

Year 9: Earth and Space-Plate Tectonics

	Check	Date
Revise assumed knowledge: SC4-12ES describes the dynamic nature of models, theories and laws in developing scientific understanding of the Earth and solar system SC4-13ES explains how advances in scientific understanding of processes that occur within and on the Earth, influence the choices people make about resource use and management	<input type="checkbox"/>	
ES2 The theory of plate tectonics explains global patterns of geological activity and continental movement. (ACSSU180)		
TECTONIC PLATES		
<i>5ES2a. outline how the theory of plate tectonics changed ideas about the structure of the Earth and continental movement over geological time</i>		
Literacy activity (ESL focus): Key words. inner core, outer core, mantle, crust, continental plate, plate tectonics, Continental drift, tectonic plates, density, convection currents, sea floor spreading, Pangea, mid-ocean ridges, earthquake, epicentre, volcano, magma, lava	<input type="checkbox"/>	
Recall the basic structure of Earth. Inner/outer core, mantle, lithosphere	<input type="checkbox"/>	
Describe the theory of plate tectonics	<input type="checkbox"/>	
Process information from secondary sources to gather evidence to support the theory of plate tectonics <ul style="list-style-type: none"> • Continent jigsaw (cut and paste activity) • Rock and fossil types at continental edges • Mid-oceanic ridges and radiometric dating • Pacific ring of fire (plot worlds active volcanoes and earthquakes) • Magnetic fields 	<input type="checkbox"/>	
Research task/Numeracy: Outline and construct a timeline of the main historical developments leading to the theory of plate tectonics	<input type="checkbox"/>	
CODE: 9ES1 First-Hand investigation: Student design task: Measuring the density of rocks page 197		
<i>5ES2b. relate movements of the Earth's plates to mantle convection currents and gravitational forces</i>		
Define gravity and convection	<input type="checkbox"/>	
Explain how gravity and convection results in plate tectonics	<input type="checkbox"/>	
Research task(s) <ul style="list-style-type: none"> • Find an animation that demonstrates the role of convection currents and gravity in continental drift • Illustrate with a diagram that continental movement could be driven by convection currents within the Earth 	<input type="checkbox"/>	
CODE: 9ES2 First-Hand investigation: Convection currents To investigate how a supercontinent may have broken up into smaller pieces (Oxford pg186)	<input type="checkbox"/>	

Assessment: Tectonic Plates checkpoint test	<input type="checkbox"/>	
Assessment: Oxford online test- Tectonic Plates Students to achieve 100% in Support and Consolidate OR Consolidate and Extend	<input type="checkbox"/>	
ACTIVITY AT PLATE BOUNDARIES		
5ES2c. outline how the theory of plate tectonics explains earthquakes, volcanic activity and formation of new landforms 🌀	<input type="checkbox"/>	
Literacy activity (ESL focus): Key words. Transform boundary, fault, strike-slip, shallow focus earthquakes, converging boundaries, subduction, ocean trench, tsunamis, diverging boundaries, rift valley	<input type="checkbox"/>	
Define a transform boundary as a fault line where tectonic plates can slide past each other	<input type="checkbox"/>	
Transform (slide) plate boundaries: Describe the outcomes of transforming plate boundaries (earthquakes)	<input type="checkbox"/>	
Define a convergent plate boundaries as the collision of two tectonic plates	<input type="checkbox"/>	
Convergent (come together) plate boundaries: Describe the three possibilities of converging plate boundaries: <ul style="list-style-type: none"> • Ocean-to-continent (subduction zone, ocean trench, volcanoes) • Continent-to-continent (mountain range) • Ocean-to-ocean (subduction zone, ocean trench, volcanoes) • Describe the different geological features and natural events that can occur at each of the above; earthquakes, tsunamis, volcanoes 	<input type="checkbox"/>	
Map plate boundaries in relation to volcanic activity	<input type="checkbox"/>	
Explain the formation of volcanoes at plate boundaries and at hot spots	<input type="checkbox"/>	
Divergent (moving apart) plate boundaries: Describe diverging boundaries and how they produce rift valleys on land that will eventually widen to produce new seas.	<input type="checkbox"/>	
Discuss what the Earth may look like if continental drift continues into the future. Activity 5.3.1 Geology in the headlines	<input type="checkbox"/>	
Literacy activity: COSMOS. The ocean network by Peter Calamai: Issue 39 pg47 OR students research another related article. Students then write a series of questions that MUST include 5 multiple choice, 2 identify, 2 describe, 1 explain and either 1 assess or evaluate question.	<input type="checkbox"/>	
Assessment: Activity at plate boundaries checkpoint test	<input type="checkbox"/>	
Assessment: Oxford online test- Activity at plate boundaries Students to achieve 100% in Support and Consolidate OR Consolidate and Extend	<input type="checkbox"/>	

GEOLOGICAL TECHNOLOGY		
5ES2d. describe how some technological developments have increased scientific understanding of global patterns in geological activity, including in the Asia-Pacific region ⚙️⚙️	<input type="checkbox"/>	
Outline how scientists monitor indicators of volcanic activity to protect human life	<input type="checkbox"/>	
Describe how seismographs detect and monitor the progress of earthquakes	<input type="checkbox"/>	
Richter and Mercali scales for measuring earthquake intensity	<input type="checkbox"/>	
Describe the different types of seismic waves; P, S and L waves	<input type="checkbox"/>	
Describe how seismic data provides scientists with evidence of the nature of the Earth's interior	<input type="checkbox"/>	
Locate the epicentre of earthquakes	<input type="checkbox"/>	
Process information from secondary sources to explain the causes and effects of the Sumatran Tsunami <ul style="list-style-type: none"> • Causes • Damage • Death toll • Future direction 	<input type="checkbox"/>	
Compare the above between developed and third world countries.	<input type="checkbox"/>	
Earthquake proofing buildings	<input type="checkbox"/>	
5ESadd4 discuss technological developments that have extended the ability of scientists to collect information about, and monitor events in, the <u>natural world</u> ⚙️⚙️	<input type="checkbox"/>	
Discuss technological developments that have extended the ability of scientists to collect information about, and monitor events in, the <u>natural world</u> <ul style="list-style-type: none"> • Seismographs • Satellite tracking • Early warning and detection systems 	<input type="checkbox"/>	
5ESadd5 research evidence relating global warming to changes in weather patterns, including El Niño and La Niña ⚙️🌿	<input type="checkbox"/>	
Research task(s) research evidence relating global warming to changes in weather patterns, including El Niño and La Niña	<input type="checkbox"/>	
Assessment: Geological Technology checkpoint test	<input type="checkbox"/>	
Assessment: Oxford online test- Geological Technology Students to achieve 100% in Support and Consolidate OR Consolidate and Extend	<input type="checkbox"/>	
Assessment: PLATE TECTONICS CHAPTER TEST	<input type="checkbox"/>	
Comments and Suggested improvements		
<p>Name: _____ Signature: _____ Date: _____</p>		