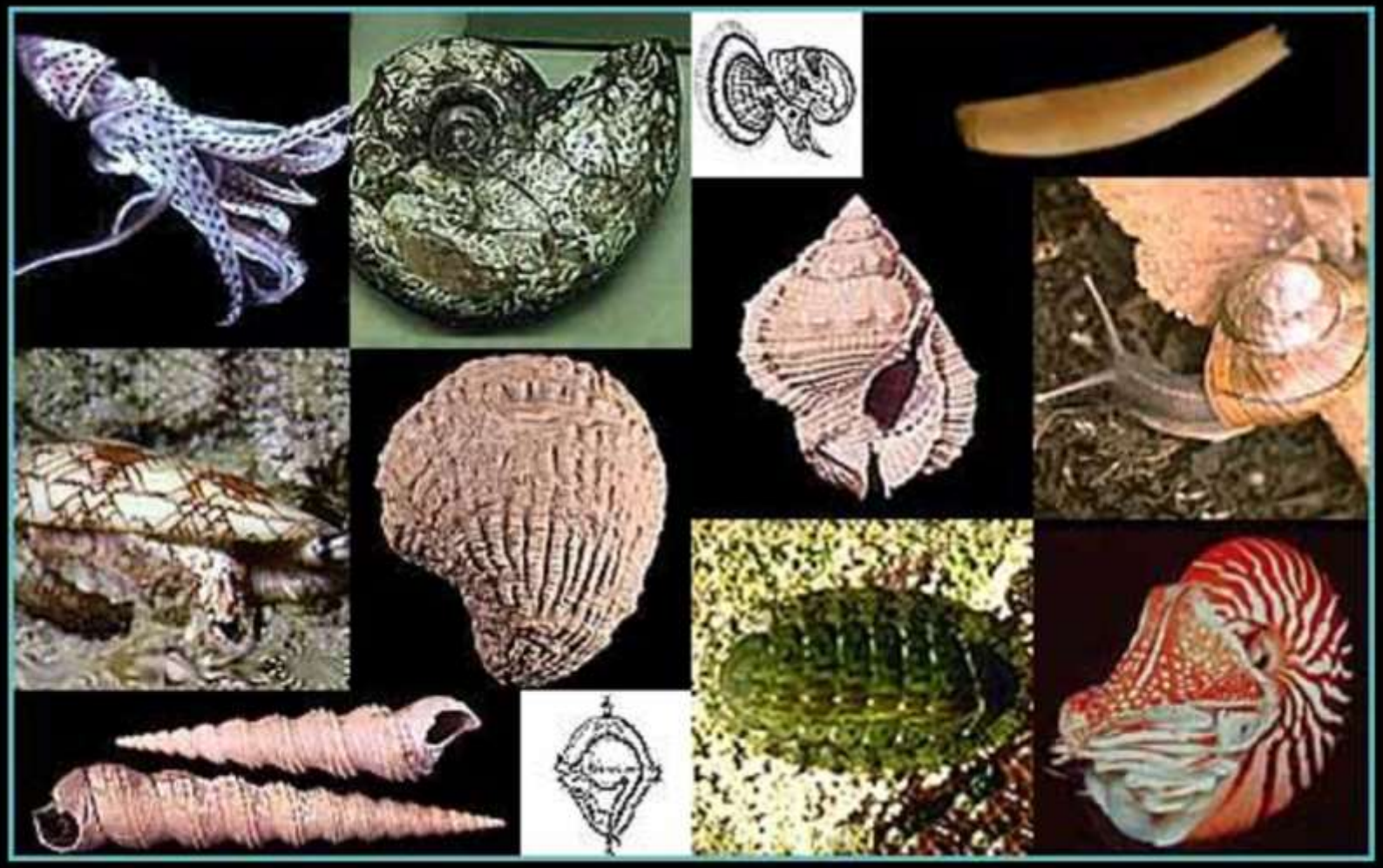
Phylum Mollusca




Mollusca
Molluscs' shells have been popular since ancient times, and some cultures still use them as tools, decorations, money and fetishes. Many cultures rely on molluscs for a significant part of their diet, with numerous species harvested and cultivated.
There are around 50-80,000 described species of molluscs, with an estimated 100,000 as yet undescribed. This makes Molluscs, the second largest group of animals on Earth, exceeded only by Arthropoda (insects, spiders, crustaceans), and with twice as many species as vertebrates.
In essence molluscs are one of the most compact groups of animals, few groups equal their wide diversity of form and function.
Gastropoda
Bivalvia
+8,000 living species. Marine and freshwater.
Usually laterally compressed. Shell typically composed of two valves, hinged together by a ligament and teeth.
Cephalopoda
Scaphopoda
350 living species. Marine only.
Shell tubular, tapering and open at both ends, infaunal.
Monoplacophora
11 living species. Marine only.
First living species was discovered in 1952 (Neopilina galathea), previously only known from Paleozoic fossils. Living species are less than 3 cm in length, occurring in deep-sea environments.
Polyplacophora
Chaetodermomorpha
112 living species. Marine only.
Small, worm-like animals which live upside-down in burrows on the seafloor.
Neomeniomorpha
213 living species. Marine only.
Small, worm-like animals which live in sediments or on epifaunal organisms.

GENERAL CHARACTERISTICS

- **BODY CHARACTERS :**

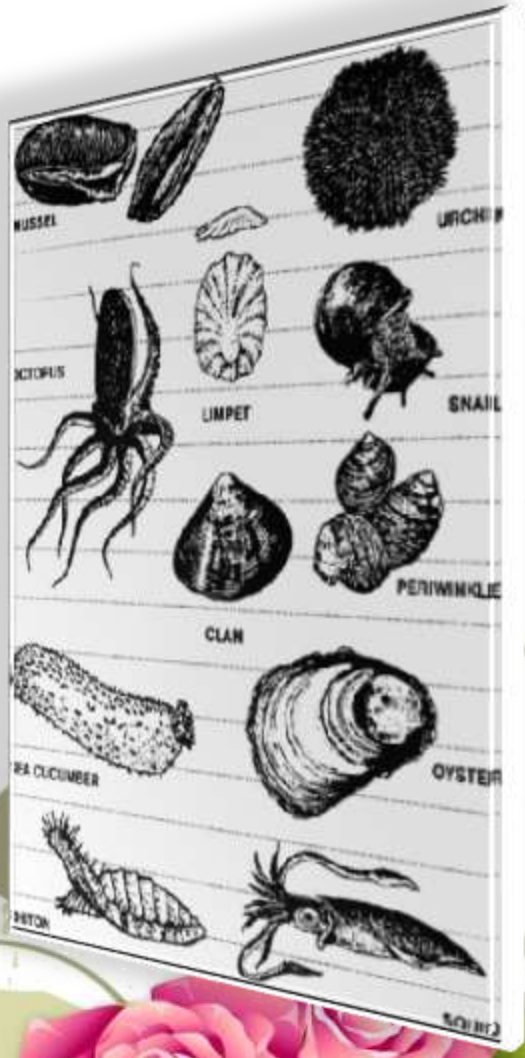
  Soft

  Unsegmented

  Triploblastic

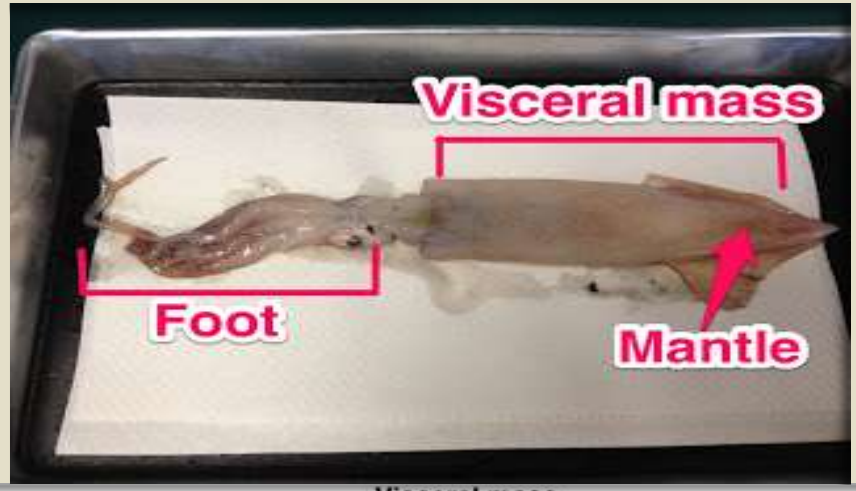
  No jointed appendages

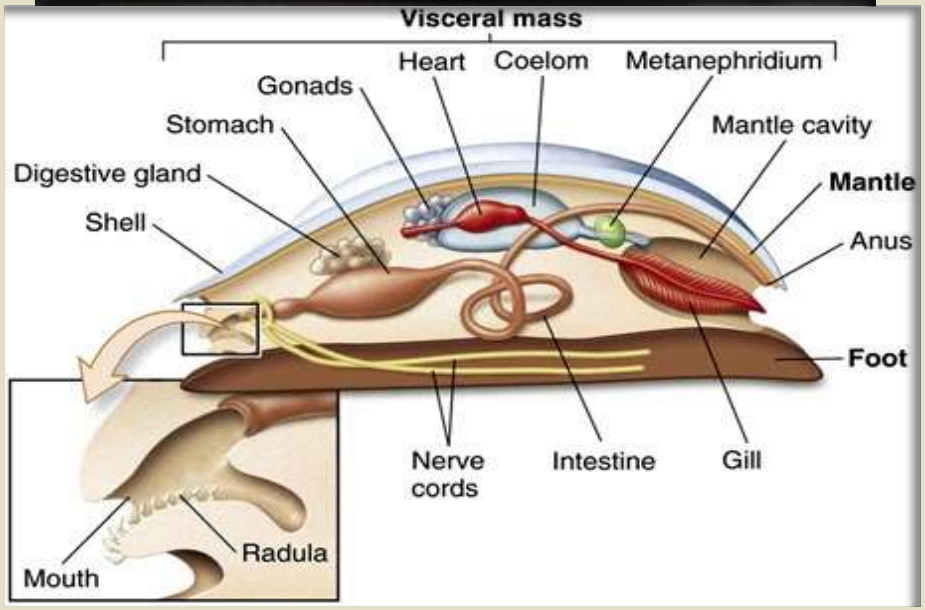
- **SYMMETRY** : Bilaterally symmetrical
- **SHELL** : Externally mantle secretes a hard , brittle , calcareous shell . It protects the soft body .



DIVISION OF BODY – *head , mantle , visceral mass and foot*

- **HEAD** : It carries mouth , eyes and tentacles.
- **FOOT** : It is ventral , thick and muscular . Variously modified for creeping and seizing .
- **MANTLE** : It is a thick muscular fold of body wall .
- **VISCERAL MASS** : Contains all internal organs .





GENERAL CHARACTERISTICS [visceral mass]

. **DIGESTIVE ORGANS** :

Alimentary canal is well developed and coiled .

- **RESPIRATION :**

Respiration by gills enclosed in mantle cavity .

- **CIRCULATORY SYSTEM** :

It is of lacunar type with dorsal heart & few blood vessels .

- **EXCRETORY ORGANS** *:*

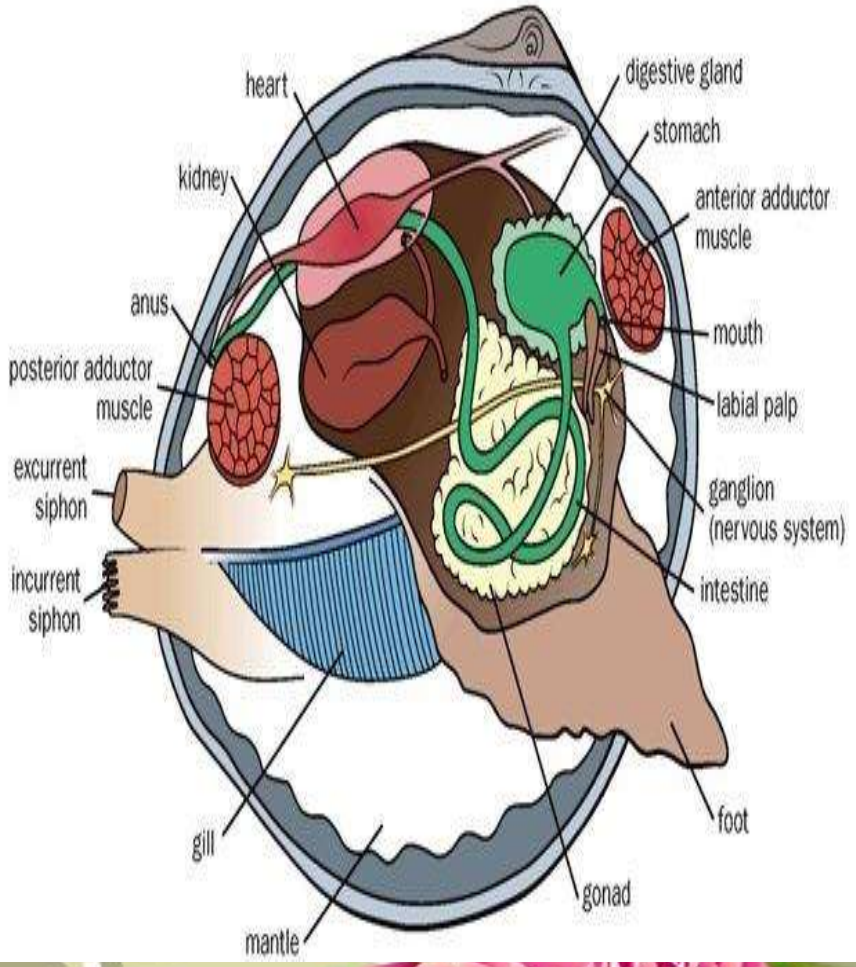
One or two pairs of kidney .

- **NERVOUS SYSTEM :**

Comprises of paired cerebral , plural , pedal and visceral ganglia .

- **REPRODUCTION :**

Sexes are usually separate but may be united .
Gonads are usually unpaired .
Fertilisation can be either external or internal .



The six major mollusc classes

CLASS 1 : MONOPLACOPHORA

CLASS 2 : AMPHINEURA

CLASS 3 : SCAPHOPODA

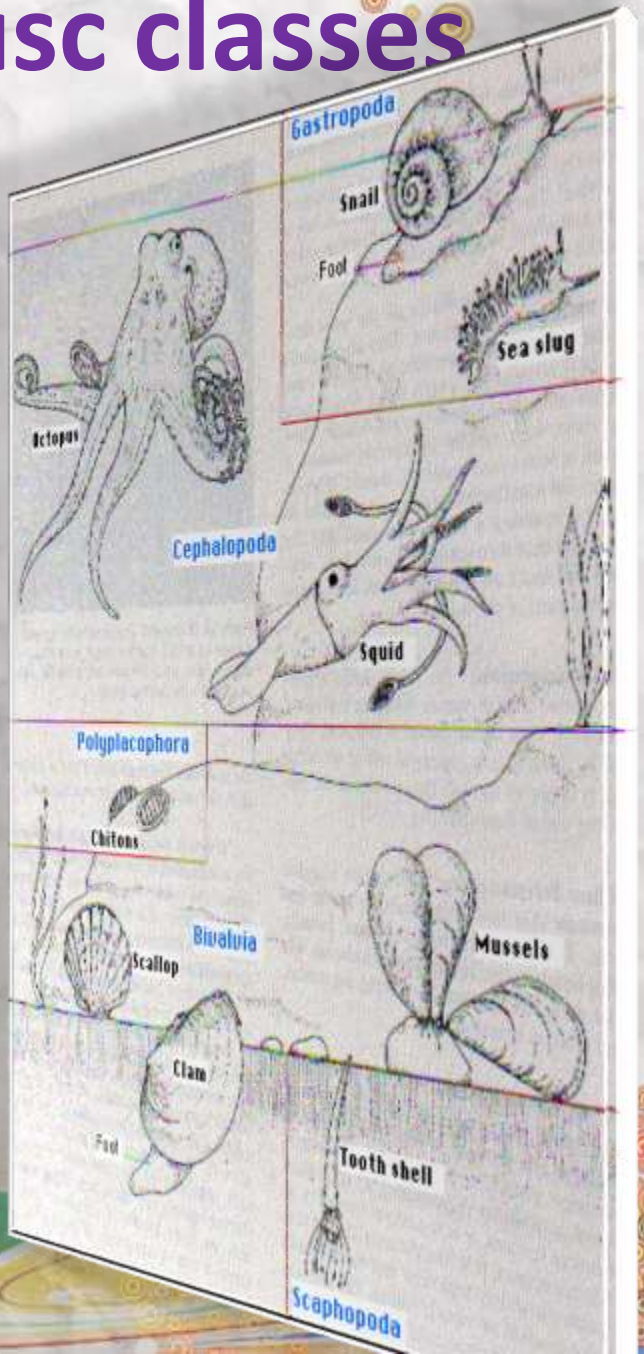
CLASS 4 : GASTROPODA

CLASS 5 : PELECYPODA

OR

BIVALVIA

CLASS 6 : CEPHALOPODA



CLASS 1 : MONOPLACOPHORA

(Gk mono = single ; placo = plate ; phora = bearing)

- Foot is broad , flat , disc-like with flat creeping sole .
- Shell is cup-shaped , formed of one piece only .
- Head bears tentacles .
- Example : Neopilina .

CLASS 2 : AMPHINEURA

(Gk amphi = both ; neuron = nerve)

- These are the most primitive molluscs with dorsoventrally flattened body .
- Foot is flat , broad and sole-like .
- Shell is formed of many plates
- Nervous system is primitive .
- Head is reduced , eyes and tentacles are absent .
- Example : Chiton .

CLASS 3 : SCAPHOPODA

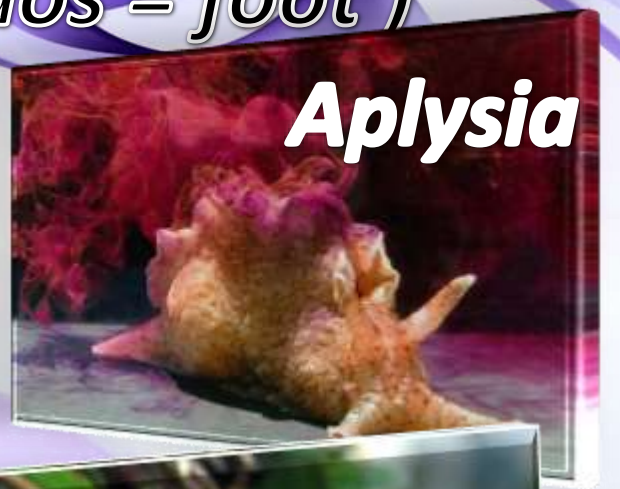
(Gk skaphe = boat ; podos = foot)

- Body is elongated and cylindrical .
- Foot is conical and is adapted for creeping and burrowing .
- Shell is univalved , tubular and is in the form of tusk of an elephant .
- It is without eyes but with tentacles .
- Examples : Dentalium (Tusk shell) .

CLASS 4 : GASTROPODA

(Gk gaster = stomach ; podos = foot)

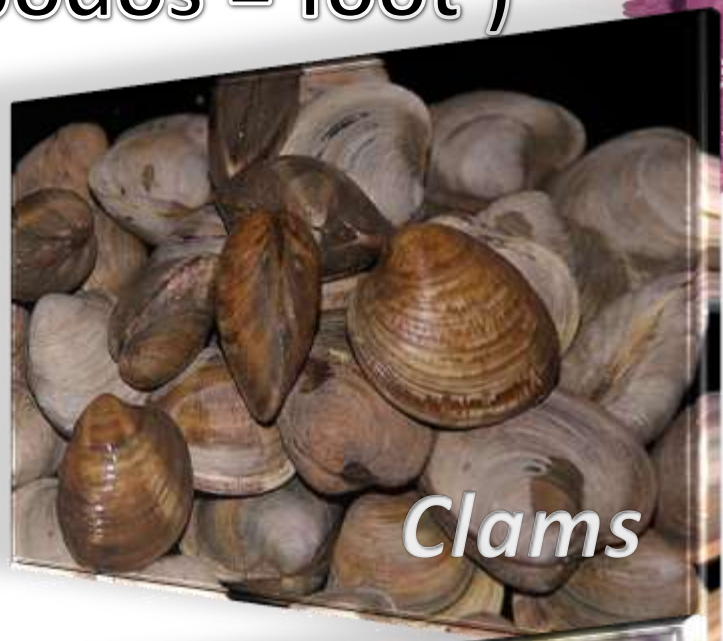
- Body is asymmetrical with distinct head bearing a pair of eyes and tentacles .
- Foot is broad , muscular and flattened .
- Visceral mass is coiled .
- Shell is univalved .
- Anus situated close to mouth .
- Larva bilaterally symmetrical and grows into asymmetrical adult due to twisting of visceral mass .
- Example : Helix (garden snail) , Limax (Slug) and Aplysia (Sea hare) .



CLASS 5 : PELECYPODA OR BIVALVIA

(Gk Pelekys = hatchet ; podos = foot)

- They are burrowing molluscs .
- Body is laterally compressed .
- Eyes and tentacles absent .
- Shell consists of two valves .
- Example : Clams , oysters and mussels .



CLASS 6 : CEPHALOPODA

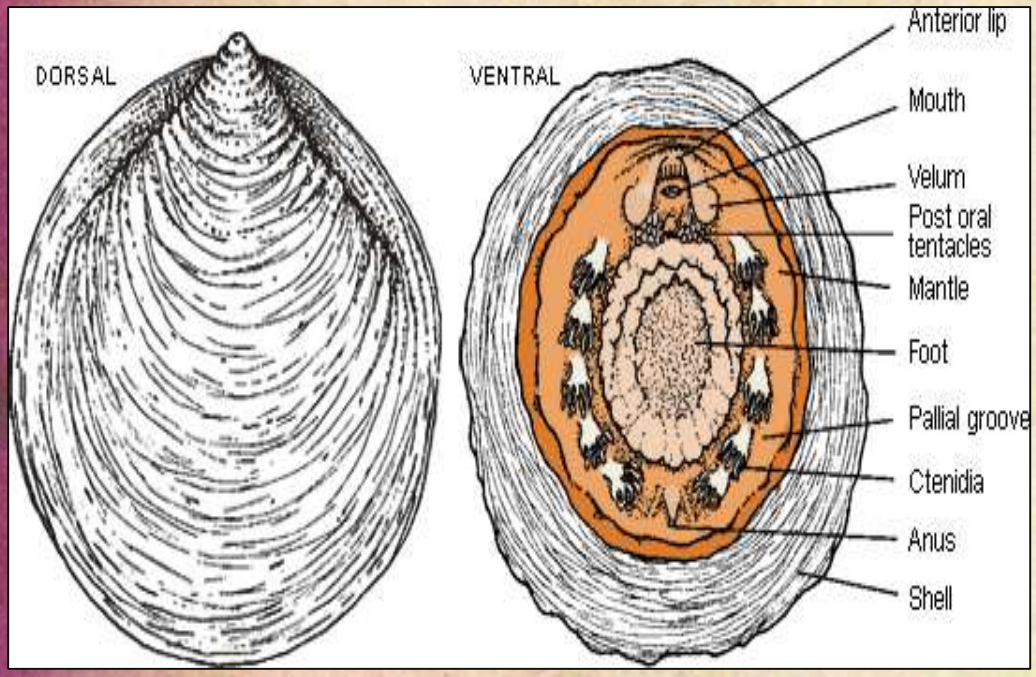
(Gk Kephale = head ; podos = foot)

- Body is bilaterally symmetrical .
- Head is large with mouth and a pair of eyes .
- Visceral mass is well-developed .
- Foot is modified into tentacles attached to the head .
- Example : Loligo (Squid) , Octopus (Devilfish) .

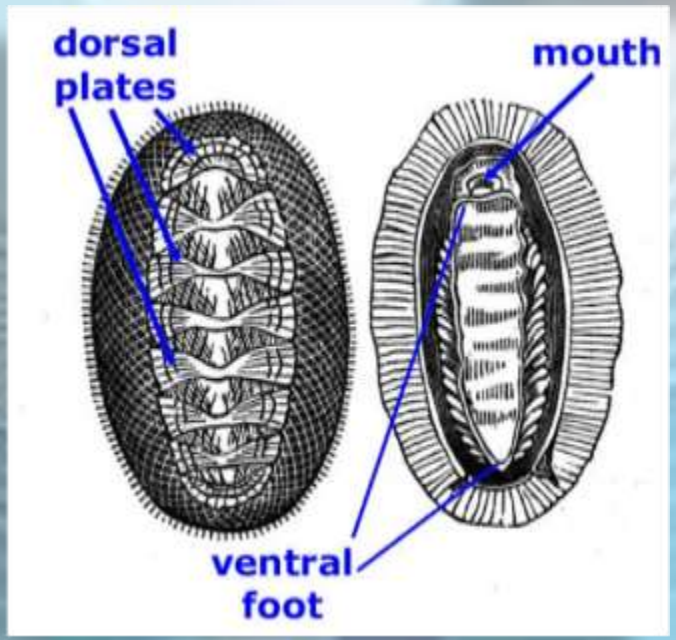
Important examples of Phylum Mollusca

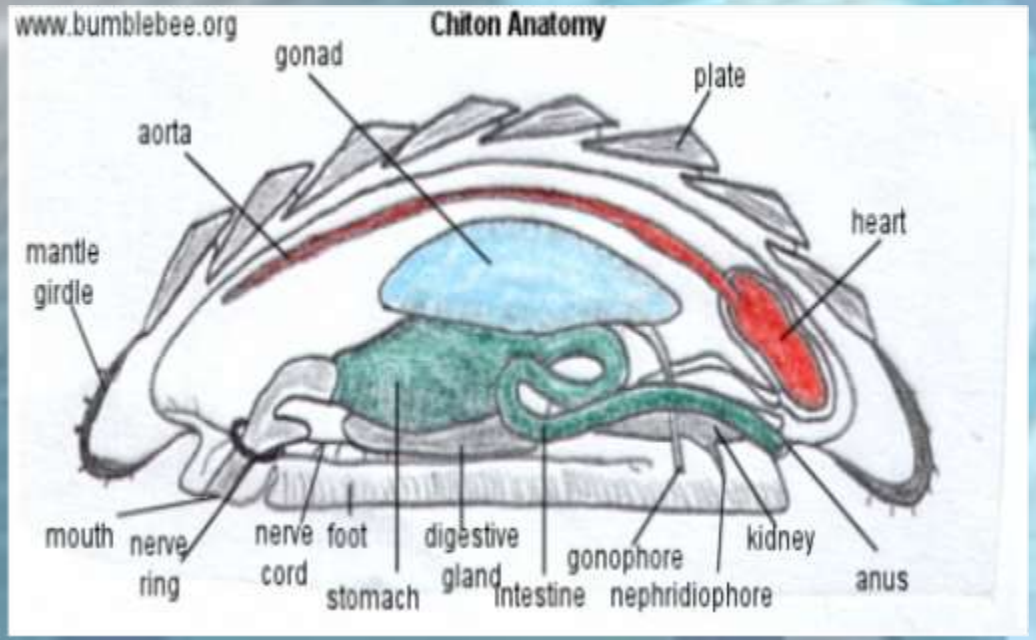
- Neopilina
- Chiton (Sea Mouse)
- Dentalium (Tusk shell)
- Pila (Apple Snail)
- Unio (Freshwater Mussel)
- Octopus (Devilfish)
- Sepia (Cuttlefish)
- Loligo (Squid)

Neopilina (The Living Fossil)

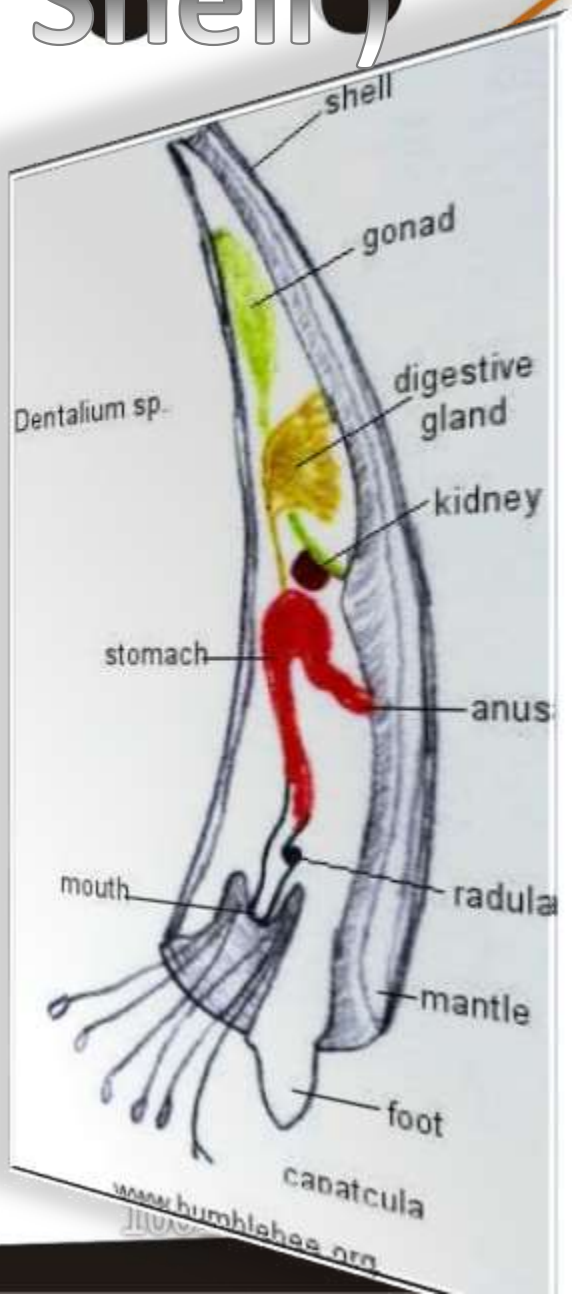


Chiton (Sea Mouse)

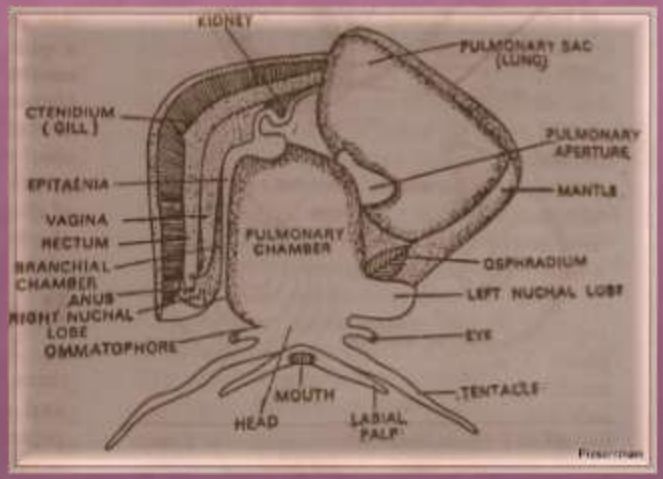




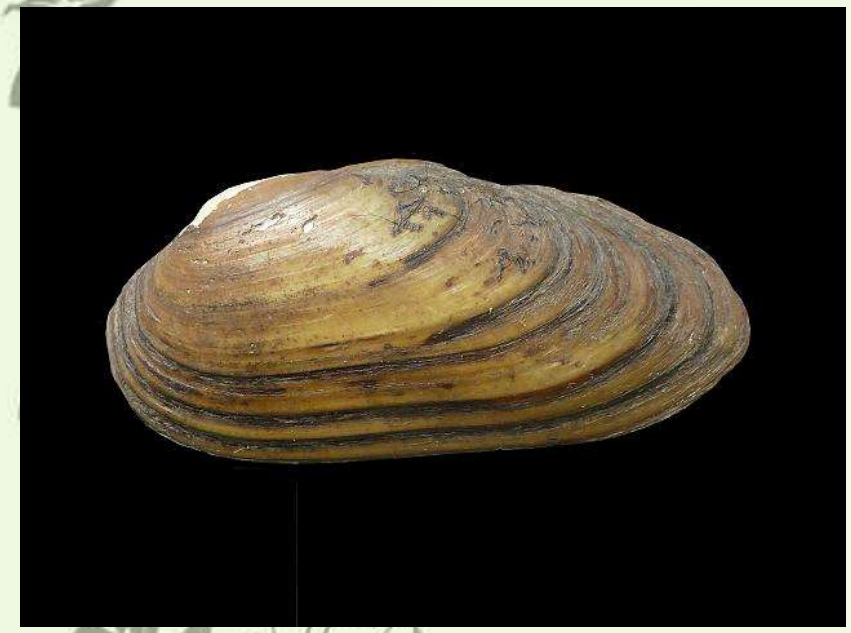
Dentalium (Tusk Shell)

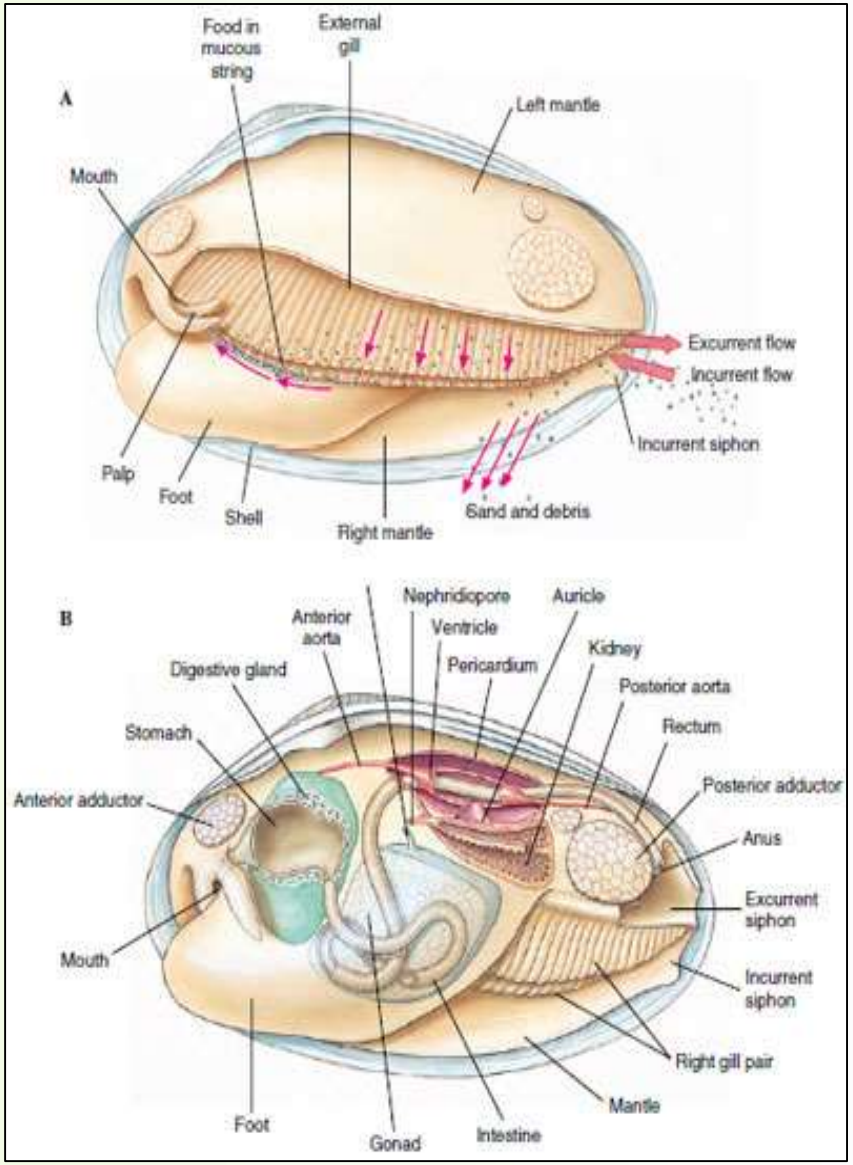


Pila (Apple Snail)

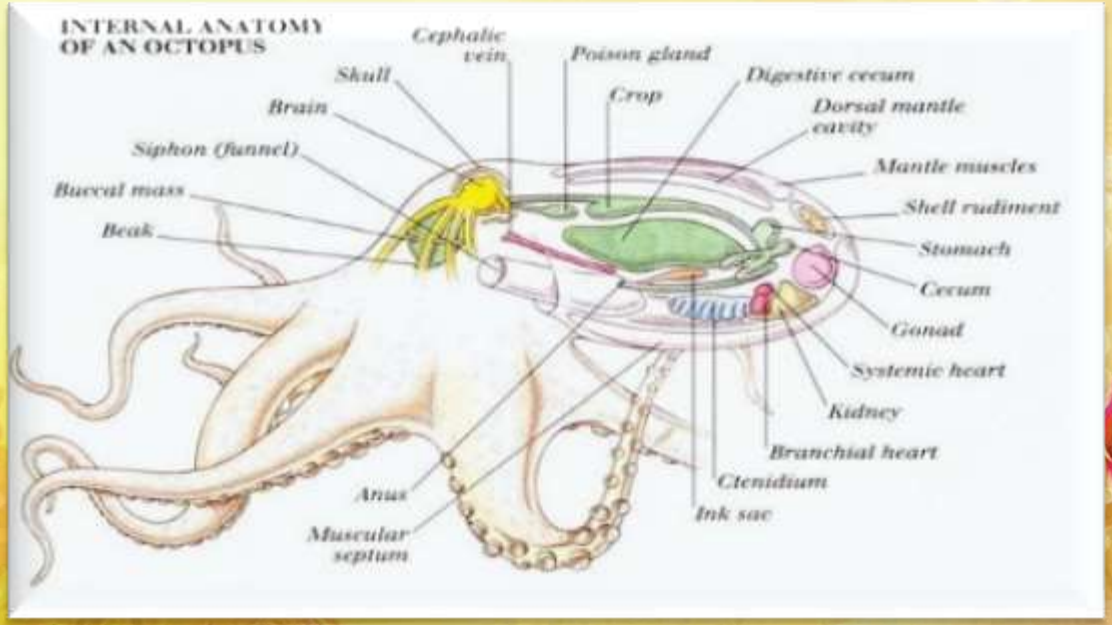


Unio (Freshwater Mussel)





Octopus (Devilfish)



Sepia (Cuttlefish)

Loligo (Squid)