**History of the Earth and Oceans, Earth Spheres**

H.1E.1 Classify the bodies in our solar system based on properties and composition. Describe attributes of our galaxy and evidence for multiple galaxies in the universe.

H.2P.3 Describe the interactions of energy and matter including the law of conservation of energy.

H.2L.1 Explain how energy and chemical elements pass through systems. Describe how chemical elements are combined and recombined in different ways as they cycle through the various levels of organization in biological systems.

H.2E.2 Explain how Earth’s atmosphere, geosphere, and hydrosphere change over time and at varying rates. Explain techniques used to elucidate the history of events on Earth. H.2E.3 Describe how the universe, galaxies, stars, and planets evolve over time.

H.2P.4 Apply the laws of motion and gravitation to describe the interaction of forces acting on an object and the resultant motion.

H.3S.4 Identify examples from the history of science that illustrate modification of scientific knowledge in light of challenges to prevailing explanations.

H.3S.5 Explain how technological problems and advances create a demand for new scientific knowledge and how new knowledge enables the creation of new technologies.

H.4D.5 Describe how new technologies enable new lines of scientific inquiry and are largely responsible for changes in how people live and work.

**Plate Tectonics**

H.2P.3 Describe the interactions of energy and matter including the law of conservation of energy.

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H.2L.2 Explain how ecosystems change in response to disturbances and interactions. Analyze the relationships among biotic and abiotic factors in ecosystems.

H.3S.4 Identify examples from the history of science that illustrate modification of scientific knowledge in light of challenges to prevailing explanations.

**Ocean Issues**

H.2L.2 Explain how ecosystems change in response to disturbances and interactions. Analyze the relationships among biotic and abiotic factors in ecosystems.

H.2E.4 Evaluate the impact of human activities on environmental quality and the sustainability of Earth systems. Describe how environmental factors influence resource management.

H.3S.5 Explain how technological problems and advances create a demand for new scientific knowledge and how new knowledge enables the creation of new technologies.

H.4D.6 Evaluate ways that ethics, public opinion, and government policy influence the work of engineers and scientists, and how the results of their work impact human society and the environment.

**Marine Invertebrates and Vertebrates**

H.2L.4 Explain how biological evolution is the consequence of the interactions of genetic variation, reproduction and inheritance, natural selection, and time.

H.2L.5 Explain how multiple lines of scientific evidence support biological evolution.

**Homeostasis in Organisms**

H.1L.4 Explain how cellular processes and cellular differentiation are regulated both internally and externally in response to the environments in which they exist.

**Physical Properties of Sea Water**

H.2L.2 Explain how ecosystems change in response to disturbances and interactions. Analyze the relationships among biotic and abiotic factors in ecosystems.

**Marine Environments**

H.2L.2 Explain how ecosystems change in response to disturbances and interactions. Analyze the relationships among biotic and abiotic factors in ecosystems.

**Waves, Currents, Weather, Tides**

H.2E.1 Identify and predict the effect of energy sources, physical forces, and transfer processes that occur in the Earth system. Describe how matter and energy are cycled between system components over time.

**Brine Shrimp Investigation**

H.3 Scientific Inquiry: Scientific inquiry is the investigation of the natural world by a systematic process that includes proposing a testable question or hypothesis and developing procedures for questioning, collecting, analyzing, and interpreting multiple forms of accurate and relevant data to produce justifiable evidence-based explanations and new explorations.

H.3S.1 Based on observations and science principles, formulate a question or hypothesis that can be investigated through the collection and analysis of relevant information.

H.3S.2 Design and conduct a controlled experiment, field study, or other investigation to make systematic observations about the natural world, including the collection of sufficient and appropriate data.

H.3S.3 Analyze data and identify uncertainties. Draw a valid conclusion, explain how it is supported by the evidence, and communicate the findings of a scientific investigation.

**Buoyancy Inquiry Lab**

H.4 Engineering Design: Engineering design is a process of formulating problem statements, identifying criteria and constraints, proposing and testing possible solutions, incorporating modifications based on test data, and communicating the recommendations.

H.4D.1 Define a problem and specify criteria for a solution within specific constraints or limits based on science principles. Generate several possible solutions to a problem and use the concept of trade-offs to compare them in terms of criteria and constraints.

H.4D.2 Create and test or otherwise analyze at least one of the more promising solutions. Collect and process relevant data. Incorporate modifications based on data from testing or other analysis.

H.4D.3 Analyze data, identify uncertainties, and display data so that the implications for the solution being tested are clear.

H.4D.4 Recommend a proposed solution, identify its strengths and weaknesses, and describe how it is better than alternative designs. Identify further engineering that might be done to refine the recommendations.

H.4D.5 Describe how new technologies enable new lines of scientific inquiry and are largely responsible for changes in how people live and work.