Unit Rationale

Mountains, Earthquakes and Volcanoes

Year 5

Key end points of this unit, Mountains, Earthquakes and Volcanoes are:

- To know that a mountain is a large landform that rises above surrounding land.
- To know that earthquakes most frequently occur at plate boundaries and cause the ground to shake.
- To know that volcanoes are openings in the Earth's crust.
- To know that experts study the Earth to understand its features and processes.

This unit has been written for schools following the 50% reduced model of PKC. As children won't study Mountains, Japan or New Zealand and the South Pacific Islands, we have written this unit to cover essential National Curriculum content. It is suggested this unit is taught in upper Key Stage 2, but it can be adapted for lower KS2 if necessary. This unit builds on children's understanding of physical geography. Children will have encountered mountains in KS1 when they studied the British Isles. This will be the first time they look at earthquakes and volcanoes in their geography curriculum, however they may have some prior knowledge from other curriculum areas, from reading or elsewhere. This unit aims to introduce children to the physical processes involved with earthquakes and volcanoes however children will learn more about tectonic plates in KS3, so this unit forms foundational knowledge for future learning. We have included examples of earthquakes and volcanoes from 2023 and 2024, however if there have subsequently been other examples of these occurring, please do incorporate them.

Lesson Sequencing:

The sequence of lessons in this unit has been designed to build on prior knowledge of maps and world geography, leading on from the Seven Continents unit in Year 1, Northern Europe in Year 2 and further study of Europe in Year 3. When introducing this unit, use this opportunity to reconnect to previous learning and confirm that children can name the

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seven continents and can identify Europe on a map of the world. The first lesson in this unit explores mountains and children learn that mountains are large landforms that rise above the surrounding land. Children will learn that scientists think the Earth's crust is made of enormous plates and when these plates meet, sometimes land is forced upwards creating mountains. Children do not have to fully understand this process at this stage, however it is important for them to understand that at plate boundaries there can be interesting geographical features and activity. In this lesson children will use relief maps, building on their understanding from Year 5 Spatial Sense. They will identify the Alps, Caucasus and Ural Mountains, building on knowledge from Year 4 Europe. They will also identify the Andes in South America and the Rocky Mountains in North America. This will form foundational learning for the forthcoming Year 6 unit on South America.

In lesson 2, children build on their knowledge of mountains and study the Alps in more detail. Children will use atlases to locate the Alps and will learn they spread across several European countries including France, Switzerland and Italy. They will learn about the discovery of man in the Alps, who died over 5000 years ago, whose body had been preserved in ice. Understanding how scientists and geographers were able to learn about his life, from plants stuck to his clothes, things he'd eaten and tools he carried, will help children to understand how geography is often interconnected with science, maths and history. They will learn more about how experts work within the field of geography in Lesson 5 of this unit.

In lesson 3, children will be introduced to earthquakes and will learn they most frequently occur at plate boundaries and cause the ground to shake. Children will learn about plate tectonics here in order to understand why earthquakes occur in particular regions, and will go on to learn more about this in KS3. In this lesson, children will look at the impact of earthquakes and will study the earthquake that occurred in 2023 in Turkey and Syria. This earthquake is an example of an extremely strong quake and it occurred in a region that was already vulnerable due to years of conflict and poverty. The resulting impact was a huge loss of human life and devastation for survivors. Children will consider how the wealth of a country directly relates to its ability to plan for and minimise the impact of earthquakes.

In lesson 4, children will build on their knowledge of tectonic plate boundaries and will study volcanoes. They will learn that a volcano is an opening in the earth's crust where magma (released as lava), gas and ash can escape the ground. Typically volcanoes are shown in a cone shape, but not all volcanoes are this shape, sometimes they are cracks in the ground in volcanic areas. Children will learn that volcanic soil is good for farmers and hot springs are often popular with tourists. This will help children to understand why people choose to live, in work around and visit volcanic regions. In 2024, a volcanic eruption began in Iceland. Children will look at pictures and videos of this eruption and learn

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that volcanoes are closely monitored to keep people in the region informed and as safe as possible.

In lesson 5, now children have learned about mountains, earthquakes and volcanoes, they will learn about the experts who study them. This will help children to develop disciplinary knowledge and understand how experts within the field of geography work. Children will learn about geologists who study rock, seismologists who study earthquakes, and volcanologists who study volcanoes. They will learn that many people work to study the physical processes we have learned about in this unit in order to more fully understand earthquakes and volcanic activity. Children will learn that geographers and scientists look for patterns when they study earthquakes and volcanoes; they use data and maps together to help them understand what is happening and what might happen. Children will look at a map showing data on the location of volcanoes and where earthquakes are likely to occur. Understanding how maps and data combine to give us useful information is foundational knowledge before children learn how to use GIS (Geographical information Systems) in KS3.

To assess understanding of this unit, there are some suggested tasks for lesson 6 including using multiple choice questions, a knowledge organiser task, a map task and also a suggestion for extended writing. If teachers opt for the extended writing task, suggestions have been made for how to structure this and what to include.

Key substantive concepts focused on in this unit are **location, interconnection and landscape.**

Key disciplinary understanding focused on within this unit is how geography experts, including geologists, seismologists and volcanologists work to look for patterns and understand physical processes more fully.