Introducing Our Changing Earth

Syllabus Outcome	Syllabus Content	Integrated learning experiences, instruction and assessment	Evidence of learning
A student: 4.9 describes the dynamic structure of Earth and its relationship to other parts of our solar system and universe	Students learn about/learn to: 4.9.3 the structure of Earth a) describe the inner structure of the Earth in terms of core, mantle, crust and lithosphere	Individual/Class Activity to Determine Prior Learning: – Students draw diagrams to illustrate their understanding of the inner structure of the Earth. – After comparing their diagrams with their peers, they assist the teacher to compile a diagram of the inner structure of the Earth on the board. – With teacher guidance, they discuss the existence and significance of crustal plates.	Students recall that the Earth is comprised of layers – crust, mantle and core and that the crust is made up of plates that can move or 'float' on the mantle.
5.1 explains how social factors influence the development and acceptance of scientific ideas	4/5.1 the history of science a) identify some of the ideas from different cultures (including those of Aboriginal and other Indigenous people) that have contributed to science throughout history	Group/Class Activity: Students investigate an example of how one group of traditional Aboriginal people describe the cause of earthquakes. – Students identify on a map the region in which the traditional Awabakal people lived and the location of Nobbys Head. – Students listen to a member of the local Aboriginal community tell the Dreaming story: *The Kangaroo That Lives Inside Nobbys* and/or read the story themselves.	Students use gathered information to locate the Newcastle area and Nobbys Headland on a map and identify the area in which the Awabakal people live.
5.16 accesses information from a wide variety of secondary sources	4/5.16 gathering information from secondary sources c) extract information from column graphs, histograms, divided bar and sector graphs, line graphs, composite graphs, flow diagrams, other text and audio/visual resources	– With guidance, students discuss the story's meanings and outline in their own words the events that describe the cause of the earthquake. Class/Individual Activity: With guidance, students use an Aboriginal art style to present an outline of the cause of the earthquake as described in the Dreaming Story. – Students participate in a discussion with a member of the local Aboriginal community, National Parks Officer, Aboriginal Site Officer or artisan about the use and meaning of ochre colours used in Aboriginal peoples' artworks.	With guidance students gain an appreciation of the cultural importance of The Dreaming for Aboriginal people in explaining the world around them.
5.18 selects and uses appropriate forms of communication to present information to an audience	4/5.18 presenting information e) use drawings, diagrams, graphs, tables, databases, spreadsheets and flowcharts to show relationships and present information clearly and/or succinctly	– Students gather information about pigments, colours and styles used by Aboriginal people in their drawings and paintings. – Students depict a part of the Dreaming Story in an annotated drawing uing an Aboriginal art style with traditional colours. The pictures could be displayed around the room in a sequence to describe how earthquakes are caused. (*refer to Student Work Samples 1, 2, 3*)	Students use appropriately annotated drawings to outline the events that are described for earthquakes in the Newcastle area in the Awabakal Dreaming Story.

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A student:	Students learn about/learn to:	**Extension Activity** **This activity is based on additional content and may be used where teachers wish to extend students' learning experiences beyond the scope of the essential syllabus content.** Individual/Class Activity: Students gather, summarise and present scientific information about some of the different types of 'giant-sized Australian animals' (megafauna). – Students listen to or read a non-Aboriginal children's story about the Australian megafauna as an introduction to the activity. – Students collate information that includes a diagram or description of the features of an animal, what it ate, the type of area it inhabited and the period of time in which it lived. – Students present their information for display in the classroom. – The class discusses and relates the possibility of an extinct species of 'swimming kangaroo' to the Dreaming Story.	
5.17 explains trends, patterns and relationships in data and/or information from a variety of sources	4/5.17 processing information a) collate information from a number of sources b) distinguish between relevant and irrelevant information c) check the reliability of gathered data and information by comparing them with observations or information from other sources e) critically analyse the accuracy of scientific information presented in the mass media.	Class Activity: Students investigate media reports of earthquakes in the Newcastle region. – Students gather information from secondary sources to identify the dates of major earthquakes in the Hunter region over the last 300 years. – Students then read and compare scientific information presented in the mass media about the Newcastle Earthquake of 1989 (eg video, newspaper and other media reports). – With teacher guidance, students check the accuracy and consistency of the information presented in a variety of media reports. Students identify the media's explanation for the earthquake. – Students identify that scientists' explanation for the cause of the Newcastle earthquake was movement in a crustal plate.	Students use an appropriate strategy to check the reliability of data/information gathered from a range of sources.
5.19 uses critical thinking skills in evaluating information and drawing conclusions	4/5.19 thinking critically g) use cause and effect relationships to explain ideas		Students evaluate information and use cause and effect relationships to explain ideas.

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A student: 5.18 selects and uses appropriate forms of communication to present information to an audience	Students learn about/learn to: 4/5.18 presenting information a) select and use appropriately, types of texts for different purposes and contexts including a discussion, explanation, procedure, exposition, recount, report, response or experimental record for oral or written presentation b) select and use an appropriate medium to present data and information	Sample Assessment for Learning Activity – Students write a short, scientifically accurate newspaper report about the Newcastle earthquake that includes when and where the earthquake occurred, the cause of the earthquake and the damage done, including the number of lives lost *(refer to Sample Assessment Task: Writing a Newspaper Report)*	Students use an appropriate type of text to present relevant and accurate data and information in a newspaper report.
5.4 discusses scientific evidence supporting different viewpoints	4/5.4 the implications of science for society and the environment b) give examples to show that different cultures or groups within a society (including Aboriginal and other Indigenous people) may use or weight criteria differently to make a decision about an issue involving a major scientific component	Group Activity: In a guided discussion, students suggest why the explanations for the cause of the earthquake presented by the Awabakal people, the media and scientists may be different.	Students relate the different explanation of the cause of earthquakes to the different knowledge systems, criteria used, and understanding that groups of people bring to a situation.