

Key Inquiry Question	Content/Tools/Skills	Outcomes	Lesson Activity
<p>How do environments functions?</p>	<p>Environments</p> <p>Investigate the role and importance of natural environments, for example:</p> <ul style="list-style-type: none"> - Identification of the function of natural environments in supporting life, e.g. maintaining biodiversity 	<p>GE5-2</p>	<p>Pre-lesson question – What do students already know about types of environments and how they function? What are local environments? What environments have people visited on holidays? Are all types of environmental change negative? Etc</p> <p>Brainstorm features of the environment and processes that relate to the four spheres (lithosphere, hydrosphere, atmosphere and biosphere).</p>
<p>What are the causes and consequences of change in environments and how can this change be managed?</p>	<p>Environmental change</p> <p>Investigate human-induced environmental changes across a range of scales, for example:</p> <ul style="list-style-type: none"> - Brief examination of types and extent, or environmental change 	<p>GE5-3, GE5-4</p>	<p>Create a mind map of causes of environmental change</p> <p>Write a newspaper article of an example of environmental change at a local scale. Include a location map, brief details of the change and some of the impacts of the change.</p> <p>Create a digital portfolio on environmental change. Students need to include 3 articles about environmental change at each of: local, regional and national/global scale. Students</p>

			<p>need to write a one paragraph analysis on each article addressing: What is the cause of the change? What are the positive and negative impacts of the change? How do these changes impact on hot environment functions?</p>
<p>How do people's worldviews affect their attitudes to and use of environments?</p>	<p>Environmental management</p> <p>Investigate environmental management, including different worldviews and the management approaches of Aboriginal and Torres Strait Islander Peoples, for example:</p> <ul style="list-style-type: none"> - Discussion of varying environmental management approaches and perspectives. 	<p>GE5-4</p>	<p>Students complete a 3-2-1 lesson reflection. They write down three things they have learnt from the lesson, two questions they still have and one aspect they have enjoyed.</p> <p>Teacher could introduce an ATSI perspective into the lesson. What are the features of different environments that made them an attractive place to live for Aboriginal and Torres Strait Islanders?</p>
			<p>Distribute blank cards and ask students to anonymously write down any questions they have regarding the last few lessons. The teacher can write the questions on the board. Students then get into small groups to discuss the questions and research any answers they don't know, and they then come together as a</p>

			class to discuss the answers. Students complete a glossary quiz using an online tools such as Quizlet or Kahoot.
Why is an understanding of environmental processes and interconnections essential for sustainable management or environments?	Investigative study 1 (Coral reefs) Select ONE type of environment in Australia as the context for a comparative study with at least ONE other country.		
	Investigate the biophysical processes essential to the function of the selected environment - Explanation of how the biophysical processes operating in the environment maintain its functioning	GE5-2	Use some introductory questions with the class to get an idea of prior knowledge of coral reefs Pre-test Develop a coral reef glossary Virtual reality lesson – Streetview – examine sites around the GBR and Coral Triangle using Google Streetview.
	Investigate the causes, extent and	GE5-3, GE5-4	Create a dot point summary about the cause of

consequences of the environmental change

- Examination of the causes and extent of change to the environment in each country
- Analysis of the short and long-term consequences of the environmental change in each country

change to coral reefs.

Students develop a blog or twitter hashtag to compile evidence of coral bleaching globally.

Use Twitter to investigate differences in peoples' views about the causes of environmental issues such as coral bleaching. Determine environmental worldviews of tweeters, your own views about the issue and how your own worldview impacts on your views.

Groupwork: Coral bleaching. Investigate coral bleaching in a location other than Australia. Prepare a one minute lecture and interactive presentation to present to the class.

Students pretend they are time travellers and write a series of diary entries explaining how the reefs at Lizard Island have changed over time. The diary entries may be many years apart or close together.

Students create a board game about coral bleaching.

Create an infographic about the proposed

		<p>Adani mine and how it will impact on the GBR.</p> <p>Virtual reality activity – Use the Within app to examine pressures on a local fisherman in Raja Ampat</p>
<p>Investigate the management of the environmental change, for example:</p> <ul style="list-style-type: none"> - discussion of the factors influencing the management responses in each country e.g. worldviews, competing demands, technology, climate change - comparison and evaluation of the effectiveness of the management responses in achieving environmental sustainability - proposal of how individuals could contribute to achieving environmental sustainability for the environment in each country 	<p>GE5-5, GE5-7, GE5-8</p>	<p>Students write newspaper/magazine articles about the different ways that corals can be managed, and compile them into a class magazine that could be published on the school website or Facebook page.</p> <p>OR</p> <p>Create a series of podcasts about coral reefs and their management. Conduct peer reviews of other groups' podcasts and provide feedback.</p> <p>Organise a video conference with an expert from the Cairns to investigate the issue further (e.g. local councillor, planner, reef expert, etc).</p> <p>Twitter lesson – create a storify that shows progress of discussion, research, campaigns and decisions related to managing reefs.</p> <p>Virtual fieldwork – Examine changes to reefs</p>

at Lizard Island between 2012 and 2016. Complete virtual coral and fauna surveys, photograph analysis and a landuse survey or sites around Lizard Island. Compare changes between 2012 and 2016.

Class debate: Ask students to identify their own worldview and then organise themselves into groups with likeminded students. Students then undertake research about the Adani Coal mine and establish their own points of view. Divide the class into two opposing teams. Hold a class debate: The benefits of the Adani coal mine outweigh the disadvantages.

Evaluate a range of management strategies in place for coral reefs. Use a criteria to help make judgements about the effectiveness of different strategies.

Video conference: Hold a video conference with a coral reef expert such as someone from Reef HQ, or CoE. Students research the organisation and formulate interview questions.

<p>Investigative study 2 (Tundra)</p> <p>Select ONE type of environment in Australia as the context for a comparative study with at least ONE other country.</p>		<p>Use some introductory questions with the class to get an idea of prior knowledge of tundra</p> <p>Pre-test</p> <p>Develop a tundra glossary</p>
<p>Investigate the biophysical processes essential to the function of the selected environment</p> <p>- Explanation of how the biophysical processes operating in the environment maintain its functioning</p>	<p>GE5-2</p>	<p>Create a dot point summary about biophysical processes in tundra environments.</p> <p>Create a compare and contrast table exploring the similarities and differences between tundra in Churchill, Canada, and tundra in Heard and McDonalds Islands, Australia.</p> <p>Create climate graphs for tundra locations.</p> <p>Explore topographic maps of Heard Island.</p>
<p>Investigate the causes, extent and consequences of the environmental change</p> <p>- Examination of the causes and extent of change to the environment in each country</p> <p>Analysis of the short and long-term</p>	<p>GE5-3, GE5-4</p>	<p>Explore the impacts of climate change on tundra environments by completing a cause and effect diagram.</p> <p>Create an infographic about the causes and consequences of environmental change in tundra environments. It may include climate change, natural resource use, human</p>

consequences of the environmental change in each country

settlement, tourism and pollution.

Virtual fieldwork – Use Google maps to undertake fieldwork on a remote location – Hudson Bay, Churchill, Canada.

Maps – Explore a variety of different maps of Churchill Canada to investigate factors that contribute to change.

Investigate the management of the environmental change, for example:

GE5-5, GE5-7,
GE5-8

- discussion of the factors influencing the management responses in each country e.g. worldviews, competing demands, technology, climate change
- comparison and evaluation of the effectiveness of the management responses in achieving environmental sustainability
- proposal of how individuals could contribute to achieving environmental sustainability for the environment in each country

Writing task – Analyse short and long term consequences of environmental change in tundra environments. Refer to both Churchill, Canada and Heard and McDonald Islands, Australia in your response. Provide students with a scaffold to assist their writing structure and style.

Virtual fieldwork – explore polar bear tracking through radio collars. Refer to this in conjunction with Twitter descriptions of research undertaken. Describe how this data collection results in more effective management of tundra environments.