OCEANOGRAPHY
#SCS0002

Curriculum Guide

September 2012

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This curriculum may be modified through varying techniques, strategies, and materials, as per an individual student’s Individualized Educational Plan (IEP).

Approved by the Berkeley Heights Board of Education
at the regular meeting held on 11/15/12.
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VISION STATEMENT

Oceanography is a half year course, intended for college bound students. The course is designed to develop an understanding of the basic principles of marine life and the underlying oceanic phenomena involved, while also acquiring the skills needed to make informed decisions on scientific and environmental issues. Students should develop an appreciation for the oceans and all they contain, by learning about oceanic processes and interrelationships.

The objectives of the course are:

♦ To understand the biological significance of the marine ecosystem

♦ To acquire skills needed to make informed decisions about scientific and environmental issues

♦ To complete lab and computer exercises that lay the groundwork for understanding marine processes

♦ To develop higher-level thinking and group interaction skills

♦ To demonstrate knowledge through written reports, research, group and individual projects, oral presentations, demonstrations, class participation, note taking, lab reports, and written assessments

Effective communication, using the language of the sciences is essential for all science courses and will be emphasized throughout this course. The students are asked to apply biology, chemistry, physics, ecology, and math to problem-solving and real life situations.
MISSION STATEMENT

This course provides an opportunity for students to expand their knowledge of concepts learned in biology, chemistry, and physics to develop an understanding of marine science. Topics include the history of oceanography, the scientific method, the geology of the ocean, properties of water, waves and tides, marine neuston, multi-cellular primary producers, lower and higher marine invertebrates, marine fish, reptiles, birds, mammals, ecosystems, and the future of the ocean.

Students are challenged to think about issues concerning the environmental health of the oceans and some of their potential uses. They are expected to address past and current issues and their impact on society, technology, and the global community. In addition, students will come to understand how oceanographers work and how ocean science relates to daily life. They will formulate questions about the nature of the oceans, use the scientific method to work through problems, evaluate information, use technologies appropriately, substantiate personal and ethical ideas related to environmental issues, and apply knowledge to assess real world problems.

Oceanography is intended for students in Grade 11 and 12, with at least two (2) years of science successfully completed prior to enrollment. Two and one-half credits (2.5) are given for this one semester course upon completion with a passing grade. New Jersey’s Core Curriculum Content Standards are integrated throughout the curriculum.
COURSE PROFICIENCIES

COURSE OBJECTIVES

1. To present students with the task of determining the complexity of our oceans and the various factors, which influence their behavior.
   5.1/12A1,2,3  9.1/12A1  C1,2,3  5.3/12B3,4,5,6  9.4/12A1-15
   D1  E1
   C1,2  F1
   E3
   5.4/12G3,4,5

2. To provide career orientation for biological, chemical, physical oceanography, and marine geology with laboratory activities and research where appropriate.
   5.1/12A2,3  8.1/12F1  9.1/12A1
   5.3/12B1,2,3,4  8.2/12B1,2,3  C4,5
   C1,2,3  C1,2,3  E1
   D1,2,3  E1  F2
   9.2/12A1,25
   9.3/12C1-6
   9.4/12A1-15

3. To generate a greater foundation of knowledge about the oceans, by studying the history and various branches of oceanography.
   5.1/12A1,2,3  8.2/12B1,2,3  9.1/12A1  RST/12-4,5,8-10
   5.3/12B1  C1,2,3  C4-5
   C1  E1
   5.4/12C1  F2
   9.4/12A1-15

4. To present and discuss the theories about the origins of Earth and plate tectonics, as they relate to the oceans.
   5.2/12A4  9.1/12A1  RST/12-4,5,8,10
   5.3/12E2,3,4  C4,5
   5.4/12B1,2,3  E1
   C1  F2
   D1,2  9.4/12A1-15
COURSE PROFICIENCIES (continued)

5. To understand the significant role that oceans have in sustaining life on Earth.
   5.3/12B1,3,4,5,6  9.1/12A1  RST/12-2,4,6,8-10
   5.4/12C1,2        C4,5
   E2                E1
   G2,3,4,5,7        F2
                    9.4/12A1-15

6. To identify the significance of water as a biological and chemical agent.
   5.2/12A1-6        9.1/12A1  RST/12-2,4,5,8-10
   B1,2,3            C4,5
   5.3/12A3          E1
   5.4/12E2          F2
   F2,3              9.4/12A1-15
   G1-5,7

7. To demonstrate the interdependence of chemical and physical oceanography, as the basis for changes in the ocean environment.
   5.2/12A2,5,6      9.1/12A1  RST/12-2,4,5,8-10
   C1                C4,5
   D1                E1
   5.4/12C2          F2
                    9.4/12A1-15

8. To provide opportunities for students to use models and manipulatives while explaining the structure and behavior of the oceans under varying conditions.
   5.1/12A2          8.1/12A1,2  9.1/12A1,4  RST/12-3-5,8-10
   B2                8.2/12B1-3  B1-3
   C2                8.3/12B1-4  C4,5
   D2,3              E1
   5.2/12A1          F2
   B1                9.2/12A1,2,5
   C1                9.4/12A1-15
   5.3/12C2
   5.4/12C1
   G3
COURSE PROFICIENCIES (continued)

9. To indicate the vastness of resources available from the oceans today and for the future.
   5.3/12B1,3,4,5,6  9.1/12A1,4  RST/12-2,4,6,8-10
   C1,2  C4,5
   5.4/12C1,2  E1
   E2  F2,6
   F2,3  9.4/12A1-15
   G1-7

10. To compare and explain complex interactions among the oceans, land, and the atmosphere.
    5.3/12B1,3,4,5,6  9.1/12A1  RST/12-2,4-6,8-10
    C1,2  C4,5
    5.4/12B1,2  E1
    C1,2  F2
    D1,2  9.4/12A1-15
    E2
    F1,2,3
    G1-7

11. To demonstrate the vulnerability of coastal areas and other marine systems due to human and natural effects.
    5.3/12B3,4,6  9.1/12A1  RST/12-2,4-6,8-10
    C2  C4,5
    5.4/12F2  E1
    G2,4  F2
    9.4/12A1-15

12. To identify the various forms of marine life and their interactions with their environment.
    5.3/12B3-6  9.1/12A1  RST/12-2,4,5,8-10
    C1,2  C4,5
    5.4/12C1,2  E1
    F2,3  F2
    9.4/12A1-15
13. To describe and understand the interrelationships of the biotic and abiotic factors in marine ecosystems.

5.3/12B1,3,4,5,6 9.1/12A1 RST/12-2,4-6,8-10
  C1,2  C4,5
5.4/12C1,2  E1
  E2  F1
  F1,2,3  9.4/12A1-15
  G1-7

14. To show how human interactions with the oceans can upset their delicate balances and cause ecological issues or concerns.

5.3/12B3,4,6 9.1/12A1,4 RST/12-1,2,4-6,8-10
  C2  B1-3
  F2  C4,5
  G2,4  E1
       F2,6
       9.4/12A1-15

15. To analyze and critique issues related to the oceans in research, technology, public policy, and the discoveries reported in the news.

5.1/12B3 8.1/12F1 9.1/12A1,4 RST/12-1,2,4-6
  C1,3  B1-3 8-10
5.4/12G1,2,4,5,6 8.2/12B1-3  C1-3  C4,5
  C1-3  E1
  F1,3  F2,6
       9.2/12A1,2,5
       9.3/12C11
       9.4/12A1-15

16. To combine current information and research with basic principles to form an integrated introduction to the sciences of the ocean.

5.1/12A1,3 9.1/12A1 RST/12-1,2,4,5,
  C1,2,3  B1-3
       C4,5
       E1
       F2,6
       9.4/12A1-15
17. To increase familiarity with laboratory materials and protective equipment so they may be used in a safe, prescribed manner.

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18. To determine the correct use of scientific equipment, available technologies and instruments related to oceanography and demonstrate the skills of the scientific research method through practice in scientific investigations.

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STUDENT PROFICIENCIES

The student will be able to:

1. Identify the role of the oceans for Earth processes and its inhabitants. (5.3/12B1,3-6, C1,2; 5.4/12C1,2, E2, G3-7; 9.1/12A1, B1-3, C4,5, F2; 9.4/12A1-15; RST/12-1,2,4,5,7-10)

2. Evaluate the different career possibilities involved in the branches of oceanography. (5.1/12A2,3; 5.3/12B1,2,3,4, C1,2,3, D1,2,3; 8.1/12F1; 8.2/12B1,2,3, C1,2,3, E1; 9.1/12A1,4, B1-3, C4,5, F2; 9.2/12A1,2,5; 9.3/12C1-6,11; 9.4/12A1-15; RST/12-2,4,5)

3. Compare the different types of research technologies and their function. (5.1/12A1-3, B1-4, C1-3, D1-3; 9.1/12A1,4, B1-3, C4,5, F2,6; 9.4/12A1-15; RST/12-1,2,4,5,6-10)

4. Analyze the roles of historical explorations and discoveries and their impact on the understanding of the biosphere. (5.3/12E2,3,4; 5.4/12A5, B1,2,3, D1,2; 9.1/12A1, B1-3, C4,5, F2; 9.4/12A1-15; RST/12-1,2,4,5,7-10)

5. Extrapolate the importance of technological advances in the field of ocean science. (5.1/12A1,2,3; 5.3/12C2; 5.4/12G1,6; 9.1/12A1,4, B1-3, C4,5, F2; 9.4/12A1-15; RST/12-1,2,4,5,7-10)

6. Analyze and sequence the theories of Earth’s origins and the evolution of life. (5.3/12E2,3,4; 5.4/12A5, B1-3; 9.1/12A1, B1-3, C4,5, F2; 9.4/12A1-15; RST/12-2,4,5,7-10)

7. Demonstrate the theory of plate tectonics, with a focus on continental drift and sea floor spreading. (5.4/12B1,2,3, D1,2; 9.1/12A1, B1-3, C4,5, F2; 9.4/12A1-15; RST/12-2,4,5,7-10)

8. Evaluate the importance of properties of water in ocean processes, in order to maintain proper conditions and balance. (5.2/12A1-6, B1,2,3; 5.3/12A3; 5.4/12E2, F2,3, G1,2,3,4,5,7; 9.1/12A1, B1-3, C4,5, F2; 9.4/12A1-15)

9. Model basic features of waves and currents and explain how and why they form. (5.2/12D1, E4; 9.1/12A1, B1-3, C4,5, F2; 9.4/12A1-15; RST/12-2,4,5,7-10)

10. Describe the ecological roles of marine neuston, including their importance in nutrition and disease of larger organisms. (5.3/12A6, C1; 9.1/12A1, B1-3, C4,5, F2; 9.4/12A1-15; RST/12-2,4,5,7-10)
STUDENT PROFICIENCIES (continued)

11. Compare the roles of photosynthetic and chemosynthetic organisms as the bases of marine food webs and energy pyramids. (5.3/12B1,5, C1; 5.4/12C1; 9.1/12A1, B1-3, C4,5, F2; 9.4/12A1-15; RST/12-2,4,5,7-10)

12. Appraise the adaptations of marine invertebrates and compare them to their habitat conditions. (5.2/12A5,6; 5.3/12B1,4,5, C1; 9.1/12A1, B1-3, C4-5, F2; 9.4/12A1-15; RST/12-2,4,5,7-10)

13. Describe the niches of large marine organisms, such as birds, reptiles, fish, and mammals. (5.3/12B1,2, C1,2; 9.1/12A1, B1-3, C4,5, F2; 9.4/12A1-15; RST/12-2,4,5,7-10)

14. Identify differences among borders of land and oceans, including coasts, beaches, and inter-tidal zones. (5.4/12C1,2; 9.4/12A1, B1-3, C4,5, F2; 9.4/12A1-15; RST/12-2,4,5,7-10)

15. Understand the variability of marine ecosystems and their components. (5.2/12A2,5,6; 5.3/12C1; 5.4/12F2; 9.1/12A1, B1-3, C4,5, F2; 9.4/12A1-15; RST/12-2,4,5,7-10)

16. Determine which human interactions with the oceans may cause negative impacts. (5.3/12B6, C2; 5.4/12F2, G1,2,4,5,6; 9.1/12A1, B1-3, C4,5, F2; 9.4/12A1-15; RST/121,2,4,5,7-10)

17. Comprehend how various types of pollution can affect marine life and the biosphere. (5.3/12B6, C2; 5.4/12F2, G1,2,4,5,6; 9.1/12A1, B1-3, C4,5, E1,2, F2,6; 9.4/12A1-15; RST/12-1,2,4,5,7-10)

18. Analyze the technologies used in medicinal research and the possible uses of the oceans as a resource. (5.1/12C1, D3; 5.4/12F2, G1,2,4,5,6; 9.1/12A1,4, B1-3, C4,5, F2,6; 9.4/12A1-15; RST/12-2,4,5,7-10)

19. Distinguish the ocean as a source of many types of resources. (5.3/12B6, C2; 5.4/12F2, G1,2,4,5,6; 9.1/12A1,4, B1-3, C4,5, F2,6; 9.4/12A1-15; RST/12-1,2,4,5,7-10)

20. Relate current information about oceans and technologies. (5.1/12C1, D3; 5.4/12F2, G1,2,4,5,6; 8.1/12A1,2, F1; 8.2/12F1,3; 9.1/12A1,4, B1-3, C4,5, F2,6; 9.4/12A1-15; RST/12-2,3,5,7-10)

21. Utilize the scientific method and available technologies in planning and implementing safe scientific experiments. (5.1/12A1-3, B1-4, C1-3, D1-3; 8.1/12A1,2, F1; 8.2/12B1-3, C1-3, F3; 9.1/12A1,4, B1-3, C4,5, E1,2, F2,6; 9.4/12A1-15; RST/12-1-10)
METHODS OF EVALUATION

Students will demonstrate skills and understanding through:

1. Written assessments.
2. Oral presentations.
3. Library and computer based research projects and demonstrations.
4. Class participation and note taking.
5. Written, class, and homework assignments.
7. Lab activities, reports, and dissections.
8. Participation in group work and contribution of ideas.
## SCOPE AND SEQUENCE

### COURSE OUTLINE/STUDENT OBJECTIVE

The student will be able to:

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<td>I. Science And Marine Biology (1 Weeks)</td>
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<td>5.3/12</td>
<td>C1,2</td>
<td>A. Importance of the Oceans and Marine Organisms for Humans</td>
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<td>G2,6,7</td>
<td>B. Study of the Sea and Its Inhabitants</td>
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<td>II. History Of The Ocean (2 Weeks)</td>
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<td>A. World Ocean</td>
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<td>9.1/12</td>
<td>A1 B1-3 C4-5 F2,6</td>
<td>1. Primitive Earth and the formation of the ocean</td>
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<td>2. Ocean and origin of life</td>
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<td>3. The ocean today</td>
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- Atlantic
- Pacific
- Arctic
- Indian
- Southern

B. Continental Drift

C. Layers of the Earth

D. Plate Tectonics
### III. Geology Of The Ocean (2 Weeks)

#### A. Structure of the Sea Floor
1. Continental margins
2. Submarine canyons
3. Continental rise
4. Continental shelf
5. Ocean basins
6. Abyssal plains and hills
7. Seamounts
8. Ridges and rises
9. Trenches

#### B. Composition of the Sea Floor
1. Hydrogenous sediments
2. Biogenous sediments
3. Terrigenous sediments

#### C. Cosmogeneous Sediments

#### D. The Human Connection
1. The use of sand and gravel
2. Energy sources

### IV. Water (2 Weeks)

#### A. The Nature of Water
1. Physical properties
   a. structure of a water molecule
   b. freezing and boiling point of water
   c. water as a solvent
   d. cohesion, adhesion, capillary, action, surface tension
   e. specific heat
2. Chemical properties and the pH scale

#### B. Salt Water
1. Composition of sea water
2. Salinity
3. Cycling of sea salts
4. Gases in sea water

#### C. The Water Cycle

#### D. Ocean Heating and Cooling
1. Sea temperature
2. Global warming

#### E. Ocean Layers and Ocean Mixing
1. Characteristics of ocean layers
2. Upwelling and down welling
# IV. Water (continued)

F. The Human Connection
   1. Water pollution
   2. Mineral resources

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# V. Waves And Tides (2 Weeks)

A. Characteristics of a Wave
   1. Generating force
   2. Restoring force
   3. Gravity

B. Wave Formation
   1. Deepwater and shallow water waves
   2. Breakers
   3. Tidal waves
   4. Tsunamis

C. Types of Waves
   1. Why do tides occur?
   2. Spring and neap tides
   3. Tidal range

D. Tides
   1. Why do tides occur?
   2. Spring and neap tides
   3. Tidal range

E. The Human Connection
   1. Wind power
   2. Hurricanes

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# VI. Marine Neuston (1 Week)

A. Marine Bacteria
   1. General characteristics
   2. Nutritional types

B. Marine Fungi
   1. General features
   2. Ecology and physiology

C. Diatoms, Dinoflagellates, and Foraminiferans
   1. Structure
   2. Locomotion
   3. Reproduction
   4. Sediments
   5. Ecological role

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# VII. Multi-Cellular Primary Producers (1 Week)

A. Carbon Cycle

B. Photosynthesis

C. Ecological Roles
| 8.1/12 | E2  
|        | G2-7  
|        | A2  
|        | F1  
| 8.2/12 | B1,2,3  
|        | C1,2,3  
|        | E1  
| 9.1/12 | A1  
|        | B1-3  
|        | C4-5  
|        | F2,6  
| 9.4/12 | A1-15  
| RST/12 | 1-2,4-10  

### VII. Multi-Cellular Primary Producers (continued)

1. Producers  
2. Consumers  
3. Decomposers  

### D. Algae and Seaweed

1. Structure  
2. Reproduction and life cycle  

### E. Marine Flowering Plants

### F. Sea Grasses, Salt Marsh Plants, and Mangroves

### VIII. Lower Invertebrates (1 Week)

#### A. Sponges

1. Structure and function  
2. Digestion and nutrition  

#### B. Cnidarians

1. Structure and function  
2. Digestion and nutrition  
3. Reproduction  
4. Ecological roles  

#### C. Ctenophores

1. Structure and function  
2. Digestion and nutrition  
3. Reproduction  
4. Ecological roles  

#### D. Worms

1. Flat worms  
   a. structure and function  
   b. digestion and nutrition  
   c. reproduction  
   d. ecological roles  
2. Ribbon worms  
   a. structure and function  
   b. digestion and nutrition  
   c. reproduction  
   d. ecological roles  
3. Lophophorates  
   a. structure and function
VIII. Lower Invertebrates (continued)
  b. digestion and nutrition
  c. reproduction
  d. ecological roles

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IX. High Invertebrates (1 Weeks)

A. Mollusks
  1. Gastropods
     a. structure and function
     b. digestion and nutrition
     c. reproduction
     d. ecological role

  2. Bivalves
     a. structure and function
     b. digestion and nutrition
     c. reproduction
     d. ecological role

  3. Cephalopods
     a. structure and function
     b. digestion and nutrition
     c. reproduction
     d. ecological role

  4. Annelids and nematodes
     a. structure and function
     b. digestion and nutrition
     c. reproduction
     d. ecological role

  5. Arthropods
     a. structure and function
     b. digestion and nutrition
     c. reproduction
     d. ecological role

  6. Echinoderms
     a. structure and function
     b. digestion and nutrition
     c. reproduction
     d. ecological role

  7. Invertebrate chordates
     a. structure and function
     b. digestion and nutrition
     c. reproduction
     d. ecological role
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| 5.3/12 | A3,6  | XII. Marine Mammals (1 Week) |
| 5.4/12 | B1-6  | A.  Structural Characteristics |
| 8.1/12 | C1,2  | B.  Adaptations for Swimming and Diving |
|        | E2,3  | C.  Reproduction and Development |
| 9.1/12 | C1,2  | D.  Behavior               |
| 9.4/12 | G2,5,6| E.  Echolocation            |
| RST/12 | A1-15 | F.  Evolution              |
|        | 1,2,4-10 | G.  Endangered Species    |
|         |       | H.  Sample Organisms       |
|         |       | 1.  Sea otter              |
|         |       | 2.  Polar bear             |
|         |       | 3.  Pinnipeds              |
|         |       | 4.  Sirens                 |
|         |       | 5.  Cetaceans              |

<p>| 5.2/12 | A5,6  | XIII. Marine Ecosystems (2 Weeks) |
| 5.3/12 | A3,6  | A.  Intertidal Communities    |
| 5.4/12 | B1,3-6| 1.  Location                 |
|        | C1,2  | 2.  Salinity                 |
| 8.1/12 | B1,3  | 3.  Types of organisms       |
| 8.2/12 | C1-3  | 4.  Adaptations of organisms |
|        | E1    | 5.  Ecology                  |
|        | F1,3  | B.  Estuaries               |
|        |       | 1.  Location                |
|        | F1    | 2.  Salinity                |
|        |       | 3.  Types of organisms      |
|        | E1    | 4.  Adaptations of organisms|
|        | F1,3  | 5.  Ecology                 |
| 9.1/12 | A1    | C.  Coral Reef Communities  |
| 9.2/12 | B1-4  | 1.  Location                |
| 9.4/12 | C4,5  | 2.  Salinity                |
| RST/12 | F2,6  | 3.  Types of organisms      |
|        |       | 4.  Adaptations of organisms|
|         | A1,2,5| D.  Continental Shelves and Neritic Zones |
|         | 1,2,4-10 | 1.  Location             |
|         |       | 2.  Salinity               |
|         |       | 3.  Types of organisms     |
|         |       | 4.  Adaptations of organisms|</p>
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<td>D. Introduction of Non-Native Species</td>
<td>4. Nutrient pollution and eutrophication</td>
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Note: The New Jersey Core Curriculum Content Standards can be accessed at www.state.nj.us
RESOURCES/ACTIVITIES GUIDE

Suggested Activities:

Unit 1  Science and Marine Biology

♦  The History of Oceanography PowerPoint Project

Unit 2  History of the Ocean

♦  Earth History Timeline
♦  Pangaea Puzzle
♦  Scaling Down the Layers of the Earth (Modeling clay)
♦  Isostatics – Penny Boat Challenge
♦  Snack Tectonics

Unit 3  Geology of the Ocean

♦  Sandbox Sea Floor
♦  Marine Science Textbook – A Classroom Model of the Ocean Floor – Pages 102-104

Unit 4  Water

♦  pH Testing Lab
♦  Water Droplets on a Penny
♦  The Water Cycle Project
♦  Properties of Water Lab
♦  Marine Science Textbook – Floating and Sinking Lab – Pages 32-33
♦  Marine Science Textbook – Investigating Surface Tension – pages 51-52

Unit 5  Waves and Tides

♦  Tsunami or Tidal Wave PowerPoint Project
♦  The Wave That Shook The World Video and Questions
♦  Marine Science Textbook – The Long and Short Of It – Pages 146-147
♦  Marine Science Textbook – Wind Power Article – Page 200
♦  NOVA – Hurricanes Video and Questions
♦  Marine Science Textbook – Investigating Hurricane Data Cyberlab – Pages 206-207
♦  Marine Science Textbook – Wave Demonstration – Page 446
RESOURCES/ACTIVITIES GUIDE (continued)

Unit 5  Waves and Tides (continued)

- *Marine Science* Textbook – Surfing Article and Questions – Page 456

Unit 6  Marine Neuston

- Microscope Slides

Unit 7  Multi-Cellular Primary Producers

- Research Foods and Household Products That Contain Algae and Seaweed
- *Finding Nemo* – Ecological Role of Producers vs. Consumers and Predator vs. Prey

Unit 8  Lower Invertebrates

- Provide Preserved Organisms for Viewing
- Research Project

Unit 9  Higher Invertebrates

- Provide Preserved Organisms for Viewing
- Research Project

Unit 10 Marine Fish

- Research Foods for Human Consumption
- Provide Preserved Organisms for Viewing
- Research How the Organisms are Housed in Aquariums

Unit 11 Marine Reptiles and Birds

- Compare the Evolution of Reptiles and Birds
- Research Project on Organisms
RESOURCES/ACTIVITIES GUIDE (continued)

Unit 11 Marine Reptiles and Birds (continued)

✦ *Marine Science* Textbook – Plotting Animal Movements – Pages 82-83

Unit 12 Marine Mammals

✦ Research Project
✦ Field Trip to an Aquarium, Zoo, or Museum

Unit 13 Marine Ecosystems

✦ Intertidal Zone Research Project
✦ Choose a Zone – Create a Diorama Containing Organisms in Their Environment
✦ *Marine Science* Textbook – Marine Ecosystem Project – Pages 6-7
✦ *Marine Science* Textbook – Changes With Depth – Pages 233-234
✦ *Marine Science* Textbook – Climate Change in Coral Reefs Cyberlab – Pages 651-652

Unit 14 Oceans in Jeopardy

✦ Research Global Efforts to Combat Ocean Destruction
✦ Create a Campaign for Change
✦ *Marine Science* Textbook – Researching Endangered Species – Pages 298-299
✦ *Marine Science* Textbook – Cleaning Up Oil Spills – Pages 584-586
SUGGESTED AUDIO VISUAL/COMPUTER AIDS

See course outline above. A selection of scientific and Hollywood films to appropriately reinforce topics and ideas covered in this class is available in the IMC.
SUGGESTED MATERIALS

Resources for Students


Magazines and newspapers available in the IMC

Because of the investigative nature of this course, other resources will include reference texts, videos, the Internet, lab manuals, etc.

Resources for Teacher