Unit 4 - Water Chemistry

Unit Overview:
Students will identify the basic chemical and physical properties of seawater and their interconnectedness to each other and the marine life that they support

Lesson: Day 1 Physical Properties Including Temperature, Salinity, and Density

Objective(s):
To define temperature, salinity and density and describe how they are related

Topics: Lecture 4:12A-C
- Properties of seawater influenced by temperature
- Effect of temperature on marine mammals and fish
- Properties of salinity
- Properties of density
- Units of measurements for these parameters

Procedure:
Use Lecture 4:12 notes for class presentation. Follow the guidelines given on Day 2 under Procedure; Materials List; Motivation; and Suggested Teaching Strategies.

Lecture Support:
Read selections in the text and assign appropriate sections or pages for student reading.

Lesson: Day 2 Lab #11 - Comparative Analysis of Water

Objective(s): To analyze four parameters of water from different locations

Skills attained:
Measuring with thermometer, hydrometer and pH paper
Reading a cross-referencing chart
Estimating values
Predicting how changes in these parameters would affect marine life
Comparing and contrasting these parameters

Procedure: Follow directions given in the lab.

Materials list: See Lab #11 in the Teacher's Manual

Content Background: See lecture notes

Assessment: Collect the lab at the end of class

Lesson: Day 3 Chemical Properties and Dissolved Gases

Objective(s): To identify the properties of pH and dissolved gases in seawater

Topics: Lecture 4:13A and B

- Chemical properties of seawater
- pH and its relationship to carbon dioxide
- Dissolved gases

Procedure:
Use Lecture 4:13 notes for class presentation. Follow the guidelines given on Day 2 under Procedure; Materials List; Motivation; and Suggested Teaching Strategies.

Lecture Support:
Read selections in the text and assign appropriate sections or pages for student reading.

Lesson: Day 4 Effects of Light and Turbidity

Objective(s): To point out the effects of light and turbidity on productivity

Topics: Lecture 4:14A and B

- Dependence of marine plants and food webs on light
- Electromagnetic spectrum
- Compensation zone and how light affects it

Procedure:
Use Lecture 4:14 notes for class presentation. Follow the guidelines given on Day 2 under Procedure; Materials List; Motivation; and Suggested Teaching Strategies.

Suggested Teaching Strategies: Review the function and usage of a Secchi disk from Unit 1

Lecture Support:
Read selections in the text and assign appropriate sections or pages for student reading