

Scope and Sequence

Subject/Title of Unit	Grade	6 Weeks	Estimated Time Frame (# of days)
Aquatic Science Humans and the Sea	11 - 12	6 th Six Weeks	4 Weeks
TEKS/Student Expectations		Examples/Specifications:	
<p>Aq.1 Strand: Field & laboratory Investigation (A) demonstrate safe practices during field and laboratory investigations; and (B) make wise choices in the use and conservation of resources and the disposal or recycling of materials.</p> <p>Aq.2 Strand: Scientific Inquiry—Field & Laboratory (A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology; (B) collect data and make measurements with precision; (C) express and manipulate quantities using mathematical procedures such as dimensional analysis, scientific notation, and significant figures. (D) organize, analyze, evaluate, make inferences, and predict trends from data; and (E) communicate valid conclusions.</p> <p>Aq.3 Strand: Critical Thinking, Problem Solving & Decision Making (A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information; (B) make responsible choices in selecting everyday products and services using scientific information; (C) evaluate the impact of research on scientific thought, society, and the environment; (D) describe the connection between environmental science and future careers; and (E) research and describe the history of environmental science and contributions of scientists</p> <p>Aq.4 Strand: Components of Aquatic Ecosystems. (A) differentiate among freshwater, brackish, and saltwater</p>		<p>Students will answer:</p> <ul style="list-style-type: none"> • How will global warming effect the ocean conveyor belt? • How is seaweed used in the human food production? • Human actions effect the environment in both the short and long-term. 	

ecosystems;

(B) research and identify biological, chemical, geological, and physical components of an aquatic ecosystem; and
(C) collect and analyze baseline quantitative data such as pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment.

Aq.5 Relationships In Aquatic Environments.

(A) observe and compile data over a period of time from an established aquatic habitat documenting seasonal changes and the behavior of organisms;

(B) observe and evaluate patterns and interrelationships among producers, consumers, and decomposers in an aquatic ecosystem;

- Commercial fishing and its effects on the aquatic food relationships

(C) identify the interdependence of organisms in an aquatic environment such as a pond, river, lake, ocean, or aquifer, and the biosphere; and

(D) evaluate trends in data to determine the factors that impact aquatic ecosystems.

Aq.10 Strand: Origin and Use of Water

(A) identify sources and determine the amounts of water in a watershed including groundwater and surface water;

- How will changing rainfall patterns effect global fresh water distribution?

UNIFYING CONCEPT: CONSTANCY AND CHANGE

Aq.7 Strand: Adaptations of Aquatic Organisms.

(C) predict adaptations of an organism prompted by environmental changes; and

(D) compare differences in adaptations of aquatic organisms to fresh water and marine environments.

Aq.8 Strand: Aquatic Environments Change.

(A) predict effects of chemical, organic, physical, and thermal changes on the living and nonliving components of an aquatic ecosystem;

(B) analyze the cumulative impact of natural and human influence on an aquatic system;

(C) identify and describe a local or global issue affecting an

aquatic system; and
 (D) analyze and discuss human influences on an aquatic environment including fishing, transportation, and recreation.

Aq.9 Strand: Geological Phenomena & Fluid Dynamics Affect Aquatic Systems.

(A) demonstrate the principles of fluid dynamics including Archimedes' and Bernoulli's Principles and hydrostatic pressure;

(B) identify interrelationships of plate tectonics, ocean currents, climates, and biomes; and

- How will global warming effect the ocean conveyor belt

(C) research and describe fluid dynamics in an upwelling..

Language of Instruction:

Instructional Resources/Textbook Correlations:

TOPICS:

- 1. Resources**
 - a. **Food (seaweed as a food source)**
 - b. **Energy (tidal, wave, wind)**
 - c. **Water (desalinization)**
- 2. Human Impacts**
 - a. **Fisheries management**
 - b. **The oceans and global warming**
 - c. **"An Inconvenient Truth"**
 - d. **"Day After Tomorrow"**
- 3. Oceans and Human Affairs**
 - a. **Exploration**
 - b. **Navigation**
 - c. **Sea Lore**

Weblinks/Other Resources:

Textbook:
Fluid Earth
Living Ocean
Outside Resources

Evaluation/External Assessment/Local Assessment:

Best Instruction Timeline:

Daily Work
Homework
Labs
Teacher – designed test
Aquariums