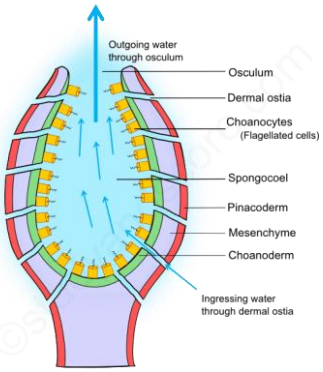
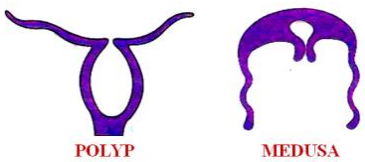
Define the following

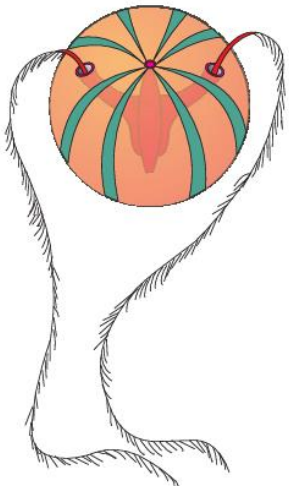
Protostomes: Animals in which mouth opening develop first and anus later. Eg: Annelida, Mollusca & Arthropod .
Deuterostomes: Animals in which anus develop first & mouth opening develop later. Eg: Echinodermata & Chordates.
Hypostome: Animals in which there is a single opening that act both as Mouth & Anus. Eg: Cnidaria.

Phylum – **PORIFERA** (Sponges-pore bearing animals)	
Habitat	Aquatic (Mostly Marine), Sedentary (attached), Solitary or Colonial
Organization	Multicellular with Cellular level of organisation
Germ Layer	Absent
Body Cavity	Acoelomate
Symmetry	Asymmetric
Reproduction	Both Sexual (Bisexual & Hermaphrodite) & Asexual (Fragmentation)
Fertilization	Internal
Development	Indirect
Digestive System	Absent. Intracellular
Respiratory System	Absent
Circulatory System	Absent
Excretory System	Absent
Neural System	Absent
Skeletal System	Made up of Spicules & Spongin Fibres
Segmentation	Absent
Unique Feature	 **Water Canal System-** Helps in food gathering, respiratory exchange and removal of waste. Water enters through ostia (Pores) move through canals to spongocoel (Cavity) & finally comes out through osculum (single large opening) . Choanocytes: Flagellated collar cells line in spongocoel.
Example	Sycon, Spongilla (fresh water) & Euspongia (Bath Sponge)

Phylum – **COELENTRATA / CNIDARIA**	
Habitat	Aquatic (Mostly Marine), Sessile or free swimming, Solitary or Colonial
Organization	Tissue Level
Germ Layer	Diploblastic
Body Cavity	Acoelomate
Symmetry	Radial
Reproduction	Some exist in both forms exhibit alternation of generation (Metagenesis), i.e., polyps produce medusae asexually & medusae form the polyps sexually e.g., Obelia. 
Fertilization	External
Development	Indirect
Digestive System	Absent Both Intra cellular & Extracellular A gastrovascular cavity with a single opening (hypostome).
Respiratory System	Absent
Circulatory System	Absent
Excretory System	Absent
Nervous System	Absent. Apolar neurons forms the plexus (net).
Skeletal System	Corals have skeleton of calcium carbonate ($CaCO_3$)

Segmentation	Absent
Unique Feature	Body have Tentacles (helps in locomotion) with **Cnidoblast** (Stinging cell shoot out nematocyst which penetrate paralyse the prey & also used for defence). Two forms: **Polyp** (Tubular & attached/sessile form with upward mouth & tentacle)- Asexually **Medusa** (Umbrella like, free-swimming with downward mouth & tentacles)-Sexually
Example	**Polyp:** Hydra, Adamsia (Sea anemone) **Medusa**: Aurelia, (Jelly fish)

Phylum – **CTENOPHORA** (Sea walnuts or Comb jellies)	
Habitat	Exclusively Marine
Organization	Tissue Level
Germ Layer	Diploblastic
Body Cavity	Acoelomate
Symmetry	Radial
Reproduction	Sexually, Sexes not separate.
Fertilization	External
Development	Indirect
Digestive System	Incomplete Both extracellular and intracellular.
Respiratory System	Absent
Circulatory System	Absent
Excretory System	Absent
Neural System	Subepidermal Nerve Net **Statocyst -** conspicuous sense organ
Skeleton	Absent
Segmentation	Absent
Unique Feature	Body bears eight external rows of **ciliated comb plates** (Helps in locomotion) **Bioluminescence** (emit line)
Example	Pleurobrachia and Ctenoplana.



Phylum – **PLATYHELMINTHIS** (Flat worms- dorso-ventrally flattened)	
Habitat	Endoparasites
Organization	Organ level
Germ Layer	Triploblastic
Body Cavity	Acoelomate
Symmetry	Bilaterally symmetrical
Reproduction	Asexual (Fragmentation) & Sexual (Hermaphrodite)
Fertilization	Internal
Development	Indirect
Digestive System	Incomplete Hypostome
Respiratory System	Absent
Circulatory System	Absent
Excretory System	Absent. Flame cells (Protonephridia) help in osmoregulation and excretion.
Nervous System	CNS (Head ganglion, usually attached to longitudinal nerve cords with transverse branches.)
Skeletal System	Absent
Segmentation	Absent (except tapeworm)
Unique Feature	Hooks and suckers (Helps in nutrient absorption) in parasitic forms Some posses regeneration Property-Eg- Planaria
Example	Taenia (Tapeworm), Fasciola (Liver fluke)