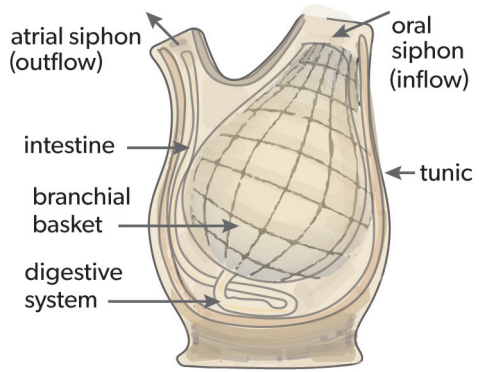
Taxonomic Groups

This card provides background information on the major MIMIC taxonomic groups, including notes on life history, anatomy, and taxonomy.

Tunicates

Tunicates are filter-feeding invertebrates that are only found in the marine environment. They get their name from their outer covering which is called a "**tunic**" (see diagram below). Tunicates that MIMIC participants monitor belong to the **Ascidian** class, which have a free-swimming larval stage. Tunicates are more closely related to humans than any other MIMIC taxonomic group as they both belong to the same phylum – Chordata. They attach to substrates such as docks, rocks, pilings, ship hulls, seaweeds, and eelgrass in subtidal and protected intertidal areas.





The solitary tunicate, *Styela clava*.



Close-up of the zooids in a *Botrylloides violaceus* colony.

MIMIC participants monitor for two groups of tunicates:

- **Solitary tunicates** live as individual animals that attach to a surface. This group is often referred to as the "sea squirts" because they can squirt water from their siphons. Tunicates retract their siphons when disturbed, but will re-open them when left in water.
- **Colonial tunicates** are individual animals (zooids) organized within a gelatinous tunic. A free-swimming larval zooid will attach to a surface. Once settled, the zooid multiplies by cloning to form a colony. These zooids remain together within a common tunic or attach to each other with stolons.

Taxonomic Groups

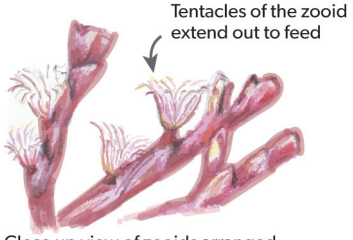
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Bryozoans

Bryozoans are filter-feeding animals with a specialized feeding structure called a **lophophore**. They live in colonies of many tiny, individual animals called **zooids**. Like some tunicates, bryozoans have free-swimming larvae that will attach to a surface. Then, the settled zooids will multiply by cloning to form a colony of many zooids.

MIMIC participants monitor for two groups of bryozoans:

- **Bushy bryozoans**, or "erect" bryozoans, have zooids that are arranged in a branch-like formation (see illustration to the right).
- **Encrusting bryozoans** grow in a thin sheet, where individual zooids are contained in box-like structures that often resemble lace. Distinguishing between species requires a close examination of zooid shape and colony arrangement.



Close up view of zooids arranged in branching form

Algae

Marine algae are chlorophyll-containing organisms. This group includes species that span kingdoms, may be unicellular or multicellular, exhibit diverse morphologies, and employ a range of reproductive strategies. Marine macroalgae are commonly known as **seaweed**.

MIMIC participants monitor for three types of marine algae:

- **Red algae** (Rhodophyta) are in the plant kingdom. These algae contain chlorophylls a and d. They appear red because they contain the pigments phycoerythrin and phycocyanin. Most red algae are multicellular and may grow in filamentous or branching structures, blades, or calcified, encrusting forms.
- **Green algae** (Chlorophyta) are in the plant kingdom. These algae contain chlorophylls a and b and carotenoids, similar to vascular plants. Green algae exhibit diverse morphologies such as mobile unicells, stalks, or large filaments.
- **Brown algae** (Phaeophyceae) are in the Chromista kingdom. Brown algae contain chlorophylls a and c, and the dominance of the pigment fucoxanthin gives the group its brown to yellow color. All brown algae are multicellular, ranging from microscopic filaments to giant kelps.