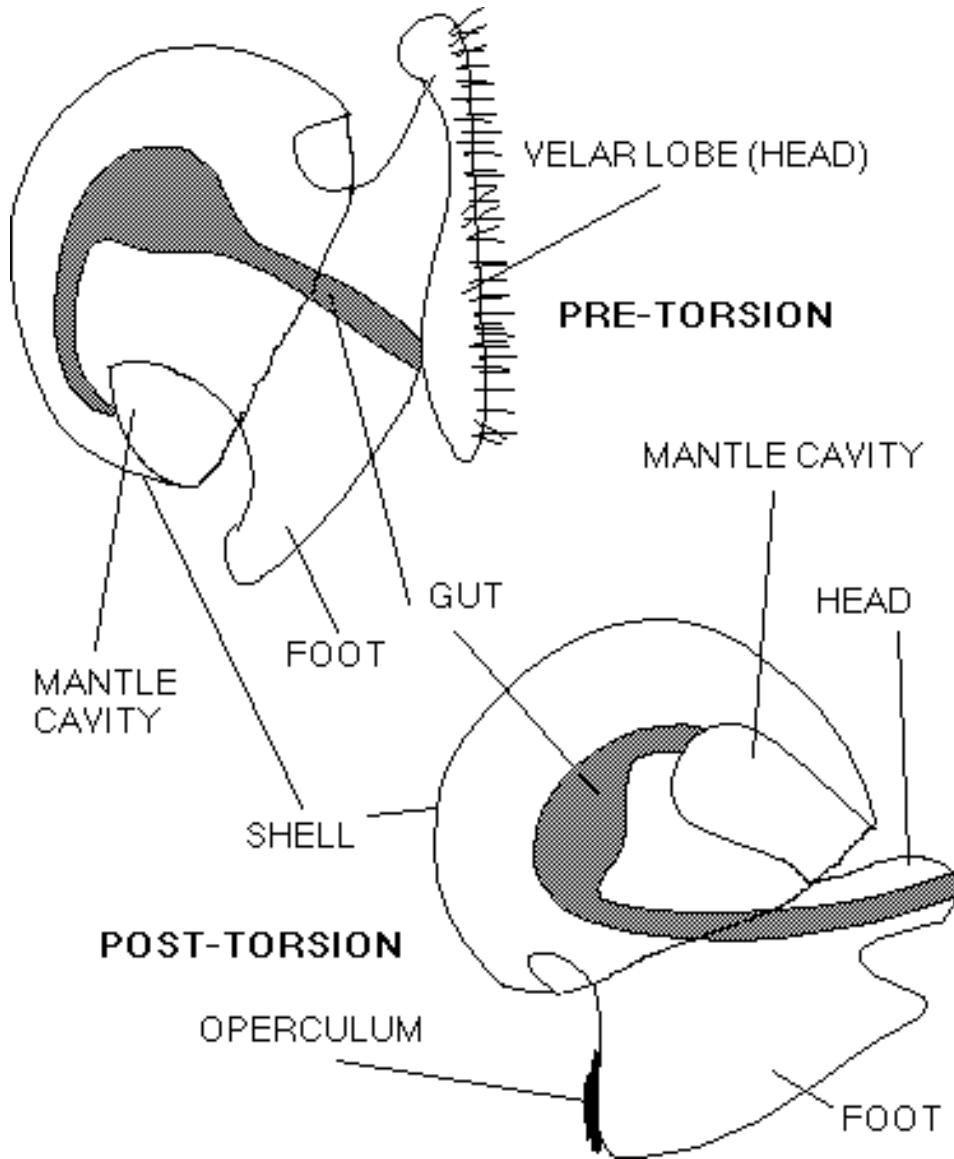


# **Cl. Gastropoda**

- Most diverse class of molluscs
- Marine, freshwater, and terrestrial snails and slugs
- Large foot
- 1-2 ctenidia
- 1-2 osphradia
- Distinct head with 1-2 pairs of tentacles
- Most asymmetric with spiraled shell
- All undergo torsion

# Torsion



- Gastropod synapomorphy
- Occurs during larval development
- Rotation of the visceral mass, mantle and shell  $180^\circ$  with respect to the head and foot
- Brings the mantle cavity and anus to an anterior position above the head
- Subclass opisthobranchia - detorsion

# Subclass Pulmonata

- Include land snails & slugs
- Most highly derived
- **No gills**; mantle vascularized & functions as lung = **Pneumostome**



*Helix aspersa* - garden snail (escargot)

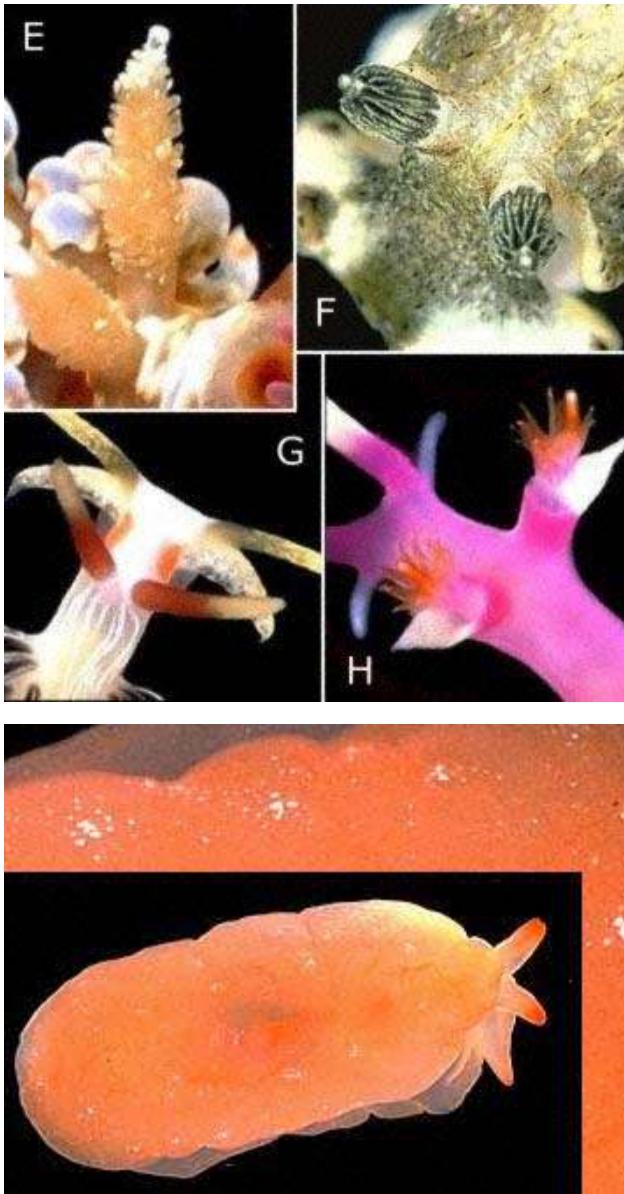
Pneumostome

# **Subclass Opisthobranchia**



- **Order Nudibranchia:  
Sea slugs**
  - Detorted
  - No shell
  - No distinct mantle cavity
  - No true ctenidium

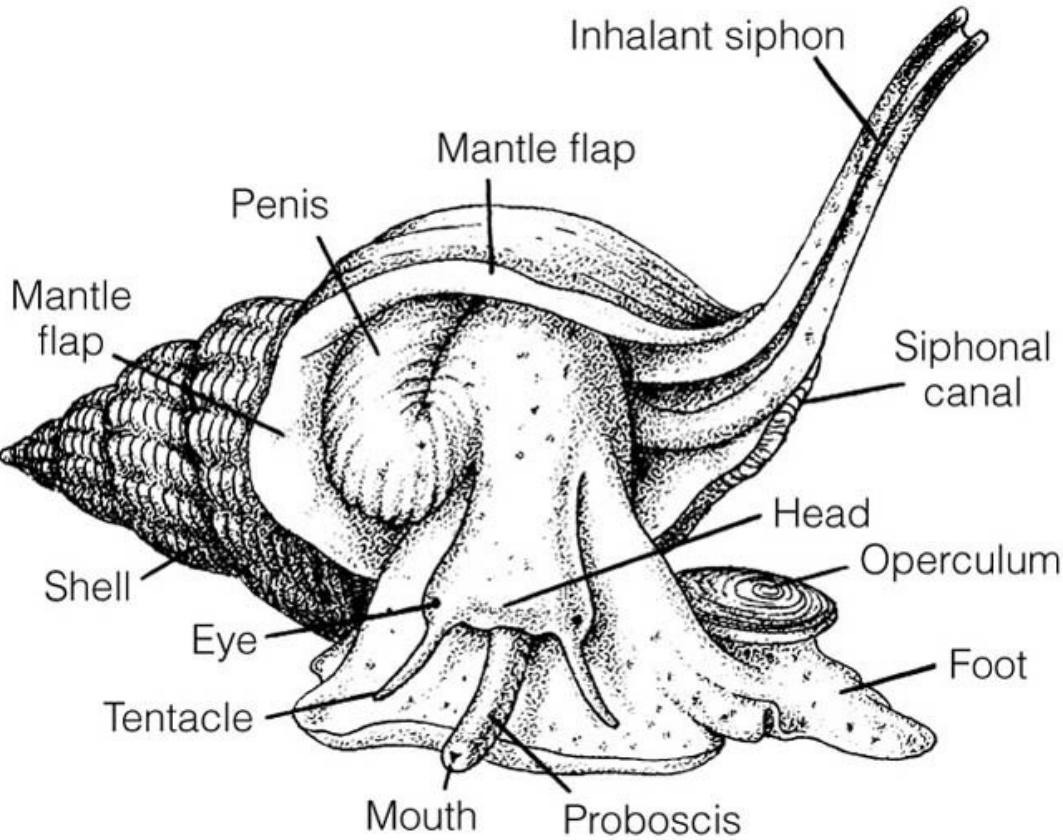
# Order Nudibranchia



- Rhinophores: olfactory organ
- Cerata



# Subclass Prosobranchia



- **Proboscis:** extendable muscular tube with mouth
- **Aperature:** opening at base of shell where head/foot retract
- **Operculum:** covers aperature (flexible protein or rigid calcium)
- Shell aperture forms a siphonal notch or canal

# Order Vetigastropoda



# Order Patellogastropoda



# Order Caenogastropoda

Suborder Mesogastropoda



Suborder Neogastropoda



Hungry, hungry cone snail

PHYLUM

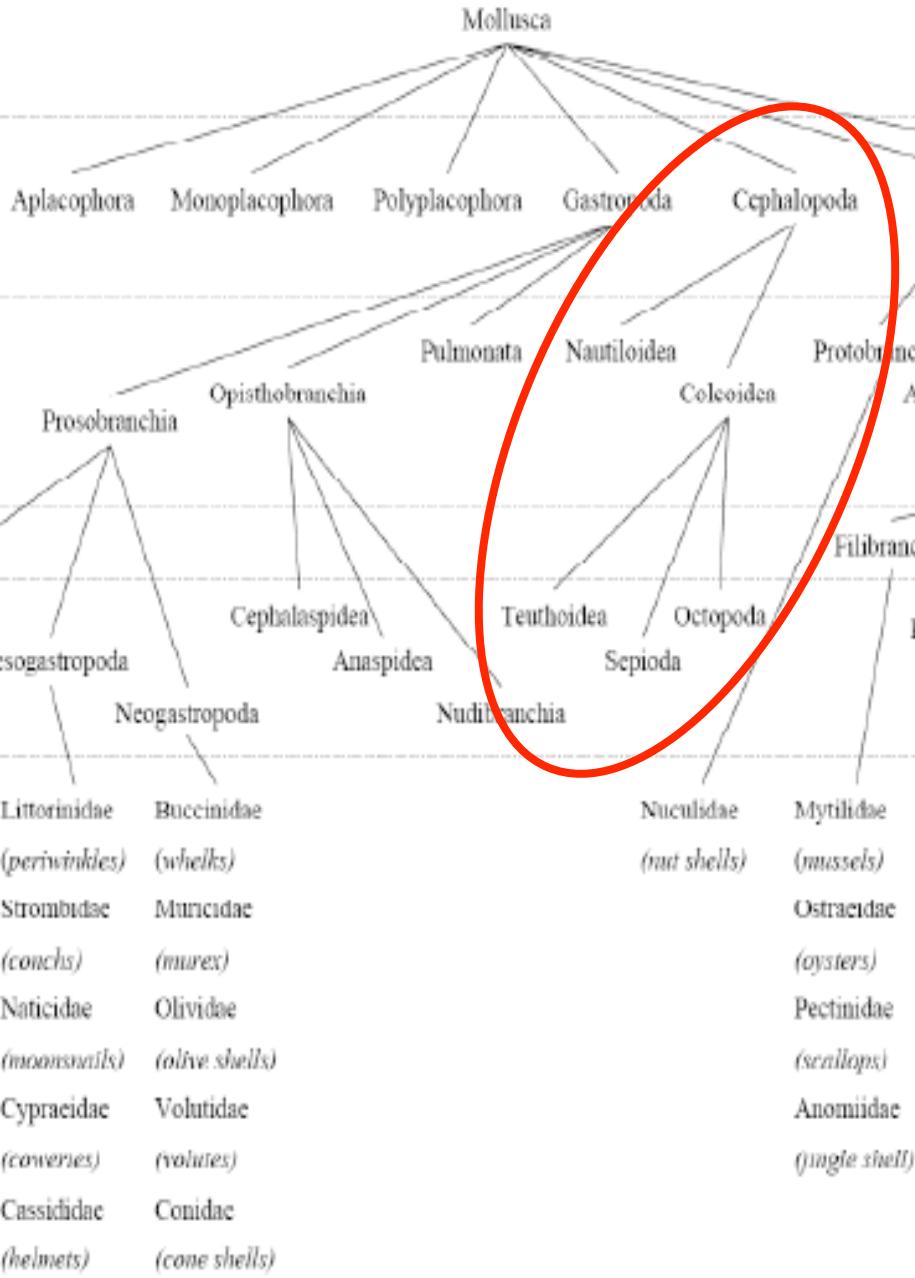
CLASS

SUBCLASS

SUPERORDER

ORDER

FAMILY



## Class Cephalopoda

### Subclass Nautiloidea

- *Nautilus*

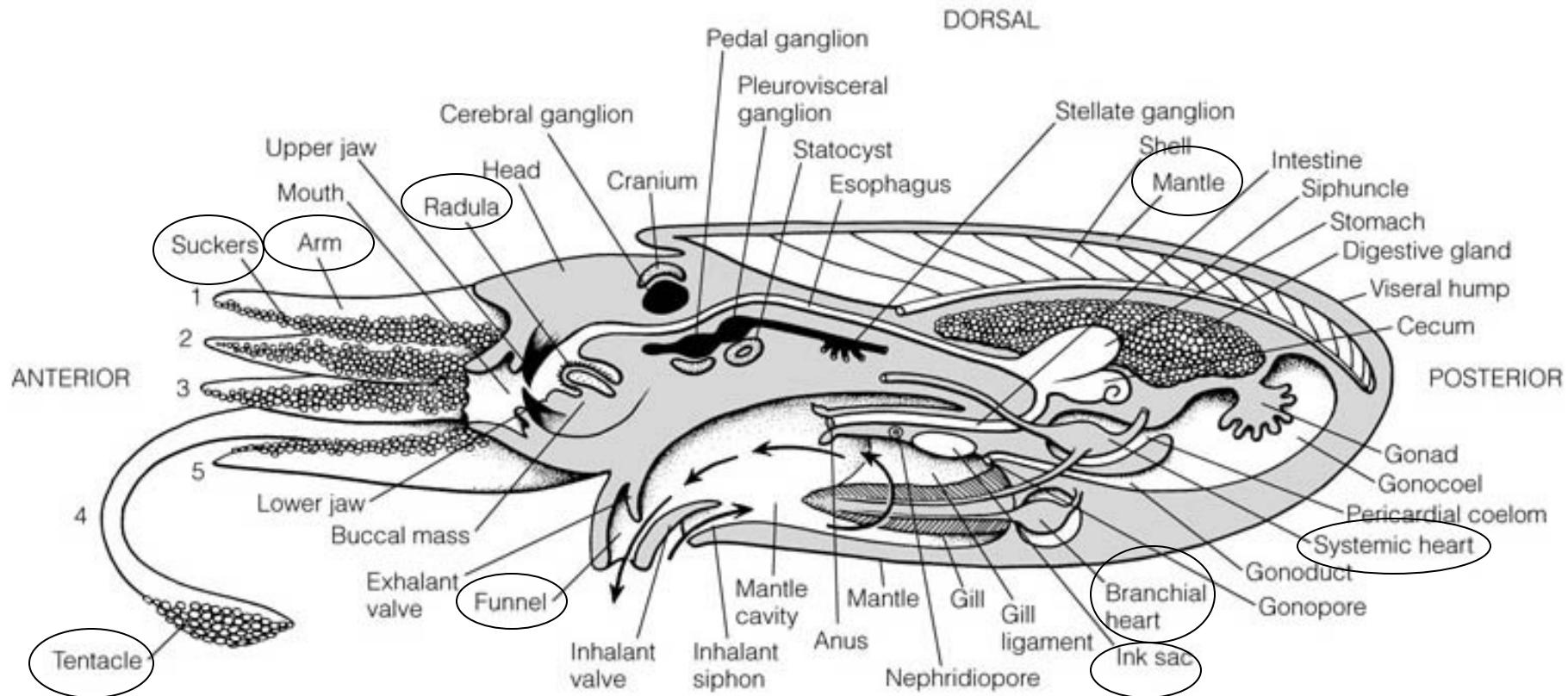
### Subclass Coleoidea

- Order Sepiida cuttlefish
- Order Teuthoidea squid
- Order Octopoda octopus

# Class Cephalopoda



# General anatomy



**Lateral Fins**: provide stabilization /direction during locomotion; rippled for slow forward swimming

**Funnel**: locomotion – jet propulsion; location where ink is released

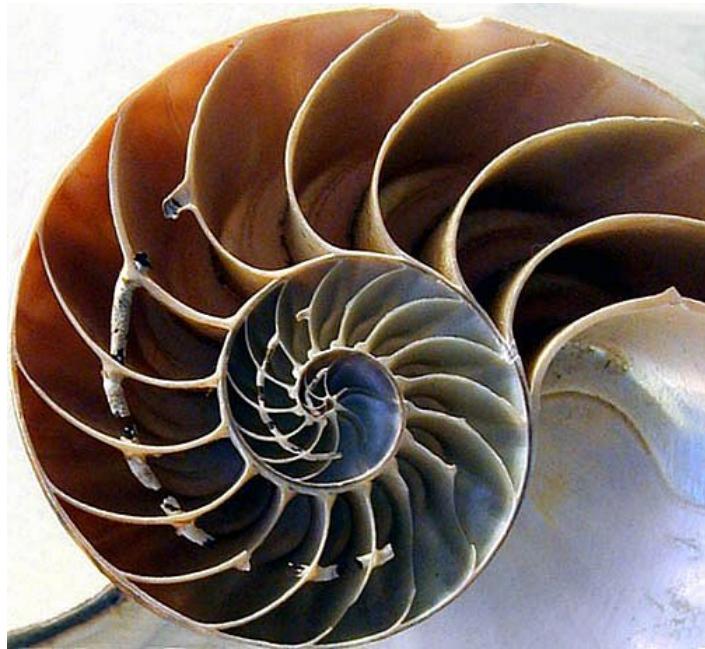
**Elongate tentacles**: retractable to capture prey and bring it to the other arms and mouth

**Systemic heart** : supplies blood carrying oxygen (via two aortas) to the body

**Branchial heart**: needed because cephalopods are very active and have high circulatory requirements. Drives blood through ctenidia and to the main heart

Closed circulatory system allows for unidirectional flow of blood and more efficient gas exchange

## Chambered nautilus



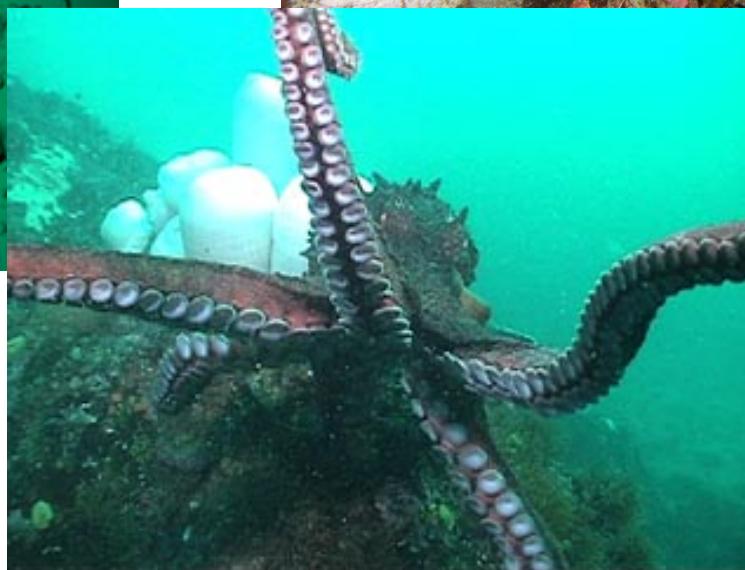
## Paper nautilus



# Giant Pacific Octopus



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Octo Camo



Cuttlebones: porous, composed of calcium carbonate, provides regulated buoyancy

Good Cuttlefish Hunting