

Marine Biology

Marine Biology: Grades 11 & 12				
Standards	Objectives	Resources	Time Allotment	SHS Student Expectations
<b>Learning Standard #1</b> Oceans				
<b>Learning Standard # 1.1</b> History of Ocean Exploration	The student will be able to: <ul style="list-style-type: none"> <li>• Explain what happened to the Titanic when it hit the iceberg</li> <li>• Discuss some of the important people and discoveries in the field of oceanography</li> <li>• Describe some of the important events and developments in the history of ocean exploration</li> </ul>	Video: Physical Oceanography Greene: ch. 1 pgs. 1-23 Field trip: local beach Niesen: pg 1, 6	10 days	1, 3, 5
<b>Learning Standard # 1.2</b> Marine Environments	The student will be able to: <ul style="list-style-type: none"> <li>• Distinguish between the different life zones along a shore</li> <li>• Discuss the characteristics of a variety of marine environments</li> <li>• Describe the typical inhabitants of these marine environments</li> </ul>	Greene: ch. 15 pgs. 320-349 Videos: Life at the Edge of the Sea Treasures of the Great Barrier Reef Field trip: local beach Niesen: pg 2, 3, 4, 9	10 days	1, 3, 5
<b>Learning Standard # 2</b> Marine Vertebrates				
<b>Learning Standard # 2.1</b> Marine Mammals	The student will be able to: <ul style="list-style-type: none"> <li>• Describe the basic characteristics and behaviors of the cetaceans</li> <li>• Discuss adaptations of pinnipeds and other marine mammals</li> <li>• Identify unique diving response features of marine mammals</li> </ul>	Greene: ch. 14 pgs. 293-315 Videos: Manatees Killer Whales Private Lives of Dolphins Field trip: local beach Niesen: pgs 45-48	10 days	1, 3, 5
<b>Learning Standard # 2.2</b> Marine Reptiles and Birds	The student will be able to: <ul style="list-style-type: none"> <li>• List the types of reptiles and birds that are found in the marine environment</li> <li>• Discuss the special adaptations</li> </ul>	Video: SuperCroc Trials of Life Greene: ch. 13 pgs. 274-311 Field trip: local beach Niesen: pg 44	10 days	1, 3, 5

	reptiles have for living in the sea <ul style="list-style-type: none"> <li>• Discuss the special adaptations sea birds have for an oceanic life</li> <li>•</li> </ul>			
<b>Learning Standard # 2.3</b> Fishes	The student will be able to: <ul style="list-style-type: none"> <li>• List the distinguishing features of the three classes of fishes</li> <li>• Identify some important adaptations of fishes to ocean life</li> <li>• Discuss various unusual adaptations that fishes have evolved.</li> </ul>	Video: Sharks Monterey Bay Aquarium Great White Lab: Squalus dissection Greene ch. 12 pgs. 250-271 Field trip: local beach Niesen: pgs 35 -43	10ays	1, 3, 5
<b>Learning Standard # 3</b> Marine Invertebrates				
<b>Learning Standard # 3.1</b> Animals with Armor	The student will be able to: <ul style="list-style-type: none"> <li>• List the basic characteristics of the crustaceans</li> <li>• Describe the structures and functions of lobsters and crabs</li> <li>• Identify important features of smaller crustaceans and other marine arthropods</li> </ul>	Video: Everglades/Chesapeake Bay Greene ch. 10 pgs. 208-227 Field trip: local beach Niesen: pg 54, 30	10 days	1, 3, 5
<b>Learning Standard # 3.2</b> Soft-bodied Animals	The student will be able to: <ul style="list-style-type: none"> <li>• Describe the basic structures and functions of the bivalves</li> <li>• Distinguish among the variety of gastropod forms and functions</li> <li>• Discuss the unique shapes and adaptations of the cephalopods</li> </ul>	Video: Ocean of Light Greene ch. 9 pgs. 188-205 Lab: Squid dissection Field trip: local beach Niesen: pgs 22 -24	10 days	1,2,3,4,5,6,
<b>Learning Standard # 4</b> Energy in the Ocean				
<b>Learning Standard # 4.1</b> Pollution in the Marine Environment	The student will be able to: <ul style="list-style-type: none"> <li>• Discuss the impact of sewage pollution on aquatic ecosystems</li> <li>• Describe the effects of toxic</li> </ul>	Video: Tides of Change Greene: ch. 22 pgs. 502-527 Field trip: local beach	10 days	1,2, 3,4, 5,6

	chemicals on marine organisms <ul style="list-style-type: none"> <li>• Explain the importance of clean waters to aquatic life forms</li> <li>• Discuss the problem of solid wastes in marine ecosystems</li> </ul>			
<b>Learning Standard # 5</b> Water Planet				
<b>Learning Standard # 5.1</b> Geology of the Ocean	The student will be able to: <ul style="list-style-type: none"> <li>• Relate the theories of continental drift and plate tectonics to the formation of the continents and the oceans</li> <li>• Explain the development of seafloor topographic features</li> <li>• Describe the formation of coastal features and reef types</li> </ul>	Video: The Blue Planet Greene: ch.16 pgs. 353-379 Field trip: local beach Niesen: pg 1, 6	10 days	1,2, 3,4,5,6
<b>Learning Standard # 6</b> Laboratory		All of the labs listed above pertain to this standard. Students keep a laboratory notebook of all of their labs.		1, 3, 5
<b>Learning Standard # 6.1</b> Making observations of reactions and substances	The student will be able to: <ul style="list-style-type: none"> <li>• Observe reactions in the laboratory and in the field.</li> </ul>	All labs	Continual	1, 3, 5
<b>Learning Standard # 6.2</b> Recording data	The student will be able to: <ul style="list-style-type: none"> <li>• Record accurate and precise data.</li> </ul>	All labs	Continual	1, 3, 5
<b>Learning Standard # 6.3</b> Calculating and interpreting results based on the quantitative data obtained	The student will be able to: <ul style="list-style-type: none"> <li>• Perform calculations describing laboratory and field experiments.</li> <li>• Interpret the data and calculations of an experiment to reach conclusions about that experiment.</li> </ul>	All labs	Continual	1, 3, 5
<b>Learning Standard # 6.4</b> Communicating effectively the results of experimental work	The student will be able to: <ul style="list-style-type: none"> <li>• Write a conclusion summing up the laboratory and field results and explaining the implications of an experiment.</li> </ul>	All labs	Continual	1, 3, 5
				1, 3, 5