

KS2 Module overview

Mountains, volcanoes and earthquakes

This module, comprising of six lessons, or half a term's work, will focus on mountains, volcanoes and earthquakes. In order to inspire a curiosity and fascination with the world, the intention is to begin, in the first lesson, with discovering the physical geography of Mount Everest. At 8848 metres Mount Everest is the highest, and best known, mountain in the world. Through an account of the first successful ascent of Mount Everest pupils will also appreciate the global significance of the location, and the men's endeavour.

The module will then move on, in the second lesson, to establishing the geographical location of the main continental mountain ranges. Significant and interesting mountain ranges will be highlighted. Moving to the UK, the highest peaks of each constituent nation will be identified before looking more closely at a case study of Snowdon. Using the Ordnance Survey map of Snowdon, pupils will develop their map skills by undertaking a mapping task.

In lesson three, the key question to be investigated is how mountains are formed. The role of plate tectonics, the movement of the Earth's crust, in this formation will be explained. Pupils will understand that mountains are not homogeneous; not only can they look different, but they can be formed in different ways.

In lesson four, pupils will understand how volcanoes, another type of mountain, are formed and where they are located. Again, the role of plate tectonics will be central to this understanding. Why and how an eruption happens, and the type of volcano it creates, are key questions to be explored. The theme of volcanoes continues in lesson five, asking the fundamental question, 'Why do people live near volcanoes?' In this lesson pupils will understand how people interact with this specific mountain environment and how they make use of it, from geothermal energy to mineral extraction. Pupils will also understand the inherent dangers of living in the foothills of a volcano, from lava, ash and gas to lahars (mud flows).

In the final lesson of the module, the focus turns to earthquakes; where they are located, why they happen, how they happen, and their aftermath on both the landscape and the people most affected. The San Andreas Fault, western USA, will be highlighted as a case study. Additional material will also be provided on the Japanese earthquake and tsunami of 2011.

What all lessons in the module have in common is a desire to make geography exciting and stimulating by learning about real places. In addition the emphasis throughout is ensuring that, as teachers, we use the correct vocabulary when explaining processes geographically, reinforce locational and place knowledge and, likewise, expect our pupils to do the same.

Lesson 1: Mount Everest

This lesson starts with the iconic photograph of Tenzing Norgay at the summit of Mount Everest, taken by Sir Edmund Hillary on 29th May 1953, marking the first successful ascent of the mountain. As a starter activity, and with no contextualisation from the class teacher, pupils are asked to identify questions (and surmise answers): who, what, where, when, why, how. The development of geographical enquiry, asking questions of evidence and examining what it might tell us, will start pupils on the road to thinking 'like geographers'. Then, through a series of maps and photographs, both modern and archive, pupils will then learn about the physical geography of the mountain- its landscape, topography and weather. They will come to understand that Mount Everest can be a hostile and dangerous environment. Finally, pupils will hear how these dangers were faced by Hillary and Tenzing in their successful ascent of the summit.

Lesson 2: Mapping mountains

In lesson two, pupils will begin by addressing the fundamental question, 'What is a mountain?' They will then establish the location of the main continental mountain ranges. Significant, and interesting, mountain ranges will be highlighted. The highest peaks in the UK will be identified before looking, in depth, at a case study of Snowdon. Pupils will use the Ordnance Survey map of Snowdon and will gain an understanding of how topography is shown on a map. In a mapping task, pupils will learn the significance of keys, contour lines, four figure and six figure grid references, grid squares, distance, scale and direction as they answer questions and plan routes.

Lesson 3: The formation of mountains

In lesson three, the key question to be investigated is how mountains are formed. The role of plate tectonics, the movement of the Earth's crust, in this formation will be explained. Pupils will gain an understanding of the structure of the Earth and come to know that mountains can be formed in different ways, depending on how the Earth's crust moves. Three formations will be examined in detail: Fold Mountains, Fault Block Mountains and Dome Mountains. In addition to the formation models, mountains exemplifying each formation will also be named and located with particular reference to North and South America and Europe. Finally, pupils will understand that mountain landscapes change over time through erosion.

Lesson 4: Volcanoes

In lesson four, pupils will learn that volcanoes come in many shapes and sizes, but are primarily located at the boundaries between tectonic plates. Why and how an eruption happens, and the type of volcano created are key issues that will be explored. Pupils will also become familiar with the structure of volcanoes and be able to name the key features in a cross section. Examples of different volcanoes from North and South America and Europe (including the UK), active, dormant and extinct, will be featured as case studies.

Lesson 5: Volcanoes: a suitable home?

The theme of volcanoes continues in lesson five. With an average of 25 eruptions per year and approximately 600 million people living on or in the vicinity of volcanoes, we ask the question, 'Why do people live near volcanoes?' In the lesson pupils will understand how people interact with this specific mountain environment, the different types of land use and how it can be beneficial, from geothermal energy to mineral extraction. They will also understand the inherent dangers of living in the foothills of a volcano, from lava, ash, gas to lahars (mud flows).

Lesson 6: Earthquakes

In the final lesson of the module, the spotlight turns to earthquakes. Every thirty seconds there is an earthquake somewhere in the world; each year there are approximately 100 earthquakes that cause serious damage. Where earthquakes are located, why they happen, how they happen and their aftermath- on both the landscape and the people most affected- will be examined. The San Andreas Fault, western USA, will be highlighted as a case study. Additional material will also be provided on the Japanese earthquake and tsunami of 2011.

Subject content areas:

- Locational knowledge (name and locate the world's mountains, volcanoes and earthquakes, concentrating on their key human and physical characteristics)
- Place knowledge (understanding geographical similarities and differences between the UK, Europe and North and South America)
- Physical geography (describe and understand key aspects of mountains volcanoes and earthquakes)

- Human geography (describe and understand key aspects of types of settlement and land use)
- Geographical skills and fieldwork (use maps and digital/computer mapping to locate countries and describe features studied)

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