CORAL REEF ECOLOGY

Concepts
Observation
Inference

HCPS III Benchmarks
SC 4.1.2
MA 4.6.2

Duration
1 hour

Source Material
PRISM
MARE

Vocabulary
Inference
Metric System
Observation

Observations and Inferences

Summary

Students will examine real coral skeletons using technological equipment and produce detailed drawings of the coral skeletons. These drawings will be used in conjunction with new vocabulary to document coral types. Also, students will learn the difference between an observation and inference through examples. They will determine if statements are observations or inferences in a class activity.

Objectives

- Students will be able to draw the fine detail of coral skeletons.
- Students will be able to make observations and inferences about their coral skeleton
- Students will be able to explain the difference between an observation and an inference.

Materials

Overhead Projector
Jewelers Loop
Hand Magnifying Glass
Digital Microscope (optional)
Rulers
At least three different types of coral skeleton (pick-up at beach)
Inference and Observation Warm-up transparency
"Our Observations" worksheet (1 per student)

Making Connections

Students will build upon their observational skills by using technology to further advance their senses and make their observations more detailed. Also, students will learn to make inferences from their observations, a key step in the scientific process.

Teacher Prep for Activity

Run through a 10-15 minute lesson with your class on how to look at an image using a magnifying glass or jeweler's loop and how to draw what they see. Graph paper with quadrants can be used to make drawing a magnified object simpler. Practice measuring objects using millimeters, centimeters, or other metric units. (Explain that in science, we use the metric system).

Photocopy the "Inference and Observation Warm-up" on a transparency, and photocopy "Our Observations" worksheet for each student.

Set-up working stations in the classroom with a jewelers loop,

magnifying glass, or digital microscope (optional). Each station should also have one coral skeleton. *Note: place one of each item at a station so students have an opportunity to use each observation tool. If you do not have one or more of these items, simply use magnifying glasses at every station.*

Background

No additional background is necessary.

Procedure

1. Explain to the class what an observation and an inference are and the difference between the two. Your explanation, for example, could be, "An observation is something you sense: taste, touch, smell, see, or hear. An inference is something you decide or think about a thing or event after you observe it."
2. Put the "Observation and Inference warm-Up" transparency on the overhead. Practice identifying the difference between an observation and an inference with the examples provided. Begin by, giving the class the following background: "Imagine that reef researchers were snorkeling over a coral reef. While the researchers explored the reef, they observed a strange organism. Decide whether or not the researchers are making an observation or an inference in the following statements."
3. Decide as a class whether each statement on the transparency is an inference or an observation by putting "I" or an "O" in the space in front of each number while working through each example on the overhead.
4. Ask the students to find and be seated at a working station. Pass out one "Our Observations and Inferences" worksheet to each student.
5. Explain that they will now have the chance to explore a real coral skeleton. Tell them to look closely at the coral skeleton at their station. Instruct the students to use descriptive language and their new vocabulary from the "Observation Words" worksheet (Lesson 1.5) to describe and record what they see in "Our Observations and Inferences" worksheet. ***HINT: If using a digital microscope, it should be monitored by an adult.***
6. To end the session, review the concepts of observation and inference by asking for student volunteers to share what they have learned.

Assessments

Completed "Our Observations" worksheet
Complete drawings of coral skeletons

Art and Math Connections

The pictures from the digital microscope can be projected on the board. Have the students reproduce the picture using geometry to draw symmetry and then have students use texture, watercolors, and other art supplies to shade and give their picture color.

Observation and Inference Warm-Up

In their report they wrote the following statements:

___ 1. The organism frowned to show it did not like strangers.

___ 2. The organism is green with pink spots.

___ 3. The organism lives near other organisms.

___ 4. The organism moved away from us because it was scared.

___ 5. The organism made gurgling noises.

___ 6. The organism had four spines on its back.

___ 7. The organism has one blue eye and two green eyes.

___ 8. The organism moves really slow so he must be old.

Name: _____

Our Observations and Inferences Worksheet

Directions

1. Draw your coral, paying attention to its true size, in Box 1. Use the grid lines to draw your coral to proportion.
2. Record your **observations** (what do you notice about your coral piece?) in the first column of Box 2.
3. Write **inferences** (what does your observations tell you about your coral?) in the second column of Box 2.
4. Write a summary explanation about your piece of coral from the observations and the inferences you made.

Box 1: Drawing of coral

Box 2.

Observation	Could be evidence of…
Size How many mm long is your coral piece? How many calices per mm?	
Shape	Ex. A high wave energy environment

From your observations where in the reef do you think the coral you observed is found? Why?