

ACET Junior Academies'

Scheme of Work for geography

What is beneath my feet? Part 1



About this unit:

This unit introduces the idea that the ground beneath our feet is constantly changing. Through a famous landmark it introduces the concept of mountains and their environment and human geography. It then introduces contours and height on maps before diving into the internal structure of the earth, volcano formation and why people live near volcanos. This leads into part 2, which covers earthquakes and a class display project.

Unit structure

This unit is structured around the following geographical enquiries:

1. Where is Mount Everest?
2. What is it like to climb Mount Everest?
3. How do mountains form?
4. Where are mountains formed?
5. How do volcanos form?
6. Why are volcanos hazardous?
7. Why do people live near volcanos?

National Curriculum unit:

- 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)

Enquiry 1: Where is Mount Everest?				
Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:
<p>Concept of long periods of time from previous history and geography units.</p> <p>Map skills from previous units.</p>	<p>Substantive knowledge: <i>(What the children should know.)</i></p> <p><u>Where is Mount Everest?</u></p> <p><u>How high is Mount Everest?</u></p> <p><u>What is the landscape like?</u></p> <p><u>How do the features of the landscape change at altitude?</u></p> <p><u>What is the weather like? How does this change?</u></p> <p><u>How do people live near Mount Everest?</u></p>	Use atlases, globes and digital/computer mapping to locate countries and describe features studied	<p>Can your children:</p> <p>State the height and location of Everest</p>	<p>Horizontal:</p> <p>Vertical:</p>
		Locational Knowledge	<p>Locate the Himalayas on a map</p>	
		Describe and understand key aspects of physical geography, including ... mountains	<p>Describe the landscape and environmental conditions at the peak, and compare to further down.</p>	
		Describe and understand key aspects of human geography, including ... land use		
		Place Knowledge:		
		Pupils develop contextual knowledge of the location of globally significant places	<p>Explain how the “Sherpa people” in the Himalayan foothills live?</p>	
		Interpret a range of geographical information		
Suggested activities:		Resources:	Useful links:	
Use google earth (free software) to show the location and 3D view of Everest.		Google Earth.	https://www.google.co.uk/intl/en_uk/earth/	
Use Everest 3D (online) to show the 3 dimensional environment and ask students which route they would take.		Everest 3D	http://www.everest3d.de/	
		Mount Everest factsheet for teachers	https://www.youtube.com/watch?v=GclHoLRCnho	
			Vocabulary:	

Students create a pop-up model of Everest using a teacher created simplified line diagram, annotate with descriptions of the environment, weather and conditions. Could be done as a class display.	Video of Changes to the lives of Sherpa People	Peak: encourage pupils to use the term peak or summit, rather than 'top' Ridge: where two sides of mountain meet Glacier: like a frozen river, the ice slowly moves down the mountain
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Enquiry 2: What is it like to Climb Mount Everest?				
Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:
Idea of exploration from how can I explore my world	What are conditions like for people climbing the mountain?	Use atlases, globes and digital/computer mapping to locate countries and describe features studied	Can your children: Identify who Tenzing and Hillary were Explain the importance of their accomplishment Describe the challenges they faced, historical and environmental.	Horizontal: Vertical:
	Who were Edmund Hillary and Tenzing Norgay?			
	How did they reach the summit of Mount Everest?	Locational Knowledge		
	What did they experience during their ascent?	Describe and understand key aspects of physical geography, including... mountains		
	What did they do when they reached the summit?	Describe and understand key aspects of human geography, including ... land use		
		Place Knowledge:		
		Communicate geographical information in a variety of ways, including... writing at length.		
Suggested activities:		Resources:	Useful links:	
Show pupils a photograph of Tenzing Norgay at the summit of Everest (with no contextualised information from the class teacher.) Pupils identify enquiry questions: who, what where, when, why		Photos of Tenzing and Hillary's ascent	https://www.theguardian.com/travel/gallery/2013/may/23/mount-everest-first-successful-ascent-in-pictures	
Either, pupils write a diary entry, either as (Sir) Edmund Hillary, or Tenzing Norgay after their successful ascent. The diary should include geographical vocabulary, alongside facts and information about the mountain and the men's endeavour, not just express excitement.		Story of their ascent – support document	Vocabulary:	
Or, pupils complete a 'Mount Everest Facts' derived from the facts in the account			Ascent Descent	

Pupils to share their diary entries with the class.		
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Enquiry 3: How do mountains form?				
Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:
Understanding of forces and rocks from science.	To understand more about the structure of the earth. Core, Mantle, Crust.	Use maps ... to locate countries and describe features studied	Can your children: Name the internal layers of the earth in order Identify that the crust is broken up into tectonic plates and that they move Explain the formations of mountains	Horizontal: Vertical:
	To understand that the earth's crust is like a jigsaw puzzle of tectonic plates.	Locational Knowledge		
	To understand the role of plate tectonics in forming mountains.	Using maps to focus on ... North and South America, concentrating on ... key physical characteristics		
	To understand that mountains can be formed in different ways.	Place Knowledge:		
	To understand the formation of three types of mountain: Fold Mountains, Fault Block Mountains and Dome Mountains.	Understand geographical similarities and differences through the study of physical geography of a region ... within North and South America		
	Can pupils name mountains exemplifying each formation?			
To understand that mountains change over time.				
Suggested activities:		Resources:	Useful links:	
'Just a Minute': Pupils to speak for one minute without hesitation, repetition or deviation (using factual information and correct vocabulary) on the topic of Everest and the first ascent and/or Mapping Mountains? Students draw/create classroom display/model of the internal structure of the earth with annotations of its properties. Heat is Students create/complete a jigsaw puzzle of the tectonic plates		Mountain formation factsheet Interactive clip of Pangea movement Tectonic plates jigsaw	https://kids.kiddle.co/Pangaea https://www.sciencelearn.org.nz/resources/933-tectonic-jigsaw-puzzles https://www.3dgeography.co.uk/mountain-models https://www.thechaosandtheclutter.com/archives/how-fold-mountains-are-made	

<p>Show interactive clip of the supercontinent Pangea. (That a single land mass broke apart to form our current continents) It is the movement of the tectonic plates that creates mountains.</p> <p>Pupils draw and annotate diagrams of the three main types of mountain formation (Fold, Fault Block and Dome).</p> <p>Pupils in groups create a model of each type of mountain, using sheets or layers of paper to represent layers of rock in the earth. The model can then be manipulated to show for instance a fold volcano.</p> <p>Pupils to peer assess their partner's work. Pupils can nominate their partner for praise for the accurate use of geographical vocabulary and detail. Do they have any suggestions for improvement?</p>		<p>https://www.wikihow.com/Create-a-School-Project-on-the-Layers-of-the-Earth</p> <p>https://www.youtube.com/watch?v=S9ty-ta1wyl</p> <p>https://www.youtube.com/watch?v=Fd_XqYE2BWY</p> <p>Vocabulary:</p> <p>Core Mantle Crust Tectonic plate Fold Mountain Dome Mountain Block Mountain</p>
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Enquiry 4: Where in the world are mountains formed?				
Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:
<p>Understanding of forces and rocks from science.</p> <p>How mountains are formed</p> <p>Understanding of global geography, including awareness of continents</p>	<p>To understand more about the topography (surface profile) of the Earth.</p> <p>To map and match the tectonic sub-surface 'jigsaw' with predominant mountain ranges around the globe</p> <p>To find and know where key mountain ranges are located, and how they come to be there</p> <p>To use coordinates to locate specific mountainous locations</p> <p>To use co-ordinates to instruct others in finding key locations</p>	<p>Use maps ... to locate continents and mountain ranges, describing features studied</p> <p>Introduce and use concept of grid references and co-ordinates to find locations</p> <p>Locational Knowledge</p> <p>Using maps to focus on mountain ranges and continents.</p> <p>Place Knowledge:</p> <p>Where in the world the major mountain ranges are.</p>	<p><u>Can your children:</u></p> <p><u>State how mountains are formed</u></p> <p><u>Match tectonic plate boundaries with surface locations</u></p> <p><u>Identify major mountain ranges from the above</u></p> <p><u>Use simple grid references to find locations / direct others</u></p>	<p>Horizontal:</p> <p>Vertical:</p> <ul style="list-style-type: none"> ● Science – rocks and soils, forces in action ● Maths – co-ordinates and 2/4 figure grid references

Suggested activities:		Resources:	Useful links:	
<p>Use tectonic plate jigsaw traced on to an overlay / tracing paper. Pupils place it over a map of the world and examine what is happening along the 'joins'.</p> <p>Watch BBC Bitesize video clip 'An Introduction to Mountain Ranges Around the World' (first 'Useful Link' opposite) and Geography Explorer: Mountains (found at https://www.youtube.com/watch?v=01qzgULTduQ)</p> <p>Pupils list / create a fact-file of the major mountain ranges with associated information – continent located in, countries crossed, overall length, maximum altitude, any notable peaks or individual mountains, grid reference.</p> <p>Pupils complete a 'What mountain range am I?' quiz by following the clues. Eg: Q1 – I am located in Europe. Q2 – I am found in the southern half of the continent. Q3 – I am found across three different countries. Q4 – My highest peak is Mont Blanc...etc. Pupils either access all questions at once, or one at a time and get more 'points' for answering correctly from fewer questions.</p> <p>Pupils create their own quiz for peers to complete.</p> <p>Find and name the mountain range from the 2/4 grid reference given. Direct peers to same by giving the grid references. Identify/ direct peers to specific peaks and mountains using grid references.</p> <p>Pupils to create non-chronological reports/information booklets/power-point presentations on a given mountain range including a range of locational and environmental information.</p> <p>Create bar charts detailing relative lengths of given mountain ranges and/or relative heights of specific mountain peaks.</p>		<p>Mountain formation factsheet</p> <p>Tectonic plates jigsaw</p> <p>Tectonic plate 'map'</p> <p>Atlases</p>	<p>https://www.bbc.co.uk/bitesize/clips/z27tfg8</p> <p>https://www.sciencelearn.org.nz/resources/933-tectonic-jigsaw-puzzles</p> <p>https://www.3dgeography.co.uk/mountain-models</p> <p>https://www.youtube.com/watch?v=Fd_XqYE2BWY</p> <p>https://www.youtube.com/watch?v=tL2d7K1gKwI</p> <p>https://www.youtube.com/watch?v=01qzgULTduQ</p>	
			Vocabulary:	
			<p>Peaks</p> <p>Range</p> <p>Continent</p> <p>Country</p> <p>Altitude</p> <p>Tectonic plate</p> <p>Grid reference</p>	

Enquiry 5: How do volcanoes form?

Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:
Ideas of layers in the earth and boundaries at tectonic plates	To understand that volcanoes come in many shapes and sizes, but primarily occur at the boundary between tectonic plates. To understand why and how a volcanic eruption happens, at plate boundaries. To understand the structure of a volcano and be able to recognise this in cross section.	Use maps...and digital/computer mapping to locate countries and describe features studied	Can your children: Identify that volcanos occur mostly at the boundary between tectonic plates Identify features of a volcano Explain how magma moves up through the crust to erupt as lava. Explain that volcanos are formed when lava hardens. To be able to name and locate some of major volcanoes in North and South America and the UK and Ireland.	Horizontal: Vertical:
		Locational Knowledge		
		[Using maps to focus on ... North and South America, concentrating on ... key physical characteristics		
		Place Knowledge:		
		Describe and understand key aspects of physical geography, including... mountains, volcanoes		
Suggested activities:		Resources:	Useful links:	
Either draw and label a diagram showing the cross section of a composite volcano. Or in pairs or small groups make a 3d cross section of a volcano using colour appropriate plasticine. Annotate the key features using small labels attached to cocktail sticks. This activity will offer peer support for lower ability pupils. As an extension or homework activity pupil could cut out and glue their own composite volcano using the links provided. Story writing – a story of volcanic eruption (perhaps from the perspective of a stone age man from previous History unit), or alternatively from the perspective of the magma, being squeezed under pressure and wanting to escape.			https://www.3dgeography.co.uk/make-volcano-model https://study.com/academy/lesson/how-are-volcanoes-formed-lesson-for-kids.html https://www.youtube.com/watch?v=K7Oq9_DU1Mc https://www.youtube.com/watch?v=3Jxeh-yAXek Vocabulary:	

What have we learned today? Give each pupil a post-it note. They should write, or draw, one piece of information they have learned today. Pupils then stick their post-it note on a wall/whiteboard. As a class did we remember everything?		Magma Lava Vent Cone Ash
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Enquiry 6: Why are volcanos hazardous?				
Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:
Physical processes of volcanos – eruptions	Identify key hazards caused by volcanos including: Lava flows Pyroclastic flows Ash Volcanic Bombs Lahars	Make comparisons between two locations using photos/ pictures, temperatures in different locations.	Can your children: Identify volcanic hazards from images and description Explain why they are hazardous to humans and nature	Horizontal: Vertical:
		Locational Knowledge		
		[Using maps to focus on ... North and South America, concentrating on ... key physical characteristics		
		Place Knowledge:		
		Describe and understand key aspects of physical geography, including... mountains, volcanoes		
Suggested activities:		Resources:	Useful links:	
Ranking activity of deadliest hazard – justify their ranking Student create a warning poster to display in areas around a volcano – displaying risks and how to avoid them .			https://video.nationalgeographic.com/video/short-film-showcase/0000014f-d6d3-dd5e-a75f-ffd7bf470000 lava flow simulation (based on 2014 eruption in Iceland) https://www.esc.cam.ac.uk/research/research-groups/cambridge-volcano-seismology/kids-activities-and-teaching-resources Vocabulary: Lava flows Pyroclastic flows	

		Ash Volcanic Bombs Hazardous Lahars
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Enquiry 7: Why do people live near volcanos?				
Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:
Links to previous place study and student’s ability to empathise and reason a person’s attachment to place	To understand why people live on or near volcanoes.	Use maps... and digital/computer mapping to locate countries and describe features studied	Can your children: Identify that some people chose to live near volcanos, some have no choice Explain the benefits and dangers of living near a volcano with named hazards	Horizontal: Vertical:
	To understand that volcanoes produce useful minerals and that these can be extracted.			
	To understand that volcanic soils are fertile and good for agriculture.	Locational Knowledge		
	To understand the importance of geothermal energy.	Using maps to focus on Europe... North and South America, concentrating on ... key physical and human characteristics, key topographical features... and land-use patterns; and understand how some of these have changed over time.		
	To understand that the volcanic landscape and environment can be important for tourism.	Place Knowledge:		
	To understand the dangers of living on or near volcanoes.	Understand geographical similarities and differences through the study of ... a region of the United Kingdom, a region in a European Country and a region within North and South America		
	Describe and understand key aspects of human geography, including... types of settlement and land use, economic activity... and the distribution of natural resources including energy, food, minerals...			
Suggested activities:		Resources:	Useful links:	
Spot your teacher’s mistakes! Use the mislabeled diagram of a cross section of a composite volcano. As an extension- can they correctly label the diagram? Pupils write a postcard home having visited a volcanic locality. This postcard should include a description of the key features of the volcano.		Post cards	https://www.nationalgeographic.com/news/2018/05/active-volcano-kilauea-hawaii-agung-mayon-community-culture/ https://www.youtube.com/watch?v=WxnSCzYndaw	

Pupils can then draw the picture on the front of the postcard- which should be relevant. HA pupils should be expected to include more of the geographical detail specific to the chosen volcano in their writing. Their design for the front of the postcard will be more complex, including a picture of the volcano and its surrounding landscape, a map showing its location, contour lines, and/or how the benefits of volcanic activity for the region.

Volcano Tennis. In pairs pupils take it in turns to say, “Did you know that...” and then give one piece of information or one fact about volcanoes from the lesson. The Tennis Champion is the pupil who runs out of information last.

<https://www.cbsnews.com/news/on-the-trail-living-near-volcanoes/>

Vocabulary:

ACTIVE VOLCANO - An active volcano is one that erupts regularly.

DORMANT VOLCANO - A dormant volcano is one that has not erupted for many years, although there is still some activity deep inside.

EXTINCT VOLCANO - An extinct volcano is a volcano that is no longer active.

Fertile

Geothermal