

Objectives and key words	
<p>Knowledge:</p> <ul style="list-style-type: none"> • I know what the structure of the Earth is like inside • I know that the plates have been moving and some of the names of old continents when the dinosaurs were here • I understand roughly how far back in time Earth's history goes • I know that the Earth's surface is made up of large plates that move around, these are called tectonic plates • I know that there are oceanic crust and continental crust • I can explain what happens at plate boundaries through constructive, destructive, conservative and collision boundaries • I know what earthquakes and volcanoes are and what causes them • I know how we measure earthquakes using the Richter or Mercalli scale • I know how richer countries can manage to live with earthquakes • I know that there is a big difference in the impacts of an earthquake between a richer and poorer country • I know the different hazards that a volcano causes • I understand the benefits of living near a volcano • I know how volcanic activity has helped shape the Lake District • I know why remote sensing is useful for studying volcanoes • I know why tourists would be interested in visiting Mt Etna • I know what a web enquiry is • I know what causes a tsunami • I know the possible effects and how we can respond to a tsunami • I understand the possible effects of a super volcanic eruption 	<p>Key Words (Tier 1, Tier 2, Tier 3):</p> <p>Mantle Crust Inner core Outer core Tectonic plate Jurassic Constructive boundary Conservative boundary Destructive boundary Collision boundary Oceanic crust Continental crust Epicentre Focus Richter scale Mercalli scale Earthquake resistant buildings Shield volcano Composite volcano Volcanic bombs Ash Crater Magma chamber Main vent Secondary cone Lava Geothermal energy Prediction, planning and preparation Remote sensing Tsunami Super volcano</p>

NC link code: A3, C1, D1, D3

<p>Prior learning:</p> <ul style="list-style-type: none"> - Locating global places - Rock types - Impact of development upon hazard risk - Longitude and latitude - Topography of the Lake District and the speed of erosion <p>Prior learning at KS2: Some schools teach mountains, volcanoes, earthquakes, plate tectonics, and looking at the causes and impacts of tectonic events.</p>	<p>Future learning:</p> <ul style="list-style-type: none"> - Physical features of Africa, eg. Rift Valley and Kilimanjaro -Links to A Level unit on Hazards
--	---

Hypotheses/objectives for lessons	Geographical skills
<p>LO1 What is the structure of the Earth and its history</p> <p>LO2 What is happening at plate boundaries</p> <p>LO3 Where do earthquakes and volcanoes happen</p> <p>LO4 What happens in an earthquake</p> <p>LO5 How do we measure earthquakes (Richter and Mercalli)</p> <p>LO6 Can we live where there are earthquakes</p> <p>LO7 What are the impacts of an earthquake (two examples)</p>	<p>Map skills</p> <p>Atlas</p> <p>Use of online mapping (google earth/maps and digimap)</p> <p>Latitude and longitude</p> <p>Diagrams</p>

LO8 What are volcanoes and why are they a hazard LO9 Why would people choose to live near volcanoes and how have they shaped the Lake District LO10 How can you measure eruptions by remote sensing (skills book) LO11 What could a web enquiry tell us about Mt Etna (skills book) LO12 What are the effects of a tsunami (Japan or Asian) LO13 What would a super volcanic eruption do to our way of life	Remote sensed imagery
Misconceptions	
The differences and the causes of differences between shield and composite volcanoes The differences between the different types of plate boundary, many begin with a 'C'	
Success/Assessment	
<ul style="list-style-type: none"> • Opportunities through Blooket to assess vocabulary from the key word list • Vocabulary definition quiz • HW activities via Educake • A selection of AFL activities to choose from, there should be opportunity to complete 2-4 of these • An exam style assessment, with a series of smaller responses required OR a larger essay style question asking whether we can know enough about volcanoes and earthquakes to live with them safely (CSB to do after dept. discussion) 	
Employment skills and career opportunity	
Aiming high Creativity Leadership Listening Presenting Problem solving Literacy Numeracy Independence Communication Teamwork Staying positive Career link: geoscientist https://www.unifrog.org/student/careers/keywords/geoscientist	
Pedagogy approaches (and homework suggestions)	
L01 Introduce topic and key vocabulary leading to vocabulary quiz Much time should be spent learning the new words via homework Introduce history of Earth, and where we are on the timeline. Plate tectonics ppt Students could draw their own timeline with key events Share a diagram of the structure, complete notes or a table about the characteristics are in each layer Textbook is a useful start point	
L02 Introduce the idea of plates and that they move. Convection currents causing the move to be discussed and noted Compare coastlines of Africa and South America, could also use Atlases with plate boundaries Could label some of the names of plates on world map Draw diagrams for the various types of boundary with named examples and a description of what happens Assessment opportunity via AFL	
L03 Google Earth file 'tectonic newest' is a useful introduction Could use tracing paper, trace location of EQ and Volc and then overlay onto Long Lat map. Could also use Digimap to do the same thing, describe distribution, clusters etc A useful worksheet in the worksheet pack, 11.1 Students need to understand that they happen in proximity to a boundary, usually. Extension: could look at distribution of ocean trenches and fold mountains	
L04 11.6 in the text book is a useful start Earthquakes ppt helps, but animations no longer work Time could be spent on reviewing prior knowledge, perhaps using 11.3 worksheet L02 boundaries should be reviewed to embed learning	

<p>L05 STARTER – Careers (geoscientist) Second half of earthquakes ppt Notes on richter and Mercalli scale, perhaps draw own images related to one of the Mercalli scale descriptors Worksheet 11.6 and 11.7a may be useful</p>
<p>L06 Use how can we limit ppt The google earth files should work, you need to have 3d models enabled Students could design their own EQ proof building P214 has a useful image for ideas</p>
<p>L07 choices of the impacts of four different EQ for teacher to make a comparison between. Nepal: https://www.youtube.com/watch?v=Yyhh98NDLNs or https://www.youtube.com/watch?v=946BfN-OI-Q Worksheet 11.6b and the textbook describe the event. Haiti: short clip in folder New Zealand: short clip in folder Japan: Tsunami video, while it is only discussing the EQ Case study sheets or notes could be completed, Extended writing comparing the two events, drawing upon the different levels of development of the locations</p>
<p>L08 Two types of volcano, shield and composite, key characteristics of both. Draw, and label volcano features, AFL opportunity If you feel the class is ahead of where you should be, potentially students could make their own model volcano and label it. Q4 p217 to recall what the hazards are</p>
<p>L09 why live near a volc ppt Could use Living with volc worksheet and pictures, discuss, answer questions. https://www.youtube.com/watch?v=yjswavT5tfQ Worksheet 11.9a P219 to read together</p>
<p>L10 Use of atlas to locate Etna/Sicily (or digimaps) 11.2 in skills book images to look at and questions Use iPads to name numbers on p92</p>
<p>L11 web enquiry on Etna, p90 skills book Use iPads/PCs to navigate Google Earth to answer Qs, digimap may be useful too</p>
<p>L12 Imagery and video of the tsunami in the folder May have already seen the first half covering the earthquake Map of Japan to label Worksheet to complete in folder The video is a good point for discussion regarding development, and how Japan coped afterwards</p>
<p>L13 supervolc video in videos file This lesson(s) could be skipped, depending on time Worksheet to complete Ppt in folder Article to read and discuss</p>