

ADVANCED OCEANOGRAPHY
(Grades 11th-12th)
Student Objectives

Two-Semester Course

Prerequisite: "C" or better in Biology, Advanced Biology or Marine Science.

This class is an extension of Marine Science and Biology. It is designed for students with an interest in Marine Sciences. The course will cover topics in Marine Chemistry, Geology, Biology, Marine Resources and Oceanography. A semester project will be required of each student.

B-1 CONCEPTS OF PHYSICAL SCIENCE

SB4 Identify the differences between motions and forces, and natural forces and their effects. Compare and contrast the characteristics and relationships.

SB4.2 Explain the relationship of motion to an object's mass and applied force through equations

SB4.3 Describe the interactions of waves (reflection, refraction, interference) through models and diagrams

C-1 CONCEPTS OF LIFE SCIENCE

SC2 Differentiate between the structure, function, development, life cycle and diversity of living organisms.

SC2.1 Describe and compare the characteristics of taxonomy of the animal kingdom through models

SC2.3 State the function of major physiological systems through testing

SC3 Develop an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy.

SC3.2 Explore ecological relationships (competition, symbiosis, food webs, human impacts, etc.) through quizzes

D-1 CONCEPTS OF EARTH SCIENCE

SD1 Students develop an understanding of Earth's geochemical cycles.

SD1.1 Using a model to demonstrate the rock cycle

SD2 Students develop an understanding of the origins, ongoing processes, and forces that shape the structure, composition, and physical history of the Earth.

SD2.2 Describing how the theory of plate tectonics explains the dynamic nature of its surface through lab simulations

SD3 Students develop an understanding of the cyclical changes controlled by energy from the sun and by Earth's position and motion of our solar system.

SD3.1 Recognizing the effect of the moon and sun on tides through lab simulations

SD3.2 Identify the causes and effects related to phenomena.(currents. Coriolis effect, waves, earthquakes, etc) through worksheets

SD4 Students develop an understanding of theories regarding the evolution of the universe.

SD4.1 Recognizing that a star changes over time through research and testing

SD4.4 Describing the Big Bang theory through testing

E-1 SCIENCE AND TECHNOLOGY

SE1 Students develop an understanding of how scientific knowledge and technology are used in making decisions about issues, innovations, and responses to problems and everyday events.

SE1.1 Identifying that progress in science and invention is highly interrelated to what else is happening in society through current events activities

SE3 Students develop an understanding of how scientific discoveries and technological innovations affect and are affected by our lives and cultures.

SE3.1 Predicting and evaluating the possible effects of a recent scientific breakthrough through hypothetical thinking problems in worksheets