## Oceanography

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<th>Unit / Concept</th>
<th>Essential Questions</th>
<th>Skills</th>
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<th>Resources / Technology Integration</th>
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| People and the Ocean  
  •Properties of water  
  •History of Ocean Exploration  
  •Human Divers  
  •Trade and Ocean Currents | How do the oceans influence human activities?  
What is the relationship between objects interactions and the properties of water?  
How have the oceans influenced the development of human society? | •Identifying the characteristics of water and the effect this has on objects in the water.  
•Understanding the ocean's role in early human history and today. | Teacher constructed tests, quizzes and homework assignments  
Student in-class presentations and in-class assignments | Heath Earth Science  
Introductory Oceanography; Thurman and Burton  
Oceanography, an Invitation to Marine Science  
An Introduction to the World's Ocean  
Enchantedlearning.com  
Classzone.com |
| Life in the Water  
  •Marine Environments | Why do you think life in the ocean is so diverse?  
What is the relationship between animal behavior and their environment?  
What is the function of coral reefs in the ocean ecosystem?  
What questions would you ask a specific creature in the sea? | •Classifying  
•Interconnected life forms  
•Conservation  
•Behavior of animals is affected by their environment. | Teacher constructed tests, quizzes, homework assignments and in-class assignments | Heath Earth Science  
Introductory Oceanography; Thurman and Burton  
Oceanography, an Invitation to Marine Science  
An Introduction to the World's Ocean  
Enchantedlearning.com  
Classzone.com  
Instructional DVD's and videos (ocean life) |
| •Coral Seas  
•City of Coral  
•Fragile Reef  
•Sponges  
•Jellyfish  
•Sea Urchins | How do symbiotic relationships between life forms influence survival?  
What are the threats to coral reefs and to coastal ocean habitats? | •Classifying  
•Interconnected life forms  
•Conservation  
•Behavior of animals is affected by their environment.  
•Organisms respond to changes in their environment. | Teacher constructed tests, quizzes, homework assignments and in-class assignments. | Glencoe Biology  
Introductory Oceanography; Thurman and Burton  
Oceanography, an Invitation to Marine Science  
An Introduction to the World's Ocean  
Instructional DVD's and videos (red tides and coral reefs)  
Enchantedlearning.com  
Classzone.com |
| •Mollusks and Arthropeds | How would you classify life forms found in different strata of the ocean?  
How do trophic relationships vary in the ocean? | •Classifying  
•Interconnected life forms  
•Conservation  
•Behavior of animals is affected by their environment.  
•Trophic cascades | Teacher constructed tests, quizzes, homework assignments, student presentations and in-class assignments. | Glencoe Biology  
Introductory Oceanography; Thurman and Burton  
Oceanography, an Invitation to Marine Science  
An Introduction to the World's Ocean  
Instructional DVD's and videos (sharks and ocean food web)  
Enchantedlearning.com  
Classzone.com |
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<td>Evolution and Conservation&lt;br&gt;• Recognizing patterns of evolution&lt;br&gt;• Threats to ocean resources&lt;br&gt;• Plight of Dolphins</td>
<td>What evidence can you find that animals have adapted through time? How can fossil evidence be used to support the theory of evolution? How have humans affected the evolution of ocean life?</td>
<td>• Patterns of change&lt;br&gt;• Conservation&lt;br&gt;• Interconnectedness of life forms&lt;br&gt;• Land use patterns affect oceans</td>
<td>Teacher constructed tests, quizzes, homework assignments, class debates and in-class assignments.</td>
<td>Glencoe Biology Introductory Oceanography; Thurman and Burton&lt;br&gt;Oceanography, an Invitation to Marine Science&lt;br&gt;Reading Articles&lt;br&gt;An Introduction to the World’s Ocean&lt;br&gt;Enchantedlearning.com&lt;br&gt;Classzone.com&lt;br&gt;The Cove</td>
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<td>New project to restore one part of the Aral Sea, 2003 Shark StatusEco-ology/Human Impacts</td>
<td>What way would you design organisms to function in deep-sea life? What evidence can you find to prove the collapse of the Aral Sea? What predictions would you make for organisms in the Aral Sea as it is refilled? Can you make a distinction between ancient creatures of the deep and modern day ones?</td>
<td>• Patterns of change&lt;br&gt;• Conservation&lt;br&gt;• Land use affects oceans&lt;br&gt;• Interconnectedness of life</td>
<td>Teacher constructed tests, quizzes, homework assignments, and in-class assignments</td>
<td>Glencoe Biology Introductory Oceanography; Thurman and Burton&lt;br&gt;Oceanography, an Invitation to Marine Science&lt;br&gt;An Introduction to the World’s Ocean&lt;br&gt;Enchantedlearning.com&lt;br&gt;Classzone.com&lt;br&gt;Sharkwater&lt;br&gt;Reading Articles/Reflection and Perspective Writings</td>
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<td>Waves and Coasts&lt;br&gt;Tidal seas-coasts&lt;br&gt;Measuring ocean waves&lt;br&gt;How do storms affect coastlines?&lt;br&gt;Shoreline models&lt;br&gt;Oceans, Coasts and Tides</td>
<td>How would you classify the different ocean waves? What are the parts or features of an ocean wave? What is the relationship between storms and coastlines? What way would you design barriers to minimize shoreline damage?</td>
<td>• Cause and effect relationships&lt;br&gt;• Physical classification&lt;br&gt;• Sustainable planning and building along coastlines</td>
<td>Teacher constructed tests, quizzes, homework assignments and in-class assignments&lt;br&gt;The creation of models</td>
<td>Heath Earth Science Introductory Oceanography; Thurman and Burton&lt;br&gt;Oceanography, an Invitation to Marine Science&lt;br&gt;An Introduction to the World’s Ocean&lt;br&gt;Instructional DVD’s and video (threatened coastlines)&lt;br&gt;Enchantedlearning.com&lt;br&gt;Classzone.com</td>
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<td>Ocean water and the Ocean Floor&lt;br&gt;• Zones of the Sea&lt;br&gt;• Open ocean, the deep&lt;br&gt;• Effects on animals</td>
<td>How does the sun and moon effect Earth’s ocean? How are the ocean systems interconnected? Can you list the zones of the ocean?</td>
<td>• Interconnectedness of life&lt;br&gt;• Interconnectedness of physical systems&lt;br&gt;• Cause and effect relationships</td>
<td>Teacher constructed tests, quizzes, homework assignments, and in-class assignments.</td>
<td>Heath Earth Science Introductory Oceanography; Thurman and Burton&lt;br&gt;Oceanography, an Invitation to Marine Science&lt;br&gt;An Introduction to the World’s Ocean</td>
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| •Ocean world, frozen seas  
•One current affects the Whole of North America  
•Understanding Oceans  
•To the Depths of Discovery  
•Global warming affects ocean currents | What is the relationship between ocean currents and the climate of the continents?  
Can you elaborate on the reason we have ocean currents?  
How many ocean currents change with continued ocean warming? | •Interconnectedness of physical systems  
•Cause and effect relationships | Teacher constructed tests, quizzes, homework assignments, in-class debates and in-class assignments | Heath Earth Science  
Introductory Oceanography; Thurman and Burton  
Oceanography, an Invitation to Marine Science  
An Introduction to the World's Ocean  
Enchantedlearning.com  
Classzone.com |
| What are the mechanisms behind sea-floor spreading? | Graphing  
Rate Calculations  
Cause and effect Relationships  
Interconnectedness of physical systems | Teacher constructed tests, quizzes, homework assignments, in-class debates and in-class assignments | Heath Earth Science  
Introductory Oceanography; Thurman and Burton  
Oceanography, an Invitation to Marine Science  
An Introduction to the World's Ocean  
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Classzone.com |