

HS Science District Instructional Guides (Date Updated:2019-2020)

Course Name: Marine Science		Quarter/Pacing: Quarter 2/1 Week			
Unit Title: Classification		Essential Questions:			
		Phenomena: Picture of a dolphin fish and a dolphin mammal			
Standards	Cross Cutting Concepts	Objectives	Key Vocabulary	Resources (Activities/Labs)	Assessments
Essential HS.L4U1.27	Structure and Function Patterns Stability and Change	TSWBAT: 1. Identify the seven main taxa that scientists classify organisms in. 2. Demonstrate how to use a dichotomous key to classify organisms. 3. Explain why scientists classify.	Dichotomous key, taxa, taxonomy, phylum, kingdom, class order, family, genus, species,	1. Dichotomous key Lab 2. Classify a marine organism	Classification Lab Dichotomous Key Lab Classification Quiz

HS Science District Instructional Guide 2019 - 20

Course Name: Marine Science		Pacing/Quarter: 3 weeks, Quarter 1			
Unit Title:		Essential Questions: 1. What safety rules should you follow in this class? Where the ocean basins and major seas located? What are the major latitude and longitude lines?			
		Phenomena: 1. Map of the ocean 2. Map of the world with latitude/longitude lines			
Standards	Cross Cutting Concepts	Objectives	Key Vocabulary	Resources (Activities/Labs)	Assessments
U1: Scientists explain phenomena using evidence obtained from observations and or scientific investigations. Evidence may lead to developing models and/or theories to make sense of phenomena. As new evidence is discovered, models and theories can be revised.U2: The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.U3: Applications of science often have positive and negative ethical, social, economic, and/or political implications.	Patterns	1. Students will be able to identify the safety standards for this class 2. Students will be able to identify the ocean basins, major seas and lines of latitude/longitude.	Latitude, Longitude, International Dateline, Prime Meridian, GPS,	Ocean maps, Chromebooks	Ocean/Seas Mapping Activity, Safety Quiz, Unit 1 Exam

HS Science District Instructional Guides (Date Updated: 2019-2020)

Course Name: Marine Science		Quarter/Pacing: 1, 2 Weeks			
Unit Title: Diving Into Marine Ecosystems		Essential Questions:			
		Phenomena:			
Standards	Cross Cutting Concepts	Objectives	Key Vocabulary	Resources (Activities/Labs)	Assessments
Essential HS.L2U1.21	Stability and Change Energy and Matter	TSWBAT: 1. Recognize that while most of the planet is covered by ocean, it is not a uniform body of water. 2. Give abiotic and biotic characteristics of their chosen marine ecosystem and how they influence one another. 3. Recognize how humans affect marine ecosystems both positively and negatively.	Abiotic, Biotic, Ecosystem, Succession, Ecology, Ecosystem, Community, Population, Habitat, Niche, Microhabitat	Marine Science: The Dynamic Ocean Life On an Ocean Planet	Notetaker Chapter 14 Marine Ecosystem Brochure Ecosystem Quiz Marine Ecosystem Vocabulary Quiz

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Course Name: Marine Science		Quarter/Pacing: Quarter2/3 Weeks			
		Essential Questions:			
		Phenomena: Pictures of different Cnidarians			
Standards	Cross Cutting Concepts	Objectives	Key Vocabulary	Resources (Activities/Labs)	Assessments
Essential HS.L2U3.18 Plus HS+B.L4U1.2	Structure and Function Stability and Change	TSWBAT: 1. Identify the organisms and the three major classes of Cnidarians. 2. Explain the importance of Cnidarians to Earth. 3. Identify the adaptations Cnidarians have for living on Earth.	radially symmetrical, polyps, GVC, medusa, anthozoa, hydrozoa, scyphozoa, coral bleaching,	Life On an Ocean Planet - pp. 5:33 - 5:40 Living Oceans Foundation.org Shape of Life: Cnidarians Cnidarian Notetaker	Life Cycle of a Jellyfish Webquest on Living Oceans Foundation website Shape of Life Cnidarian Lesson Plans Cnidarian Exam

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Course Name: Marine Science		Quarter/Pacing: Quarter 2, 1 Week			
Unit Title: Phylum Porifera		Essential Questions:			
		Phenomena:			
Standards	Cross Cutting Concepts	Objectives	Key Vocabulary	Resources (Activities/Labs)	Assessments
Plus HS+B.L.1U1.7	Structure and Function	<p>TSWBAT:</p> <ol style="list-style-type: none"> 1. Explain why a sponge is an animal. 2. Describe the major characteristics of an animal. 3. Describe the adaptations and structures sponges possess to live in the marine environment. 4. Describe how some sponge adaptations help humans solve problems. 	collar cells, epithelium, amoebocytes, oscula, osculum, spicule	<p>Shape of Life Website - What is an animal? Phylum orifera Questions Nature's Innovations: Animals as Engineers Sponge Spicule Lab</p>	<p>Sponge Spicule Lab Sponge Adaptations Lab Sponge Notetaker Sponge Exam</p>

HS Science District Instructional Guides (Date Updated: 2019 - 20)

Course Name: Marine Science		Quarter/Pacing: 2 1/2 Weeks, Quarter 1			
Unit Title: Plankton and Harmful Algal Blooms		Phenomena: Pictures of different types of HABs			
		Essential Questions: What are plankton? What causes HABs? What adaptations do planktons have for their environment? Why are plankton important?			
Standards	Cross Cutting Concepts	Objectives	Key Vocabulary	Resources (Activities/Labs)	Assessments
Essential HS.L2U3.18	Form and Function	Students will be able to: 1. Identify adaptations that allow plankton to stay close to the surface 2. List reasons why plankton are important 3. Identify causes of HAB's 4. Identify possible solutions to HAB's	plankton, phytoplankton, zooplankton, Harmful Algal Blooms, Meroplankton, Holoplankton, Adaptations	1. Toxic and Harmful Algal Blooms Reading Assignment/Questions 2. Hamburger Writing Assignment Discussing How to Combat Nutrient Run-Off in the Gulf of Mexico 3. The Great Plankton Race Design Challenge	1. Plankton Video Quiz 2. Plankton Exam

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Course Name: Marine Science		Quarter/Pacing: 1, 3 Weeks			
Unit Title: The Energy of Life		Essential Questions: What are the products and reactants of photosynthesis and cellular respiration? What are the sources of the reactants for photosynthesis and cellular respiration in the ocean? What are the differences between a trophic pyramid and a food			
		Phenomena: Photosynthesis and Cellular Equation Activity			
Standards	Cross Cutting Concepts	Objectives	Key Vocabulary	Resources (Activities/Labs)	Assessments
Plus HS + B, L2U1.19 HS.L2U1.,19 Plus HS + B, L2U1.3 HS L2U1.21	Energy and Matter Systems and System Models	TSWBAT: Identify the reactants and products of photosynthesis and cellular respiration Identify the sources of reactants in the ocean Construct a simple marine food web Describe the critical role of phytoplankton in the marine food web Describe limiting factors to primary production in the ocean Compare primary production on land to primary production in the ocean	Cellular respiration, photosynthesis, heterotrophy, autotrophy, primary producer, primary consumer, secondary consumer, chemosynthesis, limiting factor, compensation depth, trophic pyramid, food web, decomposition	Resources: Marine Science: The Dynamic Ocean, Ocean Studies: Investigation Manual	Marine Ecosystems and Food Webs From Tiny to Tremendous: Marine Food Webs Unit Exam

HS Science District Instructional Guides (Date Updated: 2019 -2020)

Course Name: Marine Science		Quarter/Pacing: Quarter 2/3 Weeks			
Unit Title: The Formation of the Ocean		Essential Questions:			
Standards	Cross Cutting Concepts	Objectives	Key Vocabulary	Resources (Activities/Labs)	Assessments
<p>Plus HS+E.E1U1.7</p> <p>Plus HS+E.E1U1.6</p> <p>Plus HS+E.E1U1.4</p>	<p>Patterns</p> <p>Systems and System Models</p> <p>Cause and Effect</p>	<p>TSWBAT:</p> <p>1. Explain the Theory of Plate Tectonics</p> <p>2. Use the development of the Theory of Plate Tectonics to discuss how scientific ideas and research develop into a unified theory.</p> <p>3. Describe the properties of water</p> <p>4. Analyze bathymetric images and identify seafloor features</p> <p>5. Describe how scientists map the ocean floor</p>	<p>Bathymetry, crust, mantle, lithosphere, asthenosphere, divergent, convergent, transform, hot spots, convection, mid-oceanic ridge, seamount, abyssal plains, hydrothermal vent, active/passive SONAR,</p>	<p>Plate Tectonics Puzzle Maps</p> <p>NGSS@NSTA: Plate Tectonics Simulation, Determining and Measuring Earth's Layered Interior Resource, Taking the Pulse of Yellowstone's "Breathing" Volcano,</p> <p>Parts of Chap.6, all of Chapter 11 in Life On an Ocean Planet</p>	<p>Bathymetry Assignment</p> <p>Plate Tectonics Puzzle Maps</p> <p>Chapter 11 Notetaker</p> <p>Chapter 11 Exam</p>