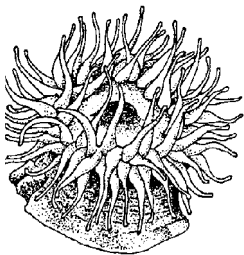


Source: Adapted from **Survival Publication: The Great Barrier Reef** by Harry Breidahl. © 1987, 1989 Gould League of Victoria, Inc., P.O. Box 446 (67 High Street), Prahran, Victoria 3181, Australia. Used with permission.

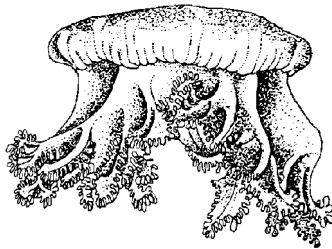
6. CORALS AND THEIR COUSINS

Corals belong to a large group of colorful and fascinating animals called the Coelenterata, or Cnidaria. As well as such well-known creatures as sea jellies (jelly fish), sea anemones and corals, the group includes the lesser-known sea fans, sea pens and the fragile fern-like hydroids. Although coelenterates show a wide range of shapes and sizes, they share the same basic body plan—a simple sack-like stomach with a single mouth opening that is surrounded by a ring of stinging tentacles. Apart from the basic structural similarities, one feature common to all coelenterates is the presence of special stinging capsules.

Some Coelenterate Types



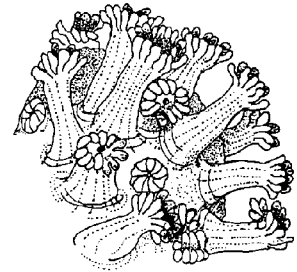
Sea anemones live on the sea floor with tentacles pointing up.



Sea jellies float or swim in the sea with tentacles trailing below.



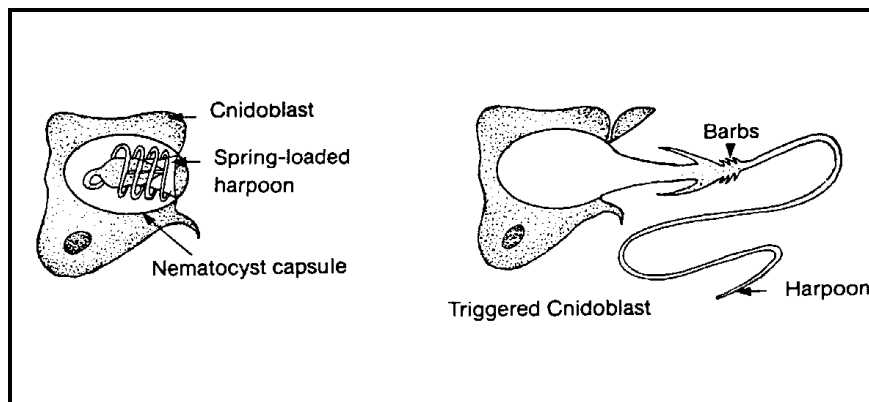
Hydroids are fern-like colonies of tiny polyps.



Corals are similar in appearance to anemones but generally have a hard outer skeleton and live in colonies.

Coelenterate Stings

Despite their colorful flower-like appearance, coral polyps are in fact ravenous feeders. Their simple bodies have a sack-like stomach with a mouth that is surrounded by a ring of tentacles that capture food.



The surface of each tentacle has thousands of special cells called cnidoblasts. Each cnidoblast contains spring-loaded stinging capsules called nematocysts. When a fish, or other small animal, touches a tentacle, thousands of nematocysts are fired like poisonous harpoons to kill and hold the victim. The unfortunate animal is then passed to the mouth and into the stomach where it is digested.

Corals and all their relatives have cnidoblasts in their tentacles—thus the name Cnidaria for the group. Human skin is too thick to feel the stings of most corals. However you should always be careful when exploring a reef. Fire Corals can give a powerful sting. Stinging hydroids, close relative of the fire corals, are also capable of producing a powerful sting. Other cnidarians that are capable of stinging humans are the sea jellies, including the deadly Sea Wasp, some sea anemones and the common Bluebottle.

Source: The following activity is contributed by the J.L. Scott Marine Education Center, Biloxi, Mississippi. Used with permission.

Follow-up Activity: High-Powered Look at Hydra

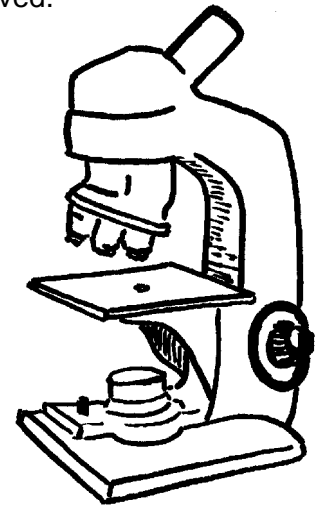
To enhance students' understanding of the preceding article, the teacher may wish to conduct the following laboratory exercise in which a fresh-water relative of coral is observed.

Materials:

living hydra (*Hydra*, available from a biological supply company)
brine shrimp larvae (*Artemia*, available from a biological supply company)
that have been hatched in salt water and resuspended in fresh water

small glass dish
magnifying glass
microscope slides and coverslips
forceps
pond water

lamp
microscope
dissecting probe
medicine dropper
0.5% methylene blue



Procedure:

1. Place healthy specimens of hydra, attached to substrate, in a glass dish with a small volume of pond water. Observe a single hydra with a magnifying glass for several minutes. Note the body bending and the tentacles moving.
2. Many high-school and college biology textbooks will have an illustration of a hydra. If such a diagram is available, look at a living hydra and try to locate all the anatomical structures that are labeled in the diagram.
3. Use a dissecting probe to dislodge a hydra. How long does it take for the hydra to reattach completely?
4. Gently place a drop of brine shrimp larvae suspension near the expanded tentacles of a hydra, taking care not to cause the animal to contract. What happens to the larvae when they come in contact with the tentacles? Describe the hydra's behavioral sequence for feeding.
5. Use the forceps to remove several brine shrimp that appear to have made contact with the hydra's tentacles but have not been ingested. Place these on a microscope slide and flatten under a coverslip. Under the high power lens of a microscope, look for discharged nematocysts. These will appear as small seed-like structures at the ends of threads and are responsible for the paralysis and death of the hydra's prey. If you have trouble seeing the nematocysts, add a drop of 0.5% methylene blue and replace the coverslip.
6. Place some of the tentacles of a lively feeding hydra on a clean microscope slide. Add a drop of 0.5% methylene blue and flatten under a coverslip. Can you see the nematocysts firing and taking up the stain? A drop or two of tap water may accelerate the nematocyst discharge. Describe the firing action of the stinging cells that are characteristic of corals and their relatives.

Correlation to National Standards from McREL (<http://www.mcrel.org>) :

Life Sciences

5. Understands the structure and function of cells and organisms
7. Understands biological evolution and the diversity of life