

Sea Anemone and Other Cnidarians

Biological Classification Series

Grade Levels:

Grades 5-10

Subject Areas:

Science

Life Sciences

Biology

Synopsis:

Beginning with the common sea anemone, expands students' understanding of Cnidarians to include a variety of simple organisms such as jellyfish and coral, which possess stinging tentacles and exhibit complex behaviors in spite of their simple body structures. Live-action film footage shows how these animals capture their prey, reproduce, and expel wastes. Coral reef sequences explain the structure of the reef, its support for biodiversity and its sensitivity to global warming and human activities.

Learning Objectives: Students will:

Understand that all Cnidarians have a simple body structure and stinging tentacles.

Understand that they are able to feed and expel waste through the same orifice.

Describe how the common jellyfish and the sea anemone reproduce.

Understand that limestone envelopes, which protect the polyps of the animal, establish the structure of coral reefs.

Understand that coral reefs are threatened today.

Vocabulary:

tentacles, sea anemone, red actinia, cnidocytes, venomous, harpoons, immobilize, orifice, evacuated, anus, whelk, hermit crab, genital, expelled, polyp, jellyfish, Aurelia, transparent, axes, gorgonian sea fans, alcyonium, ctenophores, ascidians, green hydra, biodiversity

Pre-Viewing Discussion:

How many of you have ever seen a sea anemone? Is it a plant or an animal? What characteristics would make us think it is a plant?

In biological terms, what is an anus?

How do sea anemones capture their prey?

Are sea anemones related to jellyfish? What characteristics do they have in common?

What is a coral reef? Is the basis of the reef, plant or animal material? Are coral reefs related to sea anemones or jellyfish in any way?

Post-Viewing Discussion:

Why are sea anemones often called by the names of flowering plants? What is the purpose of the “petals” of these flowers? What are these “petals” called? How do they react when something comes in contact with them?

Why do sea anemones protect hermit crabs? What term do biologist use to describe this relationship between them?

Why is the sea anemone called a polyp? What are the characteristics of all polyps?

How do jellyfish such as the aurelia, reproduce? How do colonies of sea anemones reproduce?

Why is this group called “cnidarians”? What is the meaning of the term?

What is the main difference between bryozoans and cnidarians?

Further Activities:

Find out which of the five major classification groups the sea anemone and other Cnidarians are in (i.e. Kingdom, Phylum, Class, Order, Family). Chart the relationships of animals in the largest to the smallest taxonomic groups around them. What characteristics make this group similar to and different from the other groups to which they are related? Then, pick one species from the program and determine its genus and species name, writing them in the proper scientific terminology. Find out why the genus and species name is written the way it is.

Investigate where coral reefs are threatened and the factors that can upset the balance of nature in a coral reef. What are the dangerous consequences when coral reef ecology is disturbed? How can coral reef ecology be re-established once it is threatened?

Investigate the structure of nematocysts and their distribution over the tentacles, epidermis and gastrodermis of Cnidarians. Are poisons in the barbs of nematocysts

powerful enough to harm human beings? If so, which species is a danger to human beings?

Investigate how the green hydra has adapted to life in fresh water. How does its life cycle and behavior differ from that of Cnidarians who live in the sea?

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