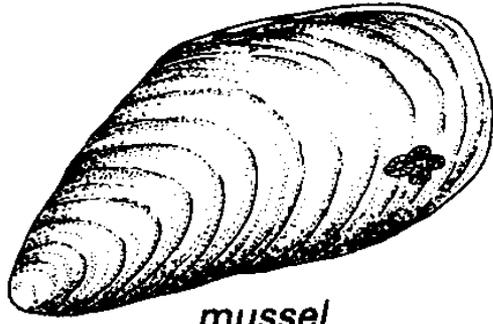


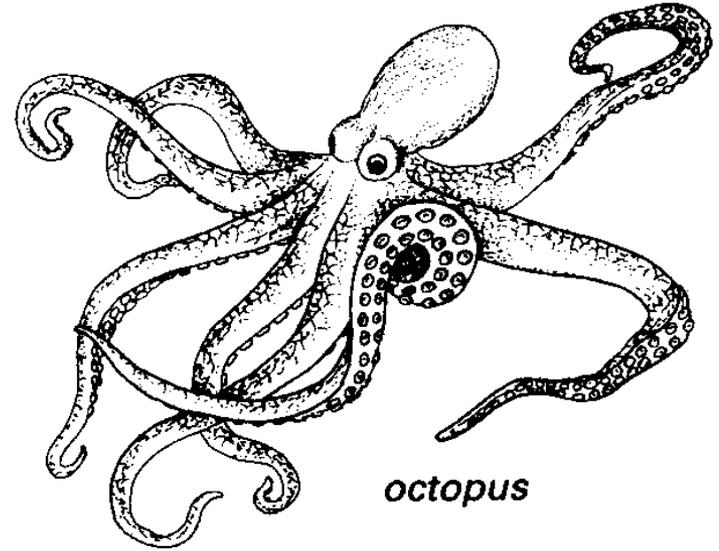


mäkkýše

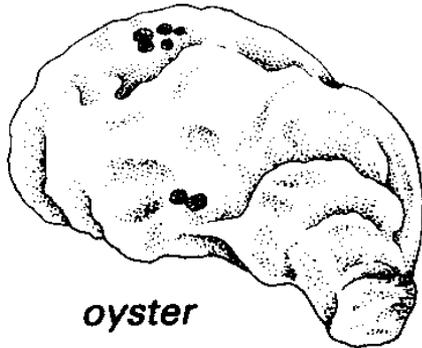
Phylum Mollusca



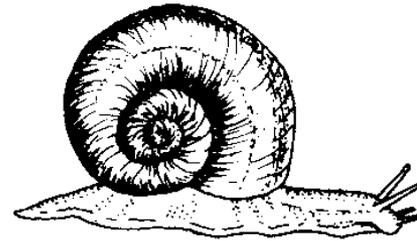
mussel



octopus



oyster



garden snail

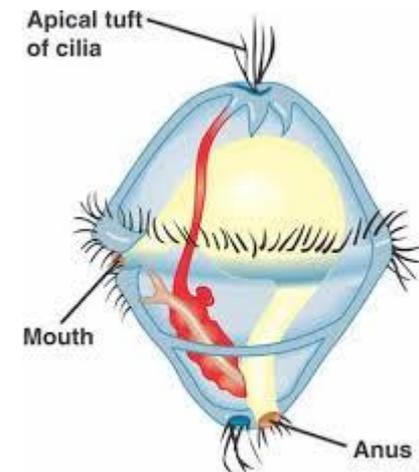


limpet

A variety of molluscs.

General characteristics

- *molluscus* – soft (latin)
- second largest animal phylum - includes chitons, snails, slugs, clams, oysters, squid, octopus & nautilus
- **bilaterally symmetrical**
- **cephalization** - have a distinct head with sense organs & brain
- go through free-swimming larval stage called **trochophore**



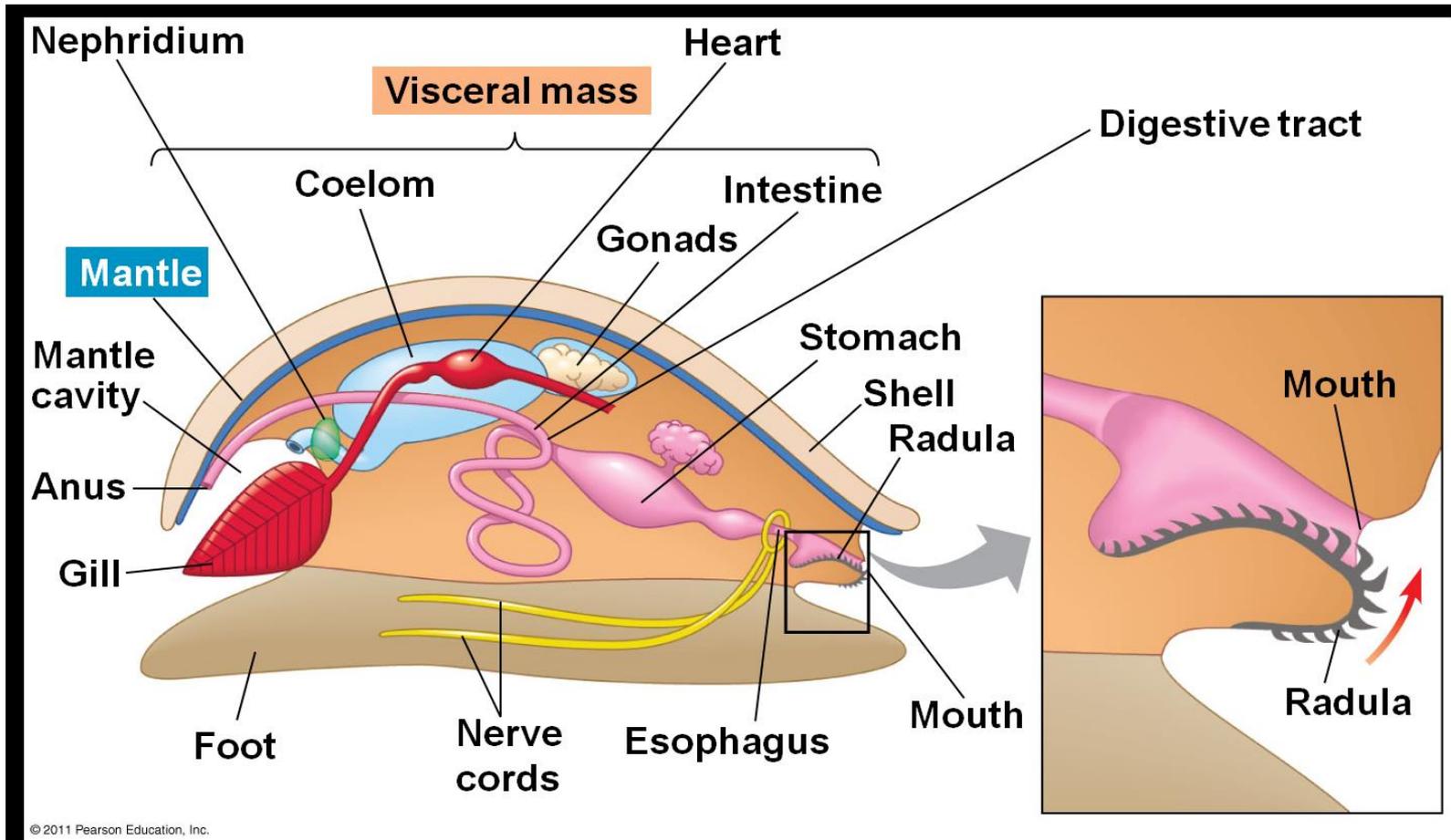
Structure of trochophore larva

General characteristics

- all share similar development pattern and common body plan:
 - **mantle** – protective „coat“ covering soft-bodies that may or may not form a hard, calcium carbonate **shell**
 - **visceral mass** - body organs below mantle
 - **muscular foot** for movement which is modified into **tentacles** for squid & octopus
 - **gills** between the mantle & visceral mass used for gas exchange

General characteristics

- all share similar development pattern and common body plan:



General characteristics

Includes 4 classes:

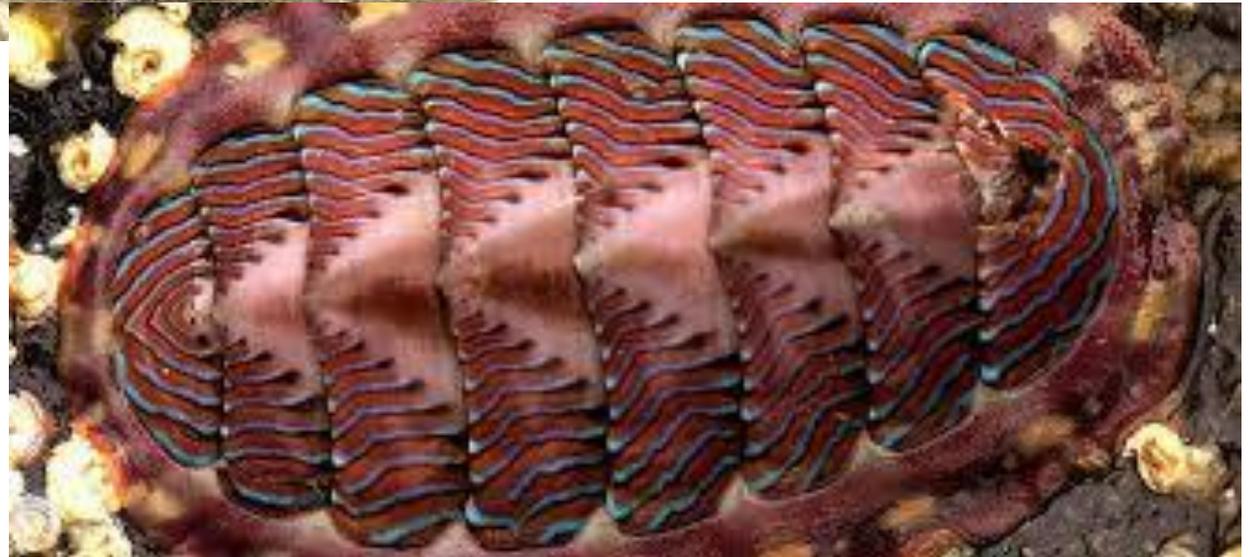
Polyplacophora (chitons)

Gastropoda (snails, slugs, nudibranchs, conchs)

Bivalvia (clams, oysters & mussels)

Cephalopoda (squid, octopus & nautilus)

Polyplacophora



Chitons

Gastropoda (ulitníky)

- **1 shell** often coiled
- **distinct head with eyes**
and sense organs
- **radula**
- some terrestrial, aquatic



slug



snail



Chromodoris annae



Chromodoris sp.

Chromodoris sp.



Thecacera pacifica



Bornella anguilla

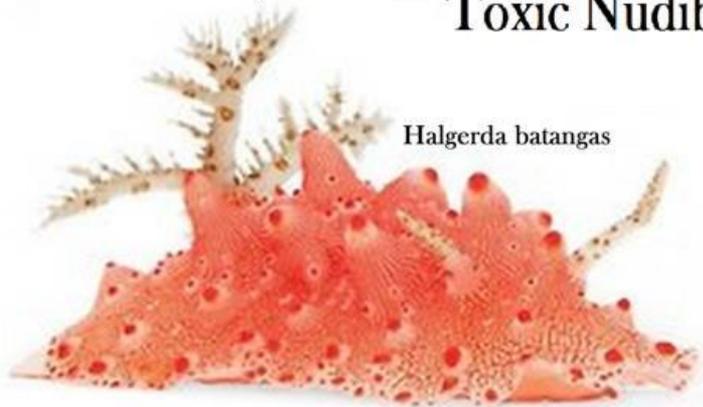


Risbecia tryoni



Nembrotha kubaryana

Toxic Nudibranchs Seaslugs



Halgerda batangas

Mexichromis mariei





conch



Bivalvia (lastúrniky)



clams



oysters



mussels

Bivalvia

- 2 part shells
- no head or eyes
- filter-feeders
- live in water (gills)

Cephalopoda (hlavonožce)



squid



octopus

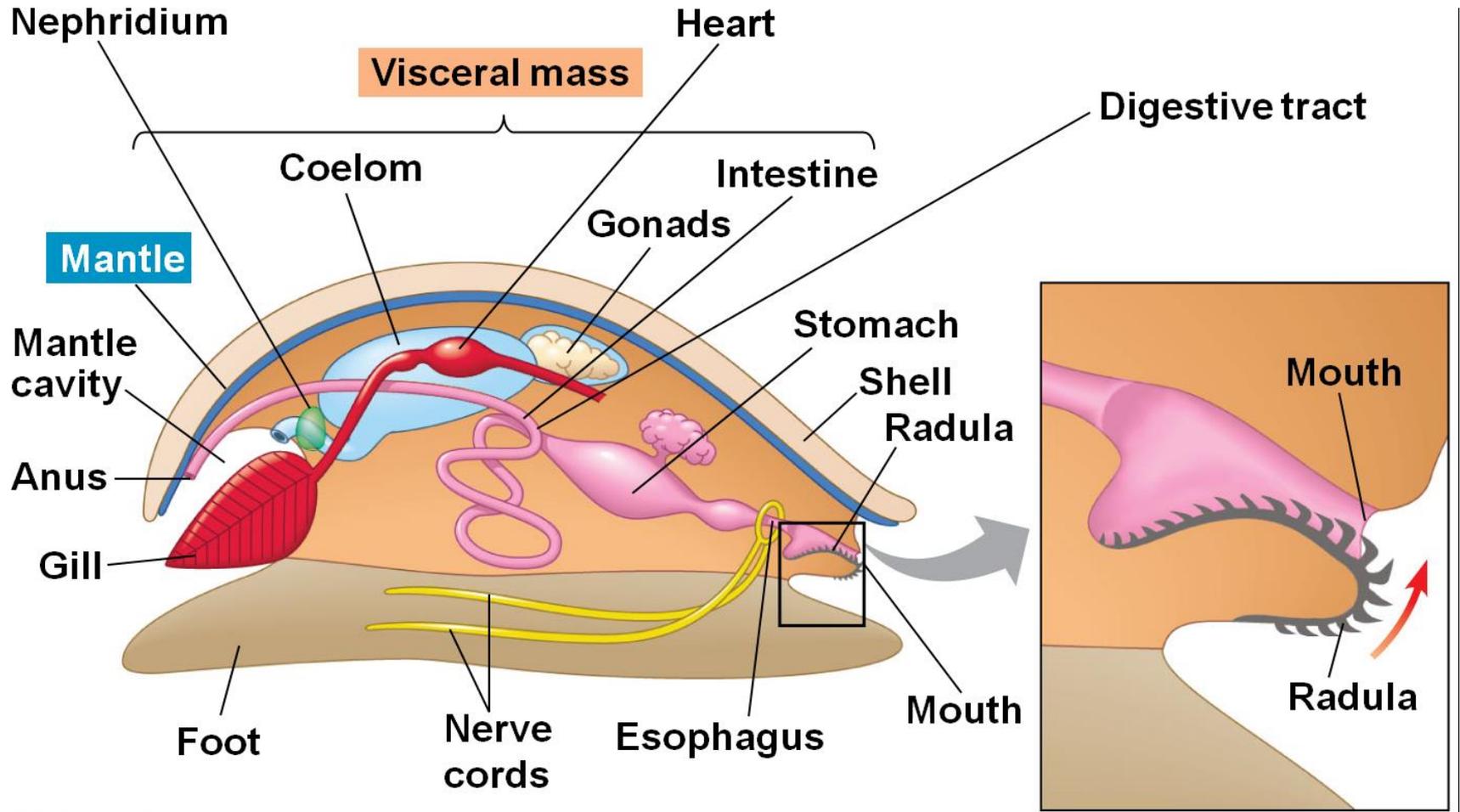


nautilus

Cephalopoda

- well developed brain and eyes
- fast moving predators
- foot is modified to tentacles
- camouflage or jet propulsion when threatened

Structure of *Mollusca*



Structures and functions

Digestive system

- complete **one-way digestive tract** mouth → anus
(mouth, oesophagus, stomach, intestine, anus)
- **radula** - a scraping, tongue-like structure (gastropoda)
- beak** (cephalopodes)

Excretory system

- **nephridia** – remove metabolic waste (amoniac)
- digestive waste through anus

Structures and functions

Respiratory system

- aquatic mollusks have **gills**
- terrestrial mollusks have **primitive lungs** (highly folded mantle)

Circulatory system

- **open circulatory system** (gastropodes, bivalvia) – heart pumps **hemolymph** (blood) through open space
- **close circulatory system** (cephalopodes)

Structures and functions

Nervous system

- Bivalvia – **reduced NS**, no head
- Gastropoda – **fairy basic** (nerve cord and ganglia)
- Cephalopoda – **very well developed**
 - very good vision
 - ability to **learn** (memory)!!!

Reproduction system

- most **gonochorists** (separate sexes)
 - external or internal (terrestrial species) fertilisation

Ecology

- used by humans for **food**
- **pearls** from oysters
- shells used for **jewelry**
- do **crop & garden damage**
- serve as **intermediate hosts** for some parasites such as flukes



Slizniak karpatský