



# MODULE 1 PURPOSEFUL PRACTICE

## YEAR 8 UNIT PLAN OVERVIEW

Unit of work			
(Lesson adapted from unit of work designed by NSW Department of Education, 2024)			
Year level	8	Unit title	Tectonic theory and events
Learning area	Science (Earth science)	Unit duration	6 x 45-minute lessons
Unit overview		Context and cohort considerations	
This unit of work includes tectonic plate theory, tectonic events such as volcanic eruptions and earthquakes and their effects on human populations. Student will explore the magnitude and structure of Earth, convection currents, tectonic plates and tectonic boundaries and earthquakes and volcanoes.		This class has 26 students in a mid-sized school in a regional city in Australia. In this class there are: <ul style="list-style-type: none"><li>three EAL/D students</li><li>three students with literacy levels between one and three years below expectation</li><li>two students working more than one year above expectation</li><li>one student with autism</li><li>two students with ADHD.</li></ul> Students have a range of strengths and needs and levels of motivation and engagement.	
Unit outcomes/Achievement standard			
Students will: <ul style="list-style-type: none"><li>Apply an understanding of the theory of plate tectonics to explain patterns of change in the geosphere.</li><li>Explain how the properties of rocks relate to their formation and influence their use.</li><li>Explain the impact of tectonic events on nations within the Pacific region.</li></ul>			
Assessment			
This will be populated in Module 4.			
Lesson plan			
Lesson focus: Tectonic plate theory (first lesson in the sequence).			
Learning objective			
Students will: <ul style="list-style-type: none"><li>Understand tectonic plate theory by exploring the seven major tectonic plates and their boundaries.</li><li>Explain the similarities and differences between the seven major tectonic plates.</li></ul>			

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Learning intentions and success criteria	Sequence of teaching and learning	Ongoing monitoring of learning
<p><u>Learning intentions</u> Today we are learning about tectonic plate theory. We will explore the seven major tectonic plates and their boundaries and identify the similarities and differences between them.</p> <p><u>Success criteria</u> I can:</p> <ul style="list-style-type: none"> <li>identify the seven different major tectonic plates on earth</li> <li>outline the similarities and differences between the tectonic plates</li> <li>describe tectonic plate theory.</li> </ul>	Share the learning intentions and success criteria of the lesson with the students.	
	 <ul style="list-style-type: none"> <li>Show images of volcanoes, earthquakes and mountains.</li> <li>Quick think-pair-share – What causes an earthquake? Why are there mountains? What causes volcanoes? Record ideas on the board. Check for accuracy of responses with students.</li> <li>Show students a visual image of the world with the tectonic fault lines outlined. Ask the question – What are these lines and what might they have to do with volcanoes, earthquakes and mountains? What do you know about tectonic fault lines? Short class discussion – Note student responses on the board (providing corrective feedback as needed).</li> <li>Ask students to complete an entry ticket by noting at least two things they know about tectonic fault lines.</li> </ul>	<p><b>Review prior learning</b></p> <p>Check understanding of tectonic fault lines through the lesson entry ticket. These can be used to inform planning of future lessons in this unit of work.</p>
	 <ul style="list-style-type: none"> <li>Share the learning intentions and success criteria of the lesson with the students. Ensure that they understand what they will learn and how they will be assessed.</li> <li>Show a relevant image of the planet. Explain that the earth's outer shell is divided into large tectonic plates that float on a fluid beneath them.</li> <li>One at a time, describe the three main types of plate boundaries: divergent, convergent and transform.</li> <li>Use diagrams to illustrate each type of boundary and their associated geological features.</li> <li>Check for understanding – Online quiz to check understanding of the three types of plate boundaries and their associated features.</li> <li>Use a map to identify the seven major tectonic plates: African, Antarctic, Eurasian, Indo-Australian, North American, Pacific and South American.</li> <li>Show images on the board through a slide show of the seven major tectonic plates.</li> </ul>	<p><b>Present new learning</b></p> <p>Check understanding of what a tectonic plate is.</p> <p>Check understanding of seven major tectonic plates through online quiz. Ask some students to explain their responses.</p>



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	<ul style="list-style-type: none"> <li>▪ Check for understanding – Using cards associated with each of the seven major tectonic plates for the students to hold up in response to questions about them.</li> <li>▪ Think aloud – Model how to explain tectonic plate theory: the movement of tectonic plates at different boundaries and how this movement can lead to earthquakes, volcanic activity and mountain formation. Analyse how these processes are interconnected.</li> <li>▪ Worked example – Model completing a cause-and-effect graphic organiser, focussing on the cause of different types of tectonic plate movements and the associated effects.</li> <li>▪ Check for understanding – Use mini whiteboards to have students draw and label the three types of plate boundaries and list at least one geological feature associated with each. Ask some students to explain their drawings and responses. Provide corrective feedback if needed.</li> </ul>	<p>Check understanding using cards associated with each of the seven major tectonic plates.</p> <p>Check understanding by floating the room and checking mini whiteboards.</p>
	<div data-bbox="1675 758 1758 837" data-label="Image"> </div> <p>Students work in groups and complete the task one step at a time, guided by the teacher who is constructing a concept map alongside them.</p> <p>Concept mapping – Organise students into groups of three or four, providing them with a large piece of butcher's paper and felt tip pens. Students work together to create a concept map connecting tectonic plate movements, geological events (like earthquakes and volcanoes) and specific examples (e.g., the San Andreas Fault, the Himalayas). They consider the new learning presented:</p> <ul style="list-style-type: none"> <li>▪ The three types of plate boundaries (convergent, divergent, transform)</li> <li>▪ Geological phenomena resulting from plate movements (earthquakes, volcanoes, mountain formation)</li> <li>▪ Real-world examples (San Andreas Fault, Himalayas, Mid-Atlantic Ridge)</li> </ul> <p>As part of the concept map, instruct students to place the central concept of 'tectonic plates' in the middle of their paper. From the central concept, students draw lines out to the main categories (convergent, divergent and transform). For each boundary type, students should draw lines to specific geological events (e.g., earthquakes, volcanoes) and to real-world examples. Encourage students to use connecting phrases (causes, leads to) between concepts to clarify relationships. Students can use different colours to categorise information.</p>	<p><b>Guided practice</b></p> <p>Monitor the completion of the concept maps by checking for understanding after each step. Check group concept maps are accurate. Provide feedback as required.</p>

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		<b>Purposeful practice</b>
	<p>Revisit learning intentions and success criteria. Students work individually.</p> <ul style="list-style-type: none"> <li>▪ Each student selects a tectonic plate and creates a detailed explanation of its boundaries, movements and associated geological features. They use the cause-and-effect graphic organiser and concept mapping to structure their descriptions and include clear explanations.</li> <li>▪ Provide a copy of the worked example and the concept maps to support student ideas. Encourage students to consult with peers or refer to class notes if they need help.</li> <li>▪ If additional reteaching of essential content is needed for some, encourage the other students to ask an elbow partner if they are unsure of something. If this doesn't help, they should hold the question and move onto another part of the activity until the teacher is free.</li> </ul>	<p>Monitor the completion of the task by walking around the room and checking in with students. Provide feedback as required.</p>
		<b>Ongoing review of learning</b>
<b>Adjustments:</b>	This will be populated in Module 2	
<b>Resources:</b>	Relevant images, entry ticket, mini whiteboards, graphic organisers (included organisers with additional), handouts explaining seven major tectonic plates and their features, butcher's paper and felt tip pens, iPads, relevant vocabulary lists, sentence starters, exit tickets.	
<b>Notes:</b>	This will be populated in Module 3	