condensation, cooling, evaporation, freezing, freezing point, gas, heating, liquid, melting, melting point, particles, precipitation, properties, solid, temperature, vibrations, water cycle, water vapour.

Talk like a geographer:
Tier 2:
form
Tier 3:
active, climate, continent, core, crust, dormant, earthquake, erupt, fault lines, , gas, lava, layers, location, magma, mantle, melt, molten, mountain, peak, pressure, range (mountains), summit, tectonic plates, vegetation, vent, volcano.

Talk like an engineer:
Tier 3:
bridge, fixed pivot, lever, linkage, loose pivot, mechanism, slot, system

Key texts:





What should they know by the end of the unit?

Science:

- Particles are what materials are made from.
- They are so small that we cannot see them with our naked eyes.
- The properties of a substance depend on what its particles are like, how they move and how they are arranged
- Particles behave differently in solids, liquids and gases.
- Solids hold their shape unless a force is exerted on them
- Solids have vibrating particles which are closely packed in and form a regular pattern.
- This explains the fixed shape of a solid and why it can't poured.
- Solids always take up the same amount of space.
- In the liquid state, the material holds the shape of the container it is in.
- This means that liquids can change shape, depending on the container.
- Liquids have particles which are close together but random.
- Liquid particles can move over each other.
- Liquids can be poured.
- In the gas state, particles can escape from open containers.
- Gases have particles which are spread out and move in all directions.

? Can you group these materials and objects into solids, liquids, and gases?

- When water (in its liquid form) is heated, the particles start to move faster and faster until they have enough energy to move about more freely. The water has evaporated into a water vapour.

? How does the level of other liquids change when left on the windowsill?

- When water vapour (gas) is cooled it returns to a liquid state.
- When water is cooled, the particles start to slow down until a solid structure (ice) is formed. The water has frozen.

? Do different liquids take the same amount of time to freeze?

- The temperature at which water turns to ice is called the freezing point. This happens at 0oC.

? Is there a pattern in how long it takes different sized ice lollies to melt?

- The water cycle (revision from Unit 8 Geography).

Geography:

- The Earth has three layers – the crust at the very top, then the mantle, then the core at the very middle of the planet.
- The Earth's crust is made up of huge slabs called tectonic plates, which fit together like a jigsaw puzzle.
- These tectonic plates slowly move over a long period of time.
- When two tectonic plates of the earth's crust grind into each other the land can be pushed upwards, forming mountains.
- Many of the greatest mountain ranges of the world have formed because of enormous collisions between the tectonic plates.
- When many mountains are close together, this is called a range.
- The highest point of a mountain is called the peak or the summit.

? Where are the world's longest mountain ranges?

- A volcano is a very deep hole in the Earth's top layer that can let out hot gasses, ash and lava.
- Many volcanoes are also mountains.
- There are three ways to describe a volcano and explain what it's doing – active, dormant and extinct
- The parts of a volcano are cone, vent, crater, conduit pipe, magma chamber
- When a volcano erupts, magma comes up and out through the vent.
- Magma is called lava when it's outside the volcano.
- There are no active volcanoes in the UK.
- The largest volcano in Europe is Mount Etna in Sicily (Italy).

? How does a Volcano erupt?

? What type of Volcano?

- The tectonic plates have edges and sometimes the edges, which are called fault lines, can get stuck, but the plates keep moving.
- Pressure slowly starts to build up where the edges are stuck and, once the pressure gets strong enough, the plates will suddenly move causing an earthquake.

? Where is at risk of an Earthquake?

? Where is at risk of a natural disaster?

- Some other disasters are the result of humans for example; Oil spills, Nuclear and major fires.

History:

- Nearly 2,000 years ago Pompeii was a bustling city located in what is now Southern Italy
- In the Summer of AD 79 the nearby Mount Vesuvius volcano erupted
- It spewed smoke and toxic gas 20 miles into the air, this soon spread to the town
- Almost overnight, Pompeii and many of its 10,000 residents vanished under a blanket of ash
- Pompeii was rediscovered in 1748, thanks to excavations which are still going on today

Enrichment

Character education:
I have had my artwork displayed in school
I have contributed to an enterprise event

Outdoor education:
Investigating boiling points/DT making smoothies

ICT:
https://www.mrpict.com/states-of-matter.html
https://www.mrpict.com/extreme-earth.html

Passion projects:
Art – Picasso Ladies Face
DT – Mechanisms, Levers and linkages – Making teaching aid to illustrate the process of Natural Disasters
Computing – Animation (States of Matter)
Enterprise- Making and selling smoothie ice lollies

End of unit knowledge transfer:
Class assembly - Science show to display States of Matter and Volcanoes

Cross curricular writing opportunities:
Diary entry about Vesuvius explosion
Setting description during the eruption
Natural Disasters non-chronological report
In year 5:
Volcanic eruption innovation. Telling the story of Hurricane but instead of being a hurricane outside, it is a volcanic eruption.
Recounting a volcanic eruption.

Cross curricular maths opportunities:
Children use lines of longitude and latitude to locate the Earths mountains and then use simple scale to measure their length
Children to use accurate measurements and consideration of angles to make a simple mechanism
Children to measure and calculate the difference between capacity. Children to record results in line graph
Children to measure capacity and time when conducting experiments based on states of matter.
Children to use line graphs and bar graphs to record their results.

	• Scientists have been able to figure out almost exactly what happened that day • The volcano first erupted shortly after noon, the thick ash blocked out the sun • Some residents escaped the city while others took shelter in their homes • The city was completely covered in a mix of ash and rock • The layers of ash helped preserve buildings, artwork and even the forms of bodies as they decomposed and left holes in the ash • All that allowed experts to fill in the details that might not have survived at many other Roman sites • Based on what they uncovered, historians believe that Pompeii was a prosperous town, popular with wealthy vacationing Romans **? What does the evidence from Pompeii tell us about life in a Roman town?**	