

**MOBILE COUNTY PUBLIC SCHOOLS
DIVISION OF CURRICULUM & INSTRUCTION
PACING GUIDE AT A GLANCE
2017-2018**

Subject: Marine Science - Regular

Standard #	Quarter	Standards/Objectives
14	1 & 3	ALCOS #14 (History) – Obtain and evaluate information about historical marine expeditions (e.g. H.M.S. Beagle, H.M.S. Challenger I and II, Atlantis) and marine explorers (e.g. Cooke, Wilkes, Maury, Cousteau) to communicate how their findings challenged conventional thinking and allowed for academic advancements in oceanography.
3	1 & 3	ALCOS #3 (Plate Tectonics) – Develop and use models to describe the structure and function of oceans, including topography of the ocean floor, plate tectonics and wave motion.
3a	1 & 3	ALCOS #3a (Plate Boundaries) – Analyze and interpret data regarding geologic activity along plate boundaries and magnetic patterns in undersea rocks to explain the ages and movements of continental and oceanic crusts.
15	1 & 3	ALCOS #15 (Submersibles) – Design, build and test the ability of a submersible’s structure (e.g. ROV-Remotely Operated Vehicle, AUV-Autonomous Underwater Vehicle) to collect various data for analysis and understanding of deep ocean exploration.
4	1 & 3	ALCOS #4 (Atmosphere and Ocean) – Develop and use climate models to determine the cause and effect relationship that exists between the atmosphere and the ocean (e.g. phytoplankton releasing oxygen into air, greenhouse gases like carbon increasing acidity of oceans, water currents, gyres, wind patterns)
5	1 & 3	ALCOS #5 (Waves and tides) - Obtain, evaluate and communicate information to explain how energy flow is related to the way waves, ocean currents and tides are generated.
1	1 & 3	ALCOS #1 (Salinity) – Obtain, evaluate, and communicate information to determine what effect the salinity would have on aquatic life in fresh, brackish or salt water.
6	1 & 3	ALCOS #6 (Physical features of water) – Formulate an evidence based explanation to describe the causes and effects of physical features of seawater (e.g. turbidity, temperature, density, pressure)
6a	1 & 3	ALCOS #6a (Chemical features of water) – Formulate an evidence based explanation to describe the causes and effects of chemical features of seawater (e.g. salinity, pH, dissolved gases)
2	1 & 3	ALCOS #2 (Watersheds) – Construct an explanation about problems associated with local watersheds and design a solution to correct the problem.
7	1 & 3	ALCOS #7 (Marine Ecosystems) – Obtain, evaluate and communicate information to describe the structure, function and diversity of various marine ecosystems (e.g. estuaries, coral reefs, benthic communities, open ocean communities)
7a	1 & 3	ALCOS #7a (Abiotic/Biotic factors in marine ecosystems) - Obtain and communicate information to demonstrate understanding of the structure and function of the abiotic and biotic factors in various marine ecosystems.
8	1 & 3	ALCOS #8 (Food Chains/Biogeochemical cycles) – Develop and use models to describe the cycling of matter (e.g. carbon, nitrogen, water) and flow of energy (e.g. food chains, food webs, biomass pyramids, ten percent rule) between abiotic and biotic factors in marine ecosystems.
9	1 & 3	ALCOS #9 (Marine Plants/Algae) – Obtain and communicate information to describe the structural and functional characteristics of marine plants and algae.
10	1 & 3	ALCOS #10 (Taxonomy) – Obtain, evaluate and communicate information to explain how organisms are classified by physical characteristics, organized into levels of taxonomy and identified by binomial nomenclature (e.g. taxonomic classification, dichotomous keys)
12	1 & 3	ALCOS #12 (Anatomy/Physiology) - Obtain and communicate information to demonstrate an understanding of the structure and function of the anatomy and physiology of representative aquatic organisms.
12a	1 & 3	ALCOS #12a (Dichotomous Key) – Develop and use dichotomous keys to compare and contrast different aquatic species.

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10a	1 & 3	ALCOS #10a (Plankton) – Develop and use models to demonstrate understanding of the structural and functional characteristics of ocean drifting organisms (e.g. Phytoplankton, zooplankton)
11	2 & 4	ALCOS #11 (Adaptations) – Develop and use models to predict adaptations resulting from natural and artificial selection that may cause changes in populations over time (e.g. countershading, camouflage, fin shape, body shape, beak or mouth types)
10b	2 & 4	ALCOS #10b (Marine invertebrates) – Develop and use models to differentiate the physical structures and behavioral characteristics of the marine invertebrate phyla
10c	2 & 4	ALCOS #10c (Marine Vertebrates) – Develop and use models to differentiate the physical structures and behavioral characteristics of the marine vertebrate classes
13	2 & 4	ALCOS #13 (Human Activity) - Engage in argument from evidence to describe how human activity may affect marine ecosystems positively (e.g. reef restoration, protection of endangered species) and negatively (e.g. pollution, overfishing, habitat destruction)