Sponge Spicule Lab

Sponges are animals with a relatively simple anatomy but some create spicules internally that are quite complex and interesting. We will discuss and diagram the basic anatomy of a sponge as well as feeding, reproductive and defense mechanisms associated with these animals. Sponge spicule composition and function will be discussed before students dissolve various species of sponges in order to locate and identify spicules with the use of a compound microscope.

Grade: 8th and Above

Timing: 1 hour

Concepts Covered:

- Basic sponge anatomy
- Function and composition of sponge spicules
- Cellular organization of sponges
- Survival characteristics amongst Phylum Porifera
- Use of compound microscope for spicule/sponge identification
- Importance of sponges in the subtropical marine ecosystem

Vocabulary: holdfast, filter feeder, spicule, spongin, chemical defense, calcium carbonate, silica oxide, asymmetry, sclerocyte, choanocyte, archaeocyte, totipotent

Resources: Pechenik, Jan. "Biology of Invertebrates." 2015

MarineLab
Marine Resources Development Foundation
Marine Science education in the Florida Keys

Standards Supported:

Next Generation Sunshine State Standards

SC.5.L.17.1: Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.

SC.912.L.14.4: Compare and contrast structure and function of various types of microscopes.

Ocean Literacy Principles:

Principle 5. The ocean supports a great diversity of life and ecosystems.

d. Ocean biology provides many unique examples of life cycles, adaptations and important relationships among organisms (symbiosis, predator-prey dynamics, and energy transfer) that do not occur on land.