

Sponges and Cnidarians

What you'll learn:

- Describe the characteristics of sponges and cnidarians.
- Explain how sponges and cnidarians obtain food and oxygen.
- Determine the importance of living coral reef.

Sponges

Sponges are not only the thing you use to clean, but a living animal.



Importance of Sponges

Sponges provide shelter for smaller animals.

Sponges are a food source for many sea creatures.

Sponges contain bacteria and protists that remove waste from the water and create oxygen.

In the past humans dried the sponges and use them as a cleaning product. Today most are synthetic, but you can get natural sea sponges.

New medicines are being made from sponges.



Origin of Sponges

Sponges appeared on the earth 600 million years ago and have changed very little over time.



Sponges have little in common with other animals, because of this scientists believe they evolved separately from other animals.

Characteristics of Sponges

Most sponges are found in warm tropical salt water. Generally they are bright red, orange, yellow, or blue.

Some sponges are found in fresh water, but are usually dull brown or green.

Sponges can be as small as a marble or as large as a compact car.

Sponges are sessile.

Sponges can have radial or asymmetrical symmetry.

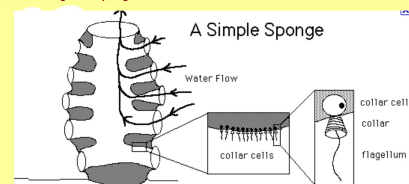
Sessile is an organism that remains attached to one place during their lifetime.

Body Structure

The sponges body is a hollow tube closed at the bottom with pores on the outer wall.

Sponges have no tissues or organs.

The inside layer of cells are called the collar cells. Flagella on the collar cell move water through the sponge.

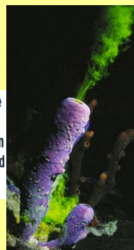


Obtaining Food and Oxygen

Sponges filter microscopic food particles from the water. The filtered water carries waste out the top of the sponge.

Sponges pull oxygen from the water.

In this photograph, the pumping action of a sponge is illustrated. A non-toxic yellow dye has been squirted around the base of a purple tube sponge in the Caribbean. Shortly thereafter, the dye is pumped out through the osculum at the top of the sponge.



Reproduction

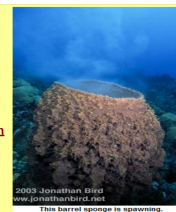
Sponges reproduce sexually and asexually.

Sexual Reproduction

Most sponges are hermaphrodites.

Hermaphrodite is an animal that produces sperm and eggs, but it cannot fertilize its own eggs.

A fertilized egg grows into a larvae. Larvae look different than adult sponges. Larvae have cilia and are mobile until they attach to the ocean floor.



Asexual Reproduction

It occurs by budding or regeneration.

Budding a bud forms on a parent sponge, falls to the ground, and becomes an new sponge.

Regeneration is when an organism grows a new body part to replace lost or damaged parts.

Cnidarians

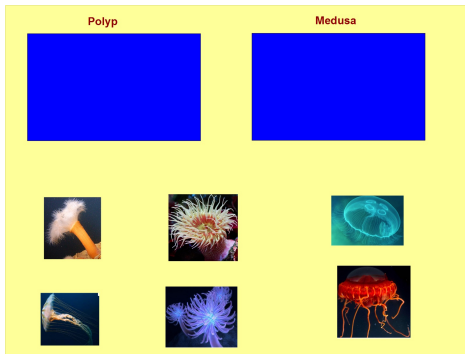
Most Cnidarians live in salt water. Some hydras live in fresh water. They can live as individuals or in colonies.

Two Body Forms

Polyps are usually shaped like a vase and are sessile. Ex coral, sea anemones



Medusa is bell shaped and free swimming. Ex jellyfish



Body Structure

All cnidarians have one body opening and have radial symmetry.

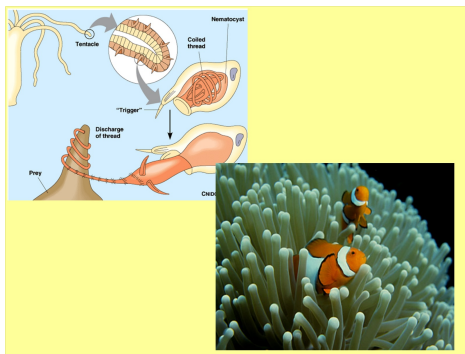
Cnidarians have tissue, organs, and a digestive system. They are more complex than sponges.

Cnidarians have a nerve net that carries impulses to all parts of the body. They are able to do simple movements and responses.

Tentacles are armlike structures. Tentacles surround the mouths of cnidarians.

Stinging Cells have a capsule with a coiled thread like structure that helps the cnidarians capture food. Stinging cells are located on the tentacles.

Some fish are immune to the sting and live among cnidarians for protection.



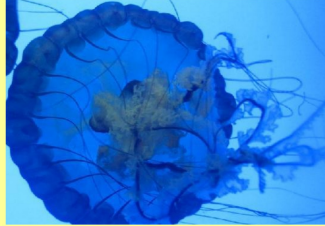
Obtaining Food

Cnidarians are predators.

They use the stinging cells on their tentacle to stun their prey.

Then the tentacles then bring the food to their mouth.

Any undigested food goes back through the mouth, because cnidarians have only one body opening.



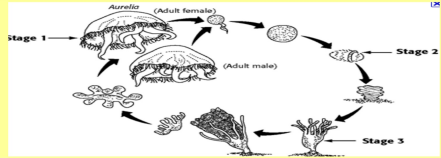
Reproduction

Cnidarians reproduce sexually and asexually.

Polyp forms reproduce by buds that fall off and form new polyps.

They can also reproduce sexually by releasing sperm and eggs into the water where they are fertilized.

Medusa forms have two stages of reproduction. A sexual stage where sperm fertilizes an egg which turns into a larvae. In the second stage the larvae attaches to the floor and becomes a polyp. The polyp then then buds to a medusa.



Origin of Cnidarians

Scientist believe the medusa was the first form of cnidarians and the polyps formed from larvae.

Most fossils of cnidarians are coral.

Coral

Coral reefs are formed by new coral secreting hard external skeletons on older coral. Coral reefs take millions of year to form.

Coral reefs provide food and shelter for a numerous and diverse population of life.

They prevent erosion by breaking the waves before they reach the shore.

Coral reefs provide humans with medicine, valuable pearls and shells, and tourism.

