

## PHYLUM MOLLUSCA

**Meaning:** soft body

**Examples:** clams, oysters, mussels, scallops, snails, slugs, squid, octopus, limpets

**Habitat:** fresh water and marine

**Unique Characteristics:** body that is divided into 3 regions

- a) **head** – absent in some
  - these have a mouth, appendages & sensory organs
- b) **foot** – muscular
  - in squid and octopus it is modified into tentacles
- c) **mantle** – tissue that functions to: surround and protect internal organs and secretes the shell

\* some have a radula (functions to scrape off algae or bits of organic material) eg. snail & chiton

**Common Characteristics:**

- \* Bilateral symmetry
- \* 3 cell layers
- \* Coelom
- \* Complete digestive system with a digestive gland surrounding the stomach

**Classification:**

- a) Class Amphineura / Polyplacophora– eg chiton
- b) Class Bivalvia – ‘2 valves’ eg. clams, oysters, scallops, and mussels
- c) Class Gastropoda – ‘belly foot’ or ‘stomach foot’ eg. slugs and snails
- d) Class Cephalopoda – ‘head foot’ eg. squid and octopus

### **Clams Ingestion, Digestion, and Elimination**

- a) incurrent siphon contracts bringing in H<sub>2</sub>O and plankton → through mantle → gills
- b) Mucus in gills traps food, cilia move the food (gills have cilia) → mouth
- c) Palps (‘fleshy-lips’) around mouth sort the food and pass it onto the mouth
- d) Food then moves down the esophagus into the stomach where digestion occurs
- e) Digestive glands secrete enzymes for digestion
- f) Nutrients enter intestine and are absorbed
- g) Wastes pass into the rectum → through the anus → excurrent siphon (solid wastes exit)

**Excretion:** 2 kidneys filter N-wastes from the blood and the fluid surrounding the heart → outside mantle cavity → excurrent siphon (liquid wastes exit)

**Respiratory System:** gills are used for gas exchange and to filter and trap food in aquatic mollusks

- \* snails & slugs keep their mantle cavity moist so O<sub>2</sub>/CO<sub>2</sub> can be exchanged in the gills

**The Valve:** made up of CaCO<sub>2</sub>, produced by the mantle for protection & camouflage.

**Circulatory System:**

- \* open system except in Cephalopods (closed system)
- \* consists of blood vessels, heart and sinuses (open spaces) blood is not confined to vessels
- \* Nutrients and O<sub>2</sub> in blood are pumped by heart into sinuses where body tissues/organs are bathed

**Ecologic/Economic Importance**

- \* food source for marine, freshwater, and terrestrial animals
- \* hosts to symbiotic algae and parasites (eg. sheep liver fluke)
- \* feed on plants and animals to clean up their environment and can also provide habitats/shelters (eg. hermit crabs live in shells)
- \* commercially sold for food
- \* 'ship worms' / burrowing bivalve cause damage to wooded boats and docks
- \* some cause sickness and death due to bivalves eating dinoflagellates (plant-like protists)
- \* snails and slugs can cause crop/garden damage.