	Geography	**Year 4**
	Term 2	**Mountains, Volcanoes and Earthquakes**

Key Question: How are mountains, volcanoes and earthquakes formed? What is the impact of a natural disaster?

National Curriculum Objectives:

- Describe and understand key aspects of physical geography, including, volcanoes and earthquakes
- Locate the world's countries, using maps to focus on Europe and North and South America concentrating on their key physical characteristics
- Use maps, atlases and globes and digital mapping to locate countries and describe features studied
- Use the eight points of the compass and four- figure grid references and describe features studied

Vocabulary:

Earth, inner core, outer core, mantle, crust, Oceanic Crust, Continental Crust, Tectonic Plates, Fold Mountains, Ocean Trenches, collide, Volcano (Shield Volcanoes, Stratovolcanoes) Earthquake, Richter Scale, fault line, tsunami, Pompeii, push and pull factors, social impact, economic impact, environmental impact

Prior Learning:

In Term 1, Year 4 have learnt about The Romans
In Year 3 have learnt how to read four-figure grid references and the eight points of the compass

End Point:

Research and present information on a natural world disaster. (earthquake, volcano or tsunami) Explain the process which caused the disaster and what the impact was (social, environmental, economic)

Knowledge:

- I know that the earth is made up of an inner and outer core, and has a mantle and a crust
- I know that the earth's crust is made up of Tectonic plates
- I know how these plates move around to form mountains, volcanoes and earthquakes
- I know where the world's biggest mountain are (and where some ocean trenches are)
- I know where the world's volcanic belts are

Skills:

- I can describe what happens during an earthquake (a tsunami)and a volcano
- I can describe some of the impacts that a natural disaster has on people and the land
- I can use the eight points of a compass and a for figure grid reference

Map Work:

Use maps, atlases and globes to locate and describe some of physical features of our world
Use the eight points of a compass and four figure grid references to describe where the worlds volcanoes and mountains are

Field Work

NA

Cross Curricular Links:

Science – the Earth and environmental sciences (material – oil and water do not mix!)
History – Ancient Rome
DT – models (volcanoes)

Oracy:

Building understanding – what is the impact of natural disasters?
Instructional – how are mountains, volcanoes and earthquakes formed?

Wider Reading	**Enrichment**
King of the Cloud Forests – Michael Morpurgo Survivors – David Long Escape from Pompeii – Christina Balit	Models of volcanoes

Sequence of Learning		
Lesson	Key Question	Key learning/notes
1	What is the Earth made of?	• Revise the seven continents of the world on a globe and on a world map • Teach the children the structure of the Earth. Create definition s for the inner core, outer core, the mantle and the crust. • https://www.bbc.co.uk/bitesize/clips/zwwxn39 this clip compares the earth's structure to a peach • Look again at the world map and identify land and oceans/seas. The crust is made up of Oceanic crust and Continental Crust hence why our maps look like they do and we refer to continents • The earth's crust is broken into different plates (sitting on top of the mantle which is very hot) and these plates move around (approx. 1-10 cm a year). Either toward or away from each other. This results in mountains, volcanoes and earthquakes • Map the major world plates
2	How are mountains and ocean trenches formed?	• Identify (label) the world's mountains and ocean trenches). Where in the world are they? (grid reference and compass direction)We have probably heard of some of the world's mountains ranges but not the oceans trenches but they are formed by the same process. • https://www.bbc.co.uk/bitesize/clips/z27tfg8 identify the key features of mountains (height, rock etc) • Fold Mountains are formed when continental plates collide (compare to 2 cars crashing and the metal crumpling and wrinkling) and Ocean Trenches are formed when 2 oceanic plates collide. • What are the world's highest mountains and deepest ocean trenches? (Note the plates are still moving so Everest is still growing by 1cm a year!)
3	How are volcanoes formed?	• Identify (label) the world's volcanic belts on a map of the world and note their relationship with mountains, ocean trenches and hence Tectonic plates. Where in the world are they? (different grid reference and compass direction?) • Volcanoes that are formed along plates and where the plates are moving together Stratovolcanoes are formed and where plates are moving away from each other Shield Volcanoes are formed • Draw a cross section or model the inside of a volcano
4	What happens when a volcano erupts? (Pompeii)	• Discuss what Year 4 learnt in term 1 about the Romans. We know about the way the Romans lived from historical artefacts. On 24 August 79 CE, the volcano Vesuvius in southern Italy erupted. A thick cloud of ash, stone, and poisonous gas rained down on the Roman town of **Pompeii**, which stood right in the path of the eruption. The town was completely buried in just a few hours. Look at images from the site today. • What is the social impact? (death and people missing) economic impact (loss of business and farming) environmental impact (land changes forever) • Why do people live near volcanoes knowing what devastation they can bring? The lava and ash makes the soil rich for farming, tourists want to see volcanoes and the thermal energy can be used to run power stations • Summarise the push and pull factors to living near a volcano(push and pull factors studied in Year 3 Rivers unit)
5	Why do earthquakes happen and what happens?	• Look at images of the devastation of earth quakes. We measure them using a Richter Scale. The Valdivia earthquake in Chile (1960) measured 9.6 on the Richter scale and caused mass devastation. • Earthquakes happen when 2 plates rub against each other (look at a world map of where the world's earthquakes are) The place where 2 plates meet and move past each other is called a fault line. • Plates are moving past each other all of the time so earthquakes happen all of the time. There are about 50 000 a day! • Earthquakes can cause tsunamis, which is a huge wave caused by an earthquake. • Research individual volcanoes (and resulting tsunami MA)
6	What is the environmental impact of a major natural disaster?	• Look at a case study of the Indian Ocean Tsunami. On Sunday 26 December 2004, a magnitude 9 earthquake occurred off the West Coast of Northern Sumatra in the Indian Ocean. This caused the Indian Ocean tsunami that affected 13 countries and killed approximately 230,000 people. https://www.bbc.co.uk/bitesize/guides/zbfrd2p/revision/2 • Focus on the environmental impact of the disaster. Research how and if the environment in the region has recovered.