

## Phylum Cnidaria

### 1. Feeding behavior of the sea anemone *Metridium senile*

Refer to the photograph of *Metridium senile* in the MITZI Image Library (also seen below).

<<Activity>>



Small anemones suitable for observation often attach to blue mussel shells. Clumps of blue mussels with attached anemones can often be collected on the sides of docks or commercial fishing floats. In some locations, the docks are left in the water throughout the year. To prevent injury to the animal, do not try to remove the anemone from the shell. Place the mussel or shell in a glass dish, cover with seawater and wait until anemone tentacles are fully extended. Observe the animal with a magnifying glass or under a dissecting microscope. Introduce small pieces of blue mussel tissue on anemone tentacles and observe what happens.

### 2. Observation of nematocysts (stinging cells) in sea anemones

<<Activity>>

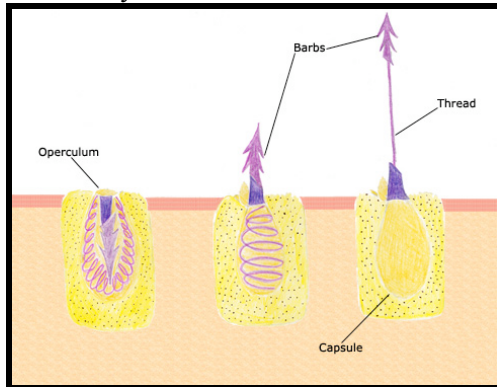


Image from <http://www.oceanservice.noaa.gov/education/>

Sea anemones have specialized cells called cnidoblasts that are responsible for food capture and attachment. Each cnidoblast internally secretes a non-living nematocyst. When a nematocyst is triggered it suddenly forms a long tube that can penetrate or stick to prey, holding the prey in position during ingestion. Nematocysts are abundant on the tentacles and on long white internal threads called acontia. Make a cut along the bottom half of an anemone. The white acontia should push outward through the cut. Place one of these threads on a slide in a drop or two of seawater.

Add a drop of 10% acetic acid\* to the preparation and cover with a coverglass. A drop of a 1% solution of methylene blue will also work. Look for discharged nematocysts under low and high power with a compound microscope. Nematocysts are also found mainly in the tentacles of freshwater *Hydra*. Place a whole *Hydra* on a glass slide in one or two drops of freshwater and add 10% acetic acid\* as above.

\*Household vinegar (HC<sub>2</sub>H<sub>3</sub>O<sub>2</sub>) is a 5% solution of acetic acid and may be an acceptable substitution for 10% acetic acid for student safety purposes. Use twice as much vinegar to increase potency and mimic the effect of 10% acetic acid. Don't dilute with water.