

**Year 8**

**Ocean Literacy Principle**

**Concepts**

<p><b>Earth and space sciences:</b> Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales (ACSSU153)</p>	<p>The ocean and life in the ocean shape the features of Earth.</p>	<p>Many earth materials and biogeochemical cycles originate in the ocean. Many of the sedimentary rocks now exposed on land were formed in the ocean. Ocean life laid down the vast volume of siliceous and carbonate rocks.</p> <p>Erosion—the wearing away of rock, soil and other biotic and abiotic earth materials—occurs in coastal areas as wind, waves, and currents in rivers and the ocean, and the processes associated with plate tectonics move sediments. Most beach sand (tiny bits of animals, plants, rocks, and minerals) is eroded from land sources and carried to the coast by rivers; sand is also eroded from coastal sources by surf. Sand is redistributed seasonally by waves and coastal currents.</p>
<p><b>Physical sciences:</b> Energy appears in different forms, including movement (kinetic energy), heat and potential energy, and energy transformations and transfers cause change within systems (ACSSU155)</p>	<p>The Earth has one big ocean with many features.</p>	<p>The interaction of oceanic and atmospheric processes controls weather and climate by dominating the Earth’s energy, water, and carbon systems.</p> <p>The ocean moderates global weather and climate by absorbing most of the solar radiation reaching Earth. Heat exchange between the ocean and atmosphere drives the water cycle and oceanic and atmospheric circulation.</p> <p>Heat exchange between the ocean and atmosphere can result in dramatic global and regional weather phenomena, impacting patterns of rain and drought. Significant examples include the El Niño Southern Oscillation and La Niña, which cause important changes in global weather patterns because they alter the sea surface temperature patterns in the Pacific.</p> <p>Condensation of water that evaporated from warm seas provides the energy for hurricanes and cyclones. Most rain that falls on land originally evaporated from the tropical ocean.</p>
<p><b>Nature and development of science:</b> Scientific knowledge has changed peoples’ understanding of the world and is refined as new becomes available (ACSHE134)</p>	<p>The ocean is largely unexplored.</p>	<p>The ocean is the largest unexplored place on Earth—less than 5% of it has been explored. The next generation of explorers and researchers will find great opportunities for discovery, innovation, and investigation.</p>
<p><b>Nature and development of science:</b> Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures (ACSHE226)</p>		<p>Ocean exploration is truly interdisciplinary. It requires close collaboration among biologists, chemists, climatologists, computer programmers, engineers, geologists, meteorologists, physicists, animators, and illustrators. And these interactions foster new ideas and new perspectives for inquiries.</p>
<p><b>Use and influence of science:</b> Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations (ACSHE135) and People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity (ACSHE136)</p>	<p>The ocean and humans are inextricably interconnected.</p>	<p>Humans affect the ocean in a variety of ways. Laws, regulations, and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution (point source, nonpoint source, and noise pollution), changes to ocean chemistry (ocean acidification), and physical modifications (changes to beaches, shores, and rivers).</p>