
Hydra


Jelly fish

COELENTERATA / CNIDARIA

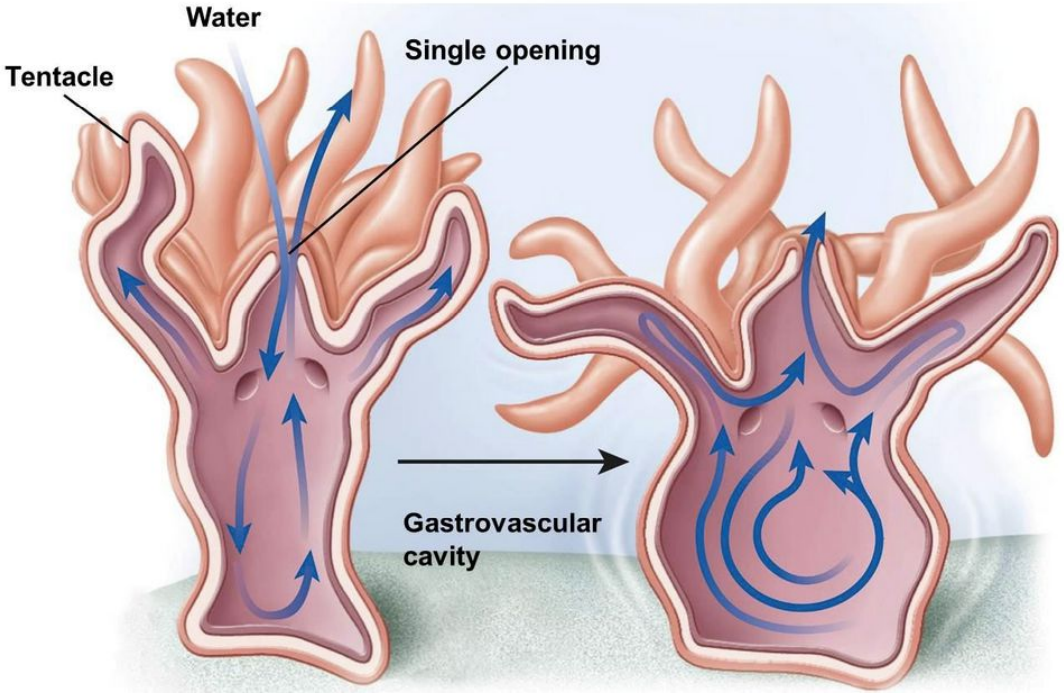

Sea anemone


Coral reef

Derivation of name

- *G., koilos*=hollow, *enteron*=intestine

- Possess coelenteron – a single gastrovascular cavity for both digestion and circulation of food with only one opening to outside



Definition

- Coelenterata are:
  - radially or biradially symmetrical
  - tentacle-bearing
  - aquatic
  - either sedentary or free-swimming
  - metazoan
  - without head, organs or systems
  - but definite cell-tissue grade organisation

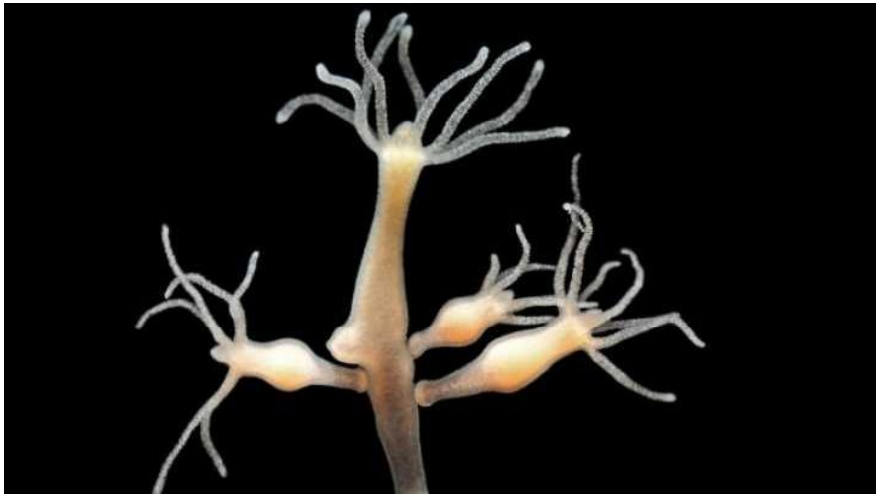


GENERAL CHARACTERS

- Simple of all *Metazoa* representing the cell-tissue grade of organization

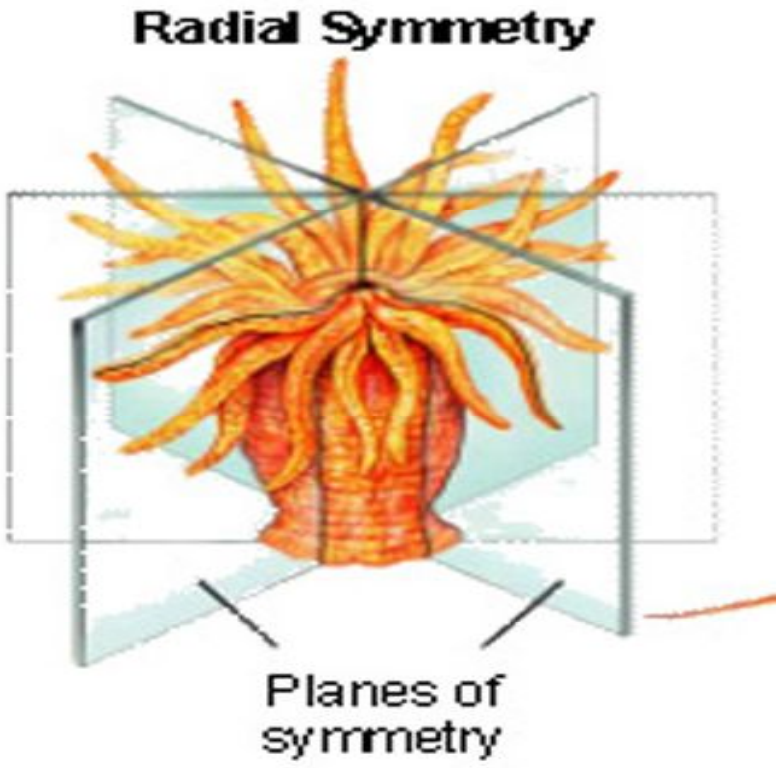
  - Epithelial tissue
  - Muscle tissue
  - Nerve tissue
  - Connective tissue
  - Reproductive tissue

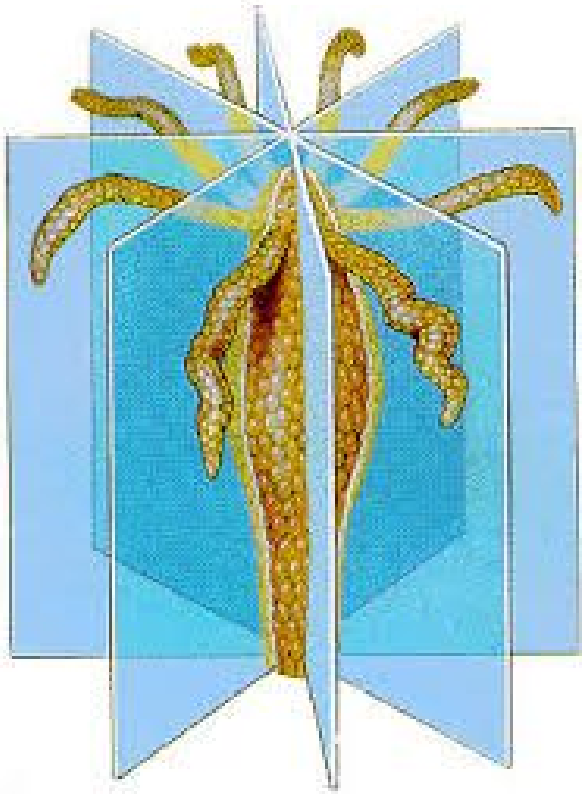
- All aquatic, mostly marine, occurring from sea-shores to great depths, but a few freshwater



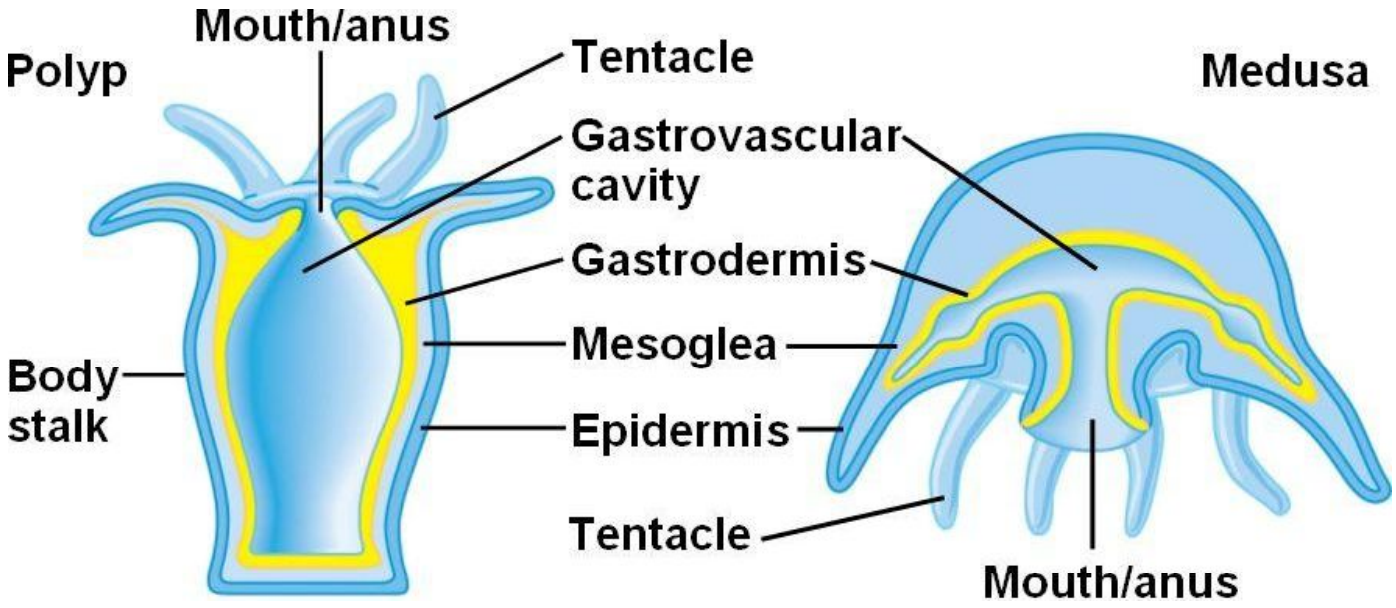
- Individuals may be either solitary or colonial, and sedentary or free-swimming

- Body is almost always radially symmetrical with parts arranged around a longitudinal oral-aboral axis





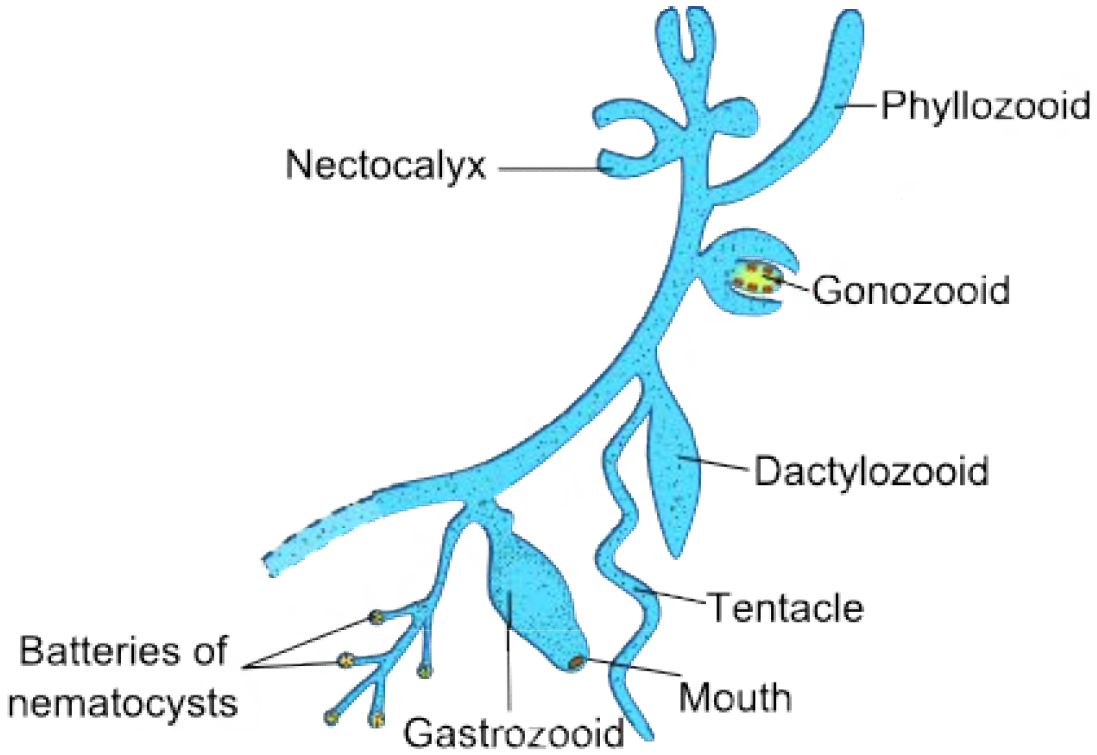
- Two-types of body structures are characteristic – polyp and medusa



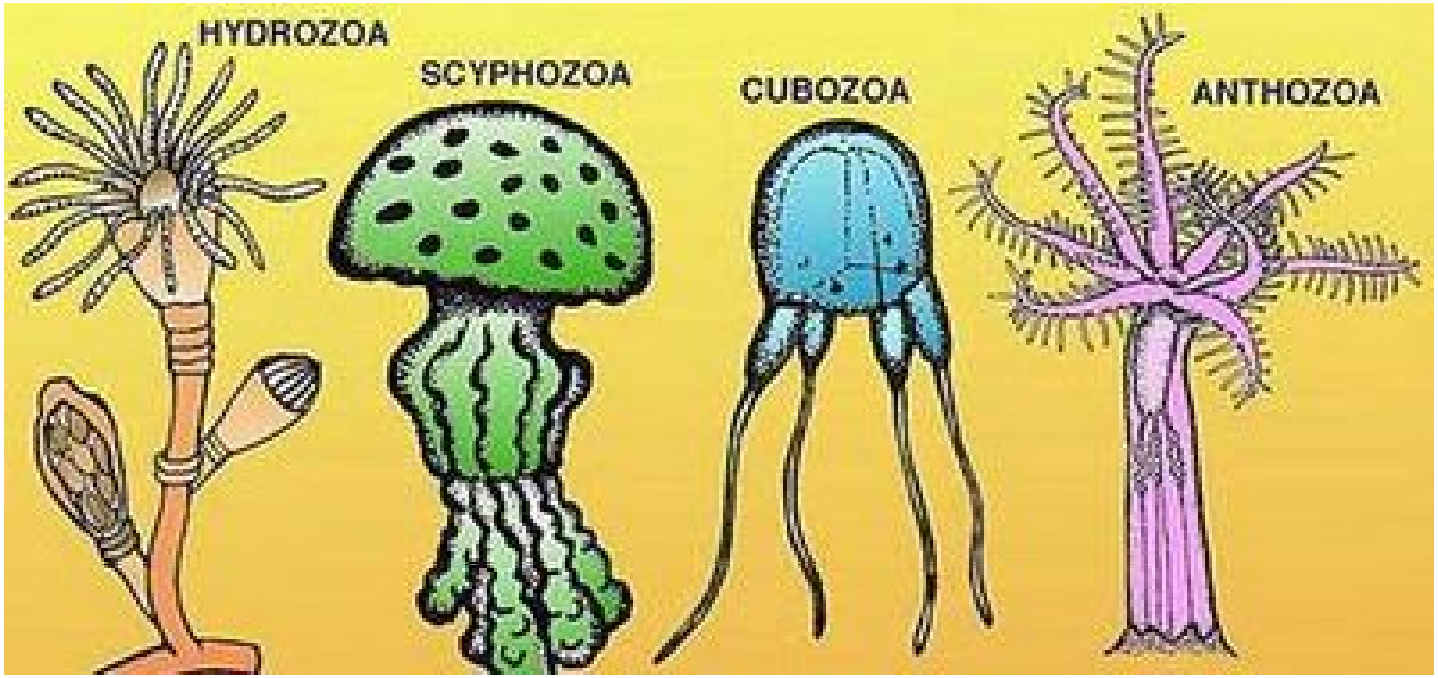
Polyp: Sessile, cylindrical and asexual

Medusa: Free swimming, umbrella-shaped and sexual

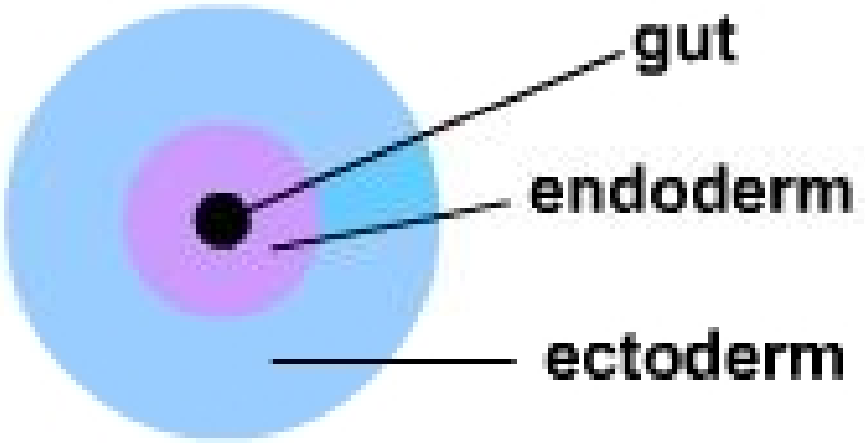
- Many species exhibit polymorphism (Occurrence of structurally and functionally more than two different types of individuals, called zooids within the same organism)



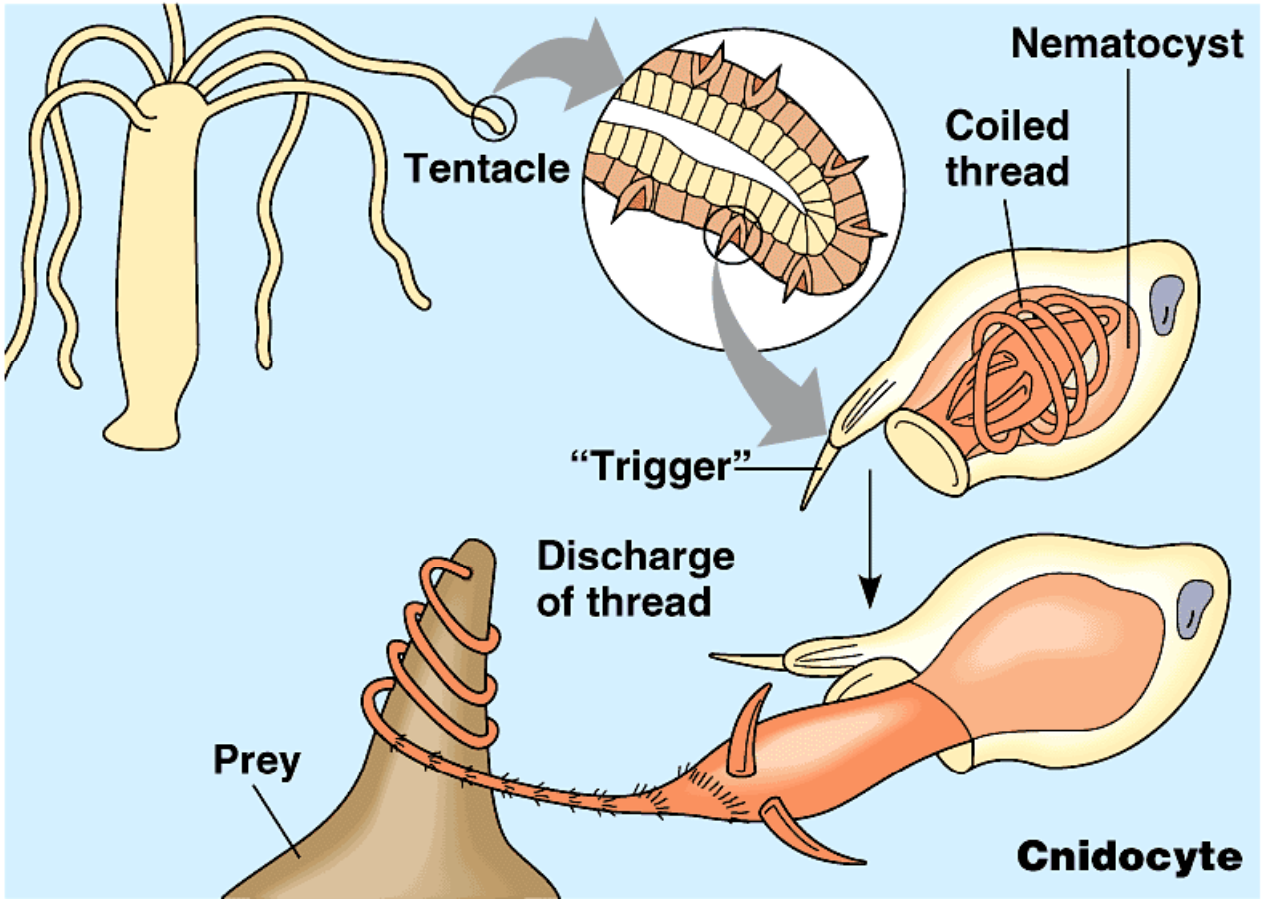
- Tentacles are short and slender, extensile projections that encircle the mouth and used for food-capture, intake and defense

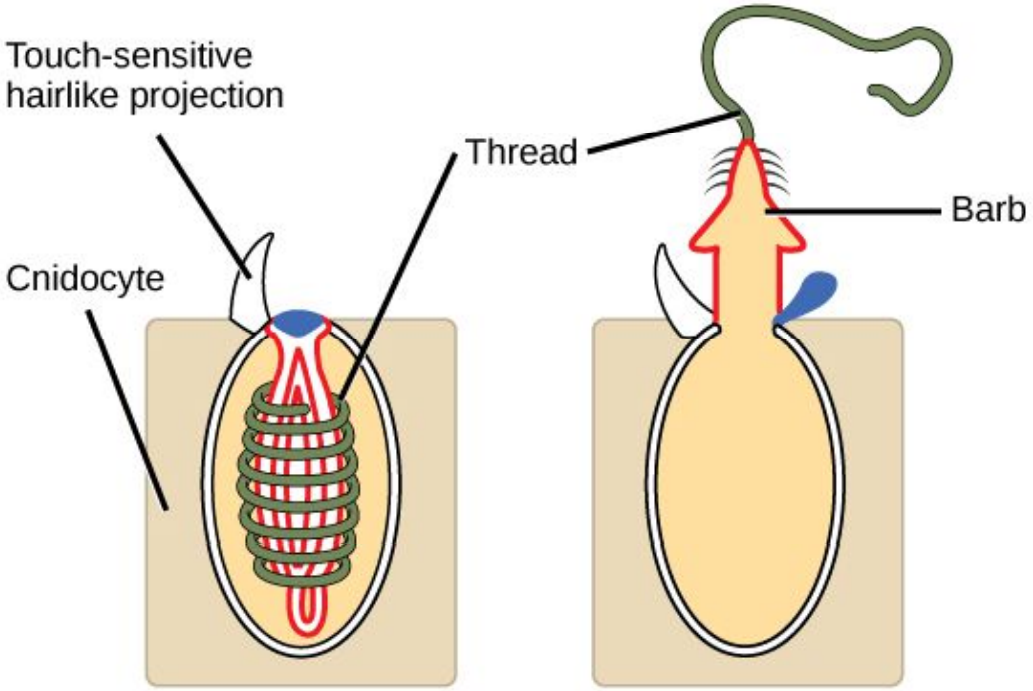


- Body wall is diploblastic
- Mesogloea is a gelatinous, non-cellular intermediate supporting layer
- Interstitial cells are undifferentiated cells found among the epithelial cells



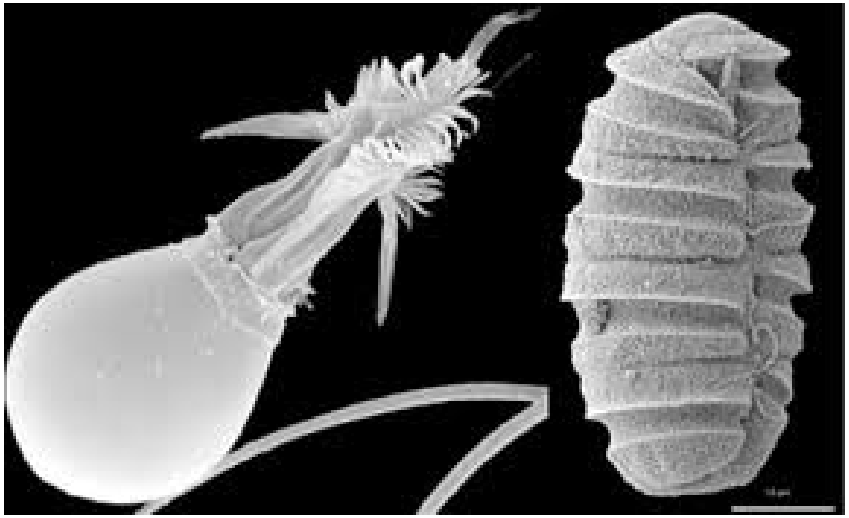
- Contain nematocysts – stinging capsules, which serve for adhesion, offence and defence and food capture



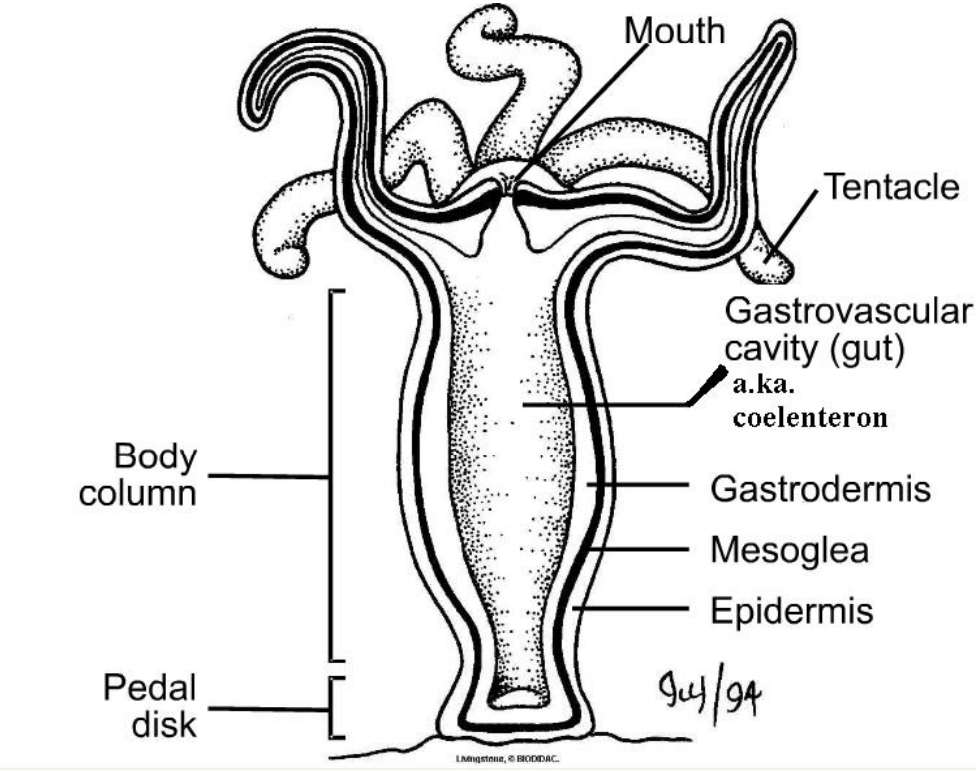


(a) Nematocyst with stored thread and barb

(b) Nematocyst after firing



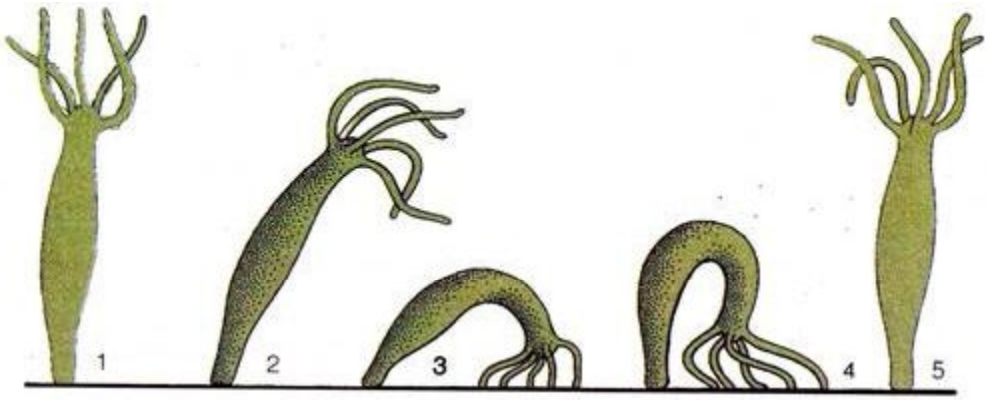
- Body wall encloses coelenteron or the gastrovascular cavity – a single internal cavity which serves for digestion and distribution of food

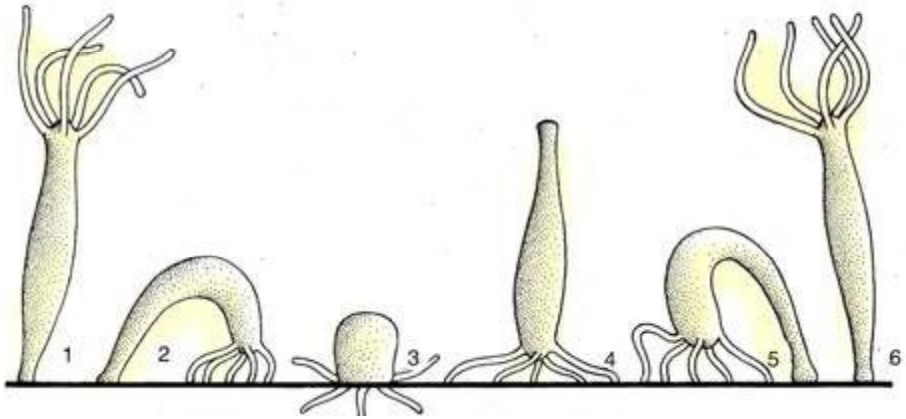


- Acoelomates – there is no coelom

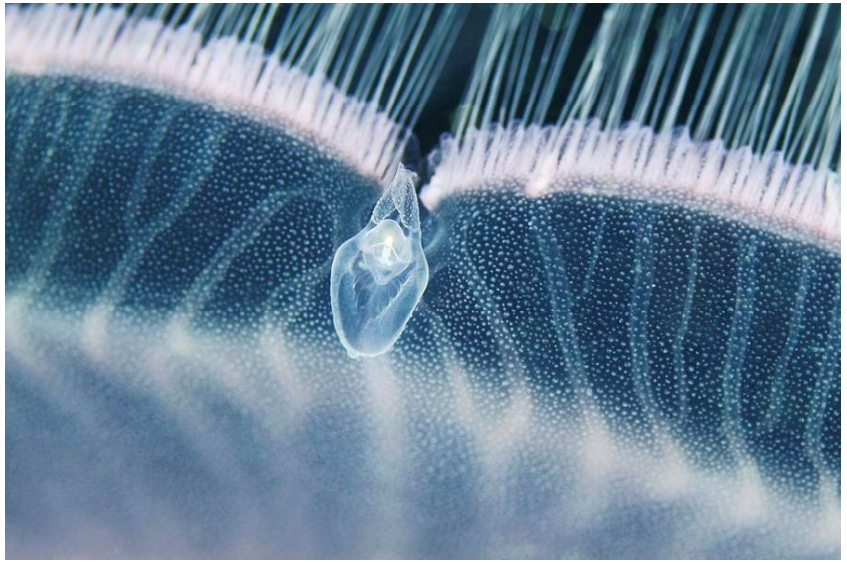
- Respiratory, circulatory and excretory systems are lacking
- Nervous system is primitive consisting of network of nerve cells
- Skeleton is common and may be limy or horny

- Locomotion and movement are due to smooth muscle fibrils in epithelia

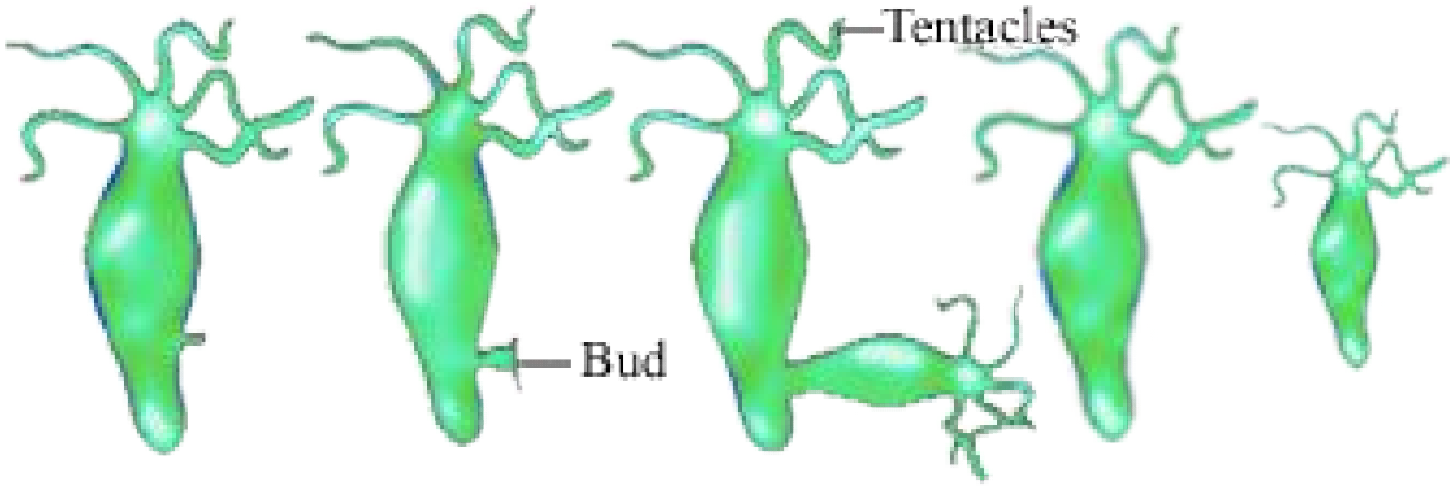




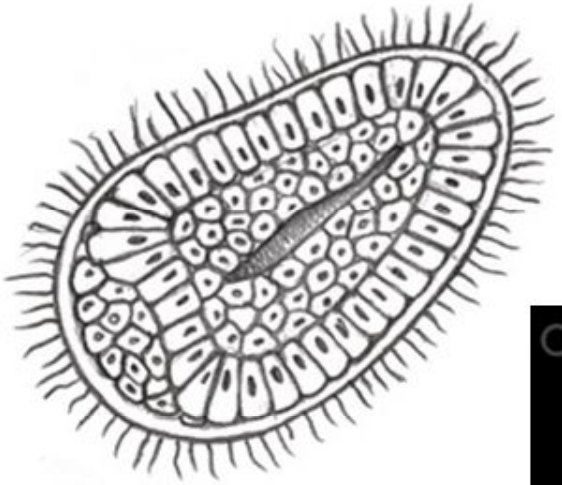
- Sensory organs may be simple or complicated; some with rhopalium (eyespots or statocysts)



- Reproduction is both asexual (budding) or sexual



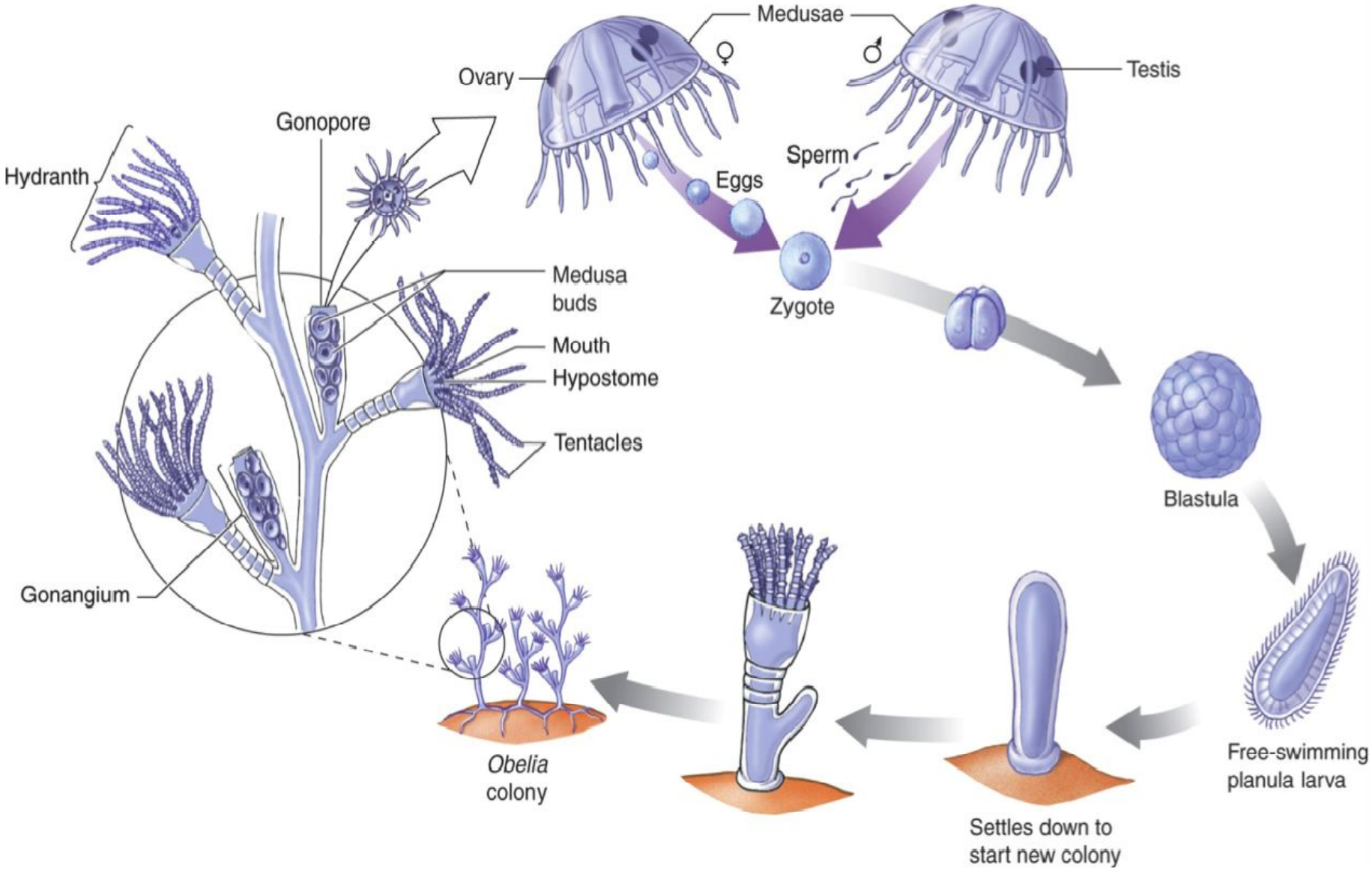
- Includes larval forms



Planula larva

Ephyra larva

- Life history illustrates the phenomenon of alternation of generation or metagenesis



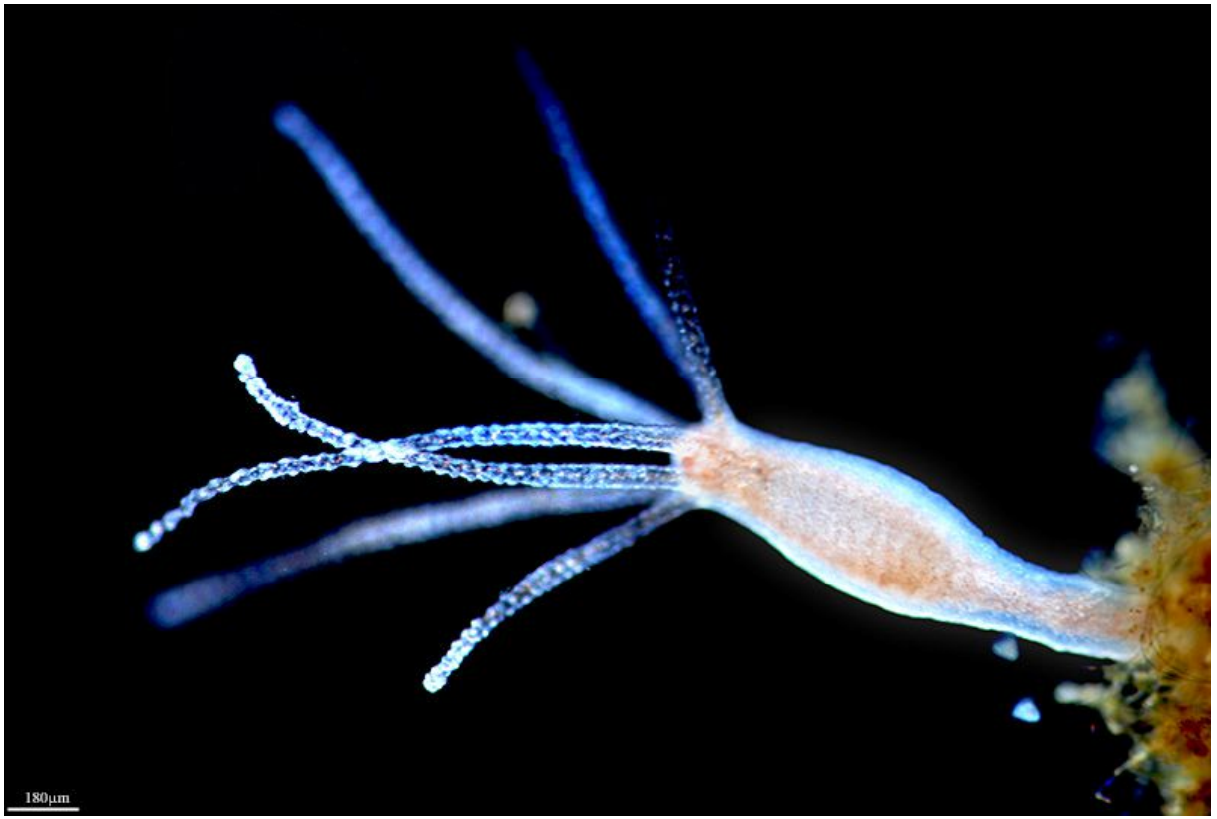
CLASSIFICATION

Class 1: Hydrozoa

- *Gr., hydra*=water serpent; *zoon*=animal

- Solitary or colonial
- Life cycle includes both polyp and medusa stage
- Medusa with true velum
- GV cavity without stomodaeum, nematocysts and mesenteries
- Sex cells exclusively epidermal
- Mesogloea non-cellular

Hydra



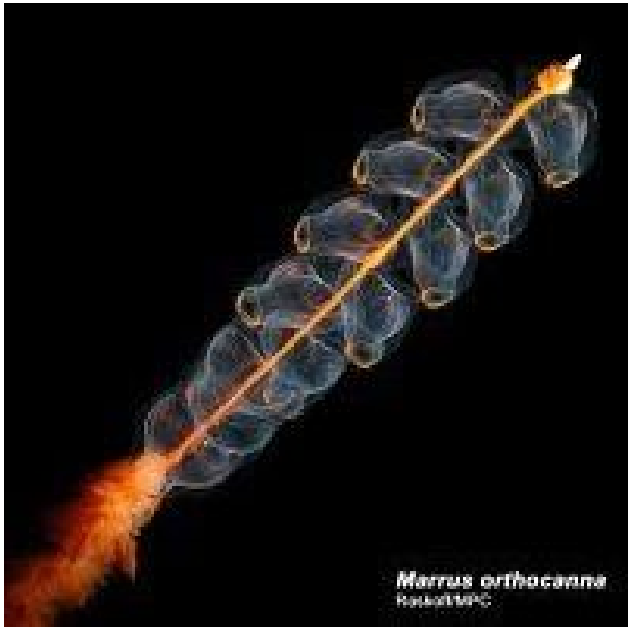
Obelia

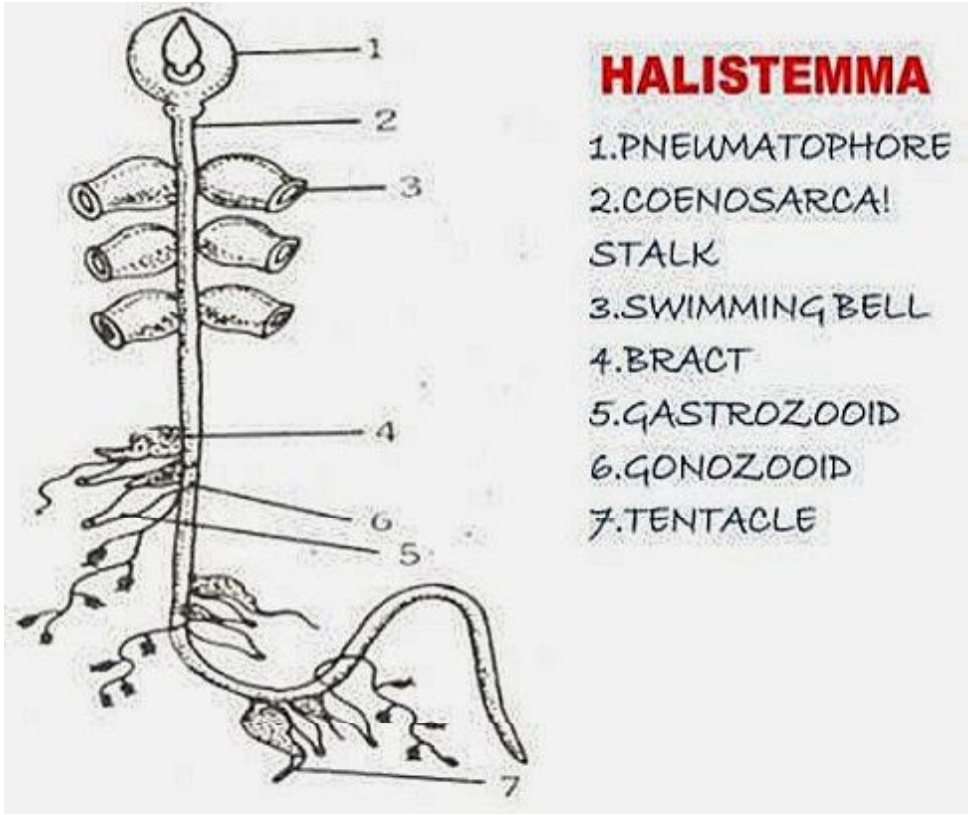
Tubularia

Hydractinia

Millepora

Halistemma


Marrus orthocanna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HALISTEMMA
1.PNEUMATOPHORE
2.COENOSARCA! STALK
3.SWIMMING BELL
4.BRACT
5.GASTROZOOID
6.GONOZOOID
7.TENTACLE

Physalia

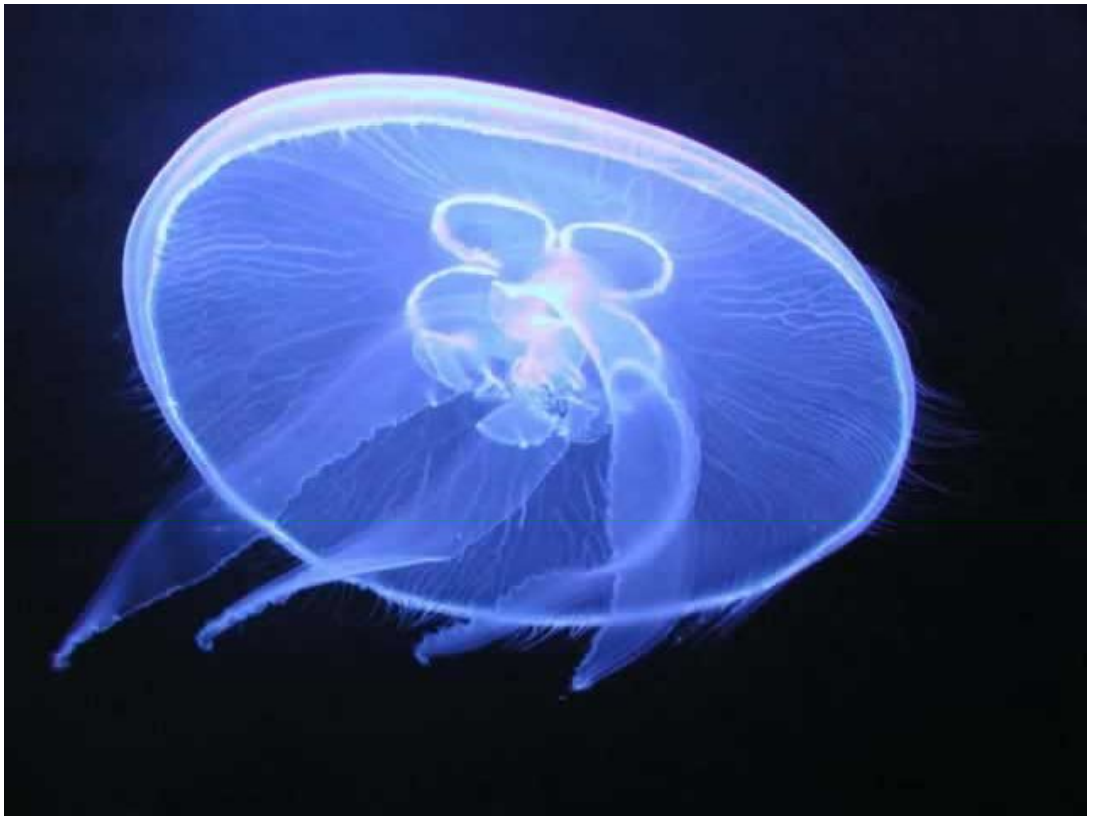
Velella

Class 2: Scyphozoa

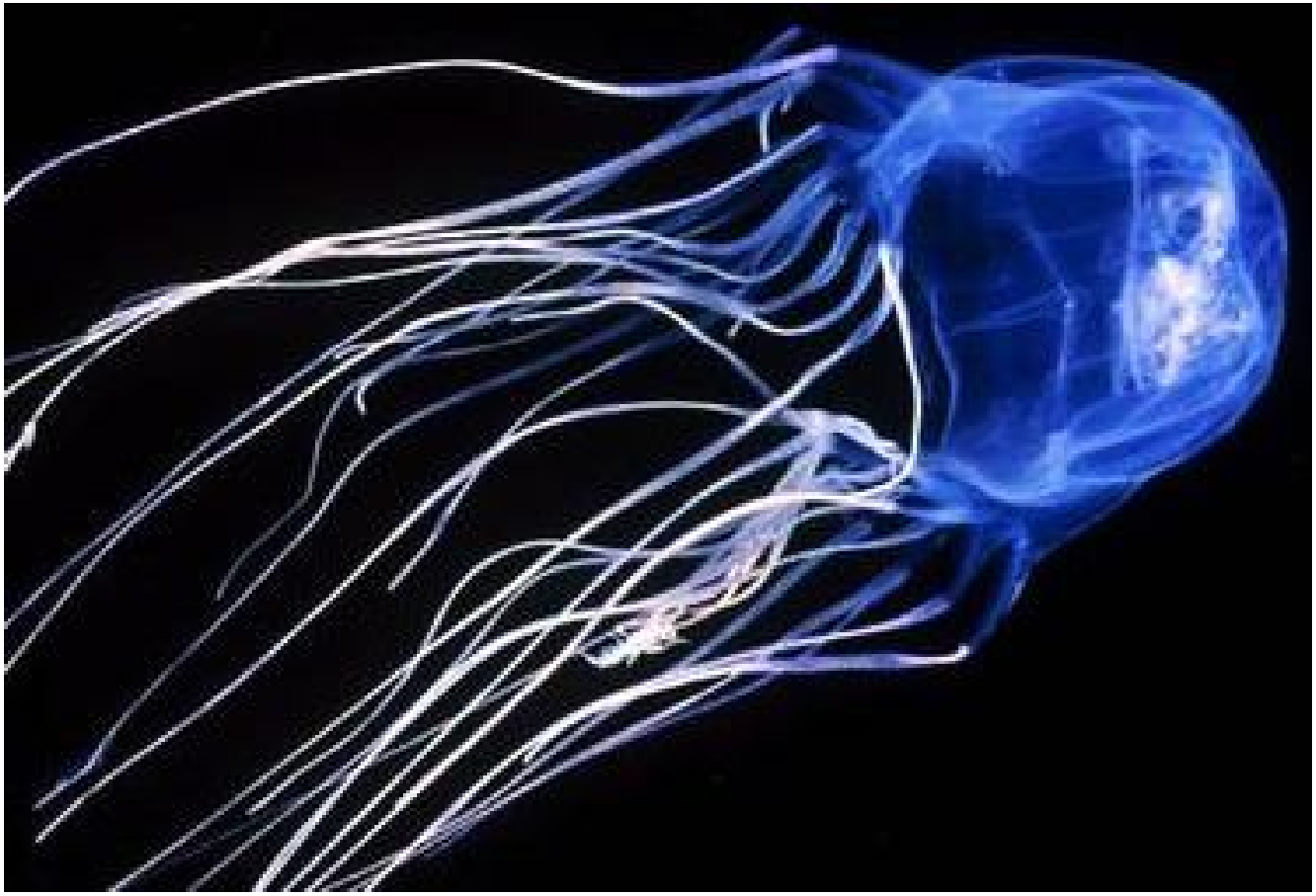
- *Gr., skyphos*=cup; *zoon*=animal

- Solitary and marine forms
- Life cycle with medusa stage dominant; polyp stage reduced or absent
- No distinct velum in medusa
- Mesogloea extensive

Aurelia



Chrabydaea



Pelagia

Cyanea

Cassiopeia

Stomolophus

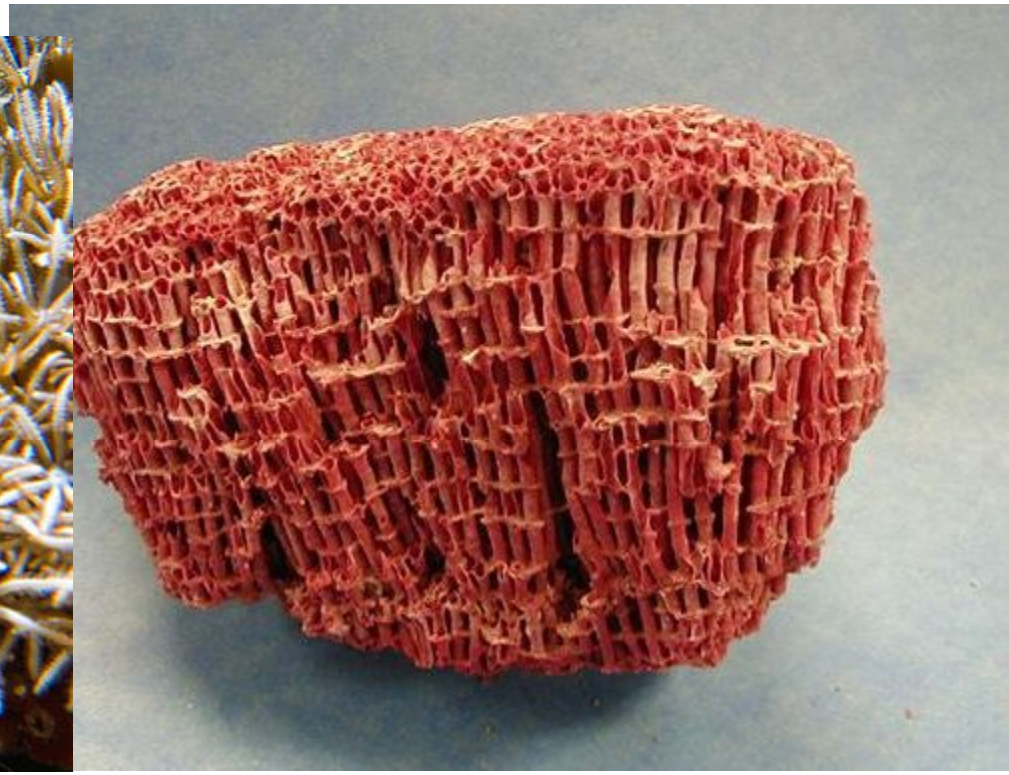
Class 3: Anthozoa

- *Gr., anthos*=flower; *zoon*=animal

- Solitary or colonial, extensively marine
- Life cycle include only polyp stage; medusa absent
- Gullet well-developed and GV cavity divided into mesenteries bearing nematocysts
- Gonads are formed in gastrodermis
- Mesogloea stout and cellular
- Skeleton present or absent

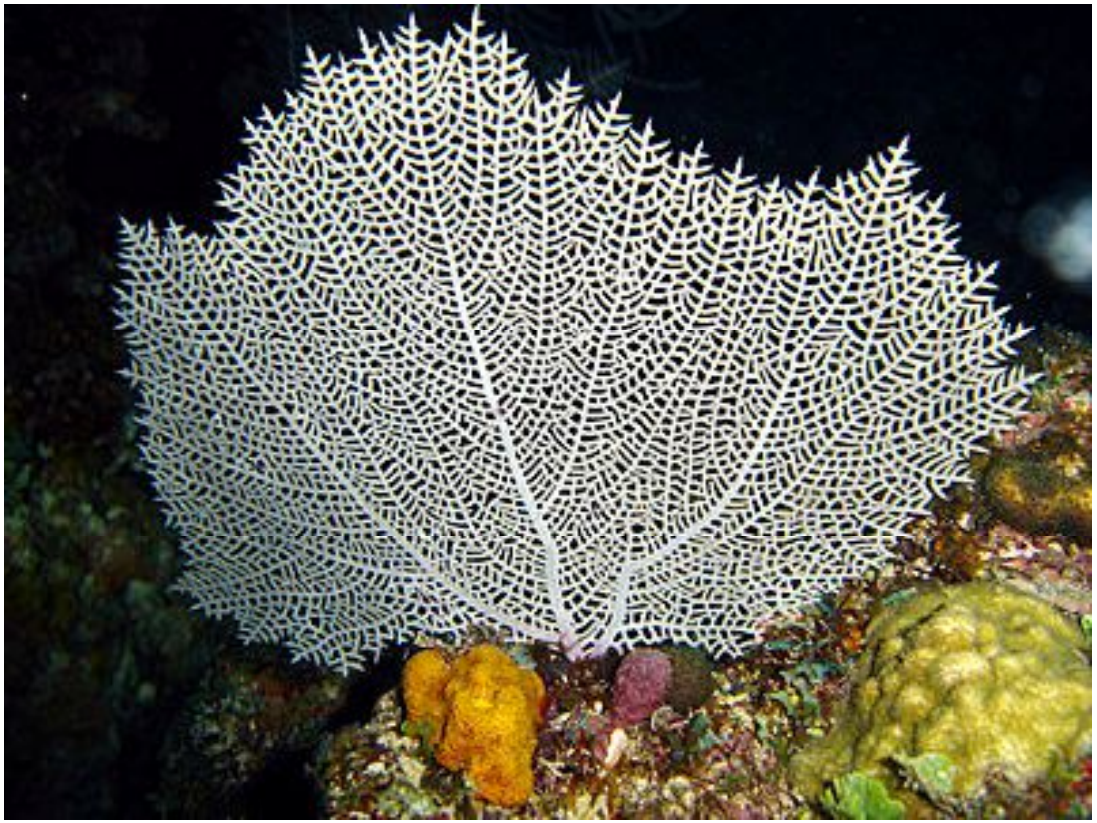
Metridium

Tubipora



Alcyonium

Gorgonia



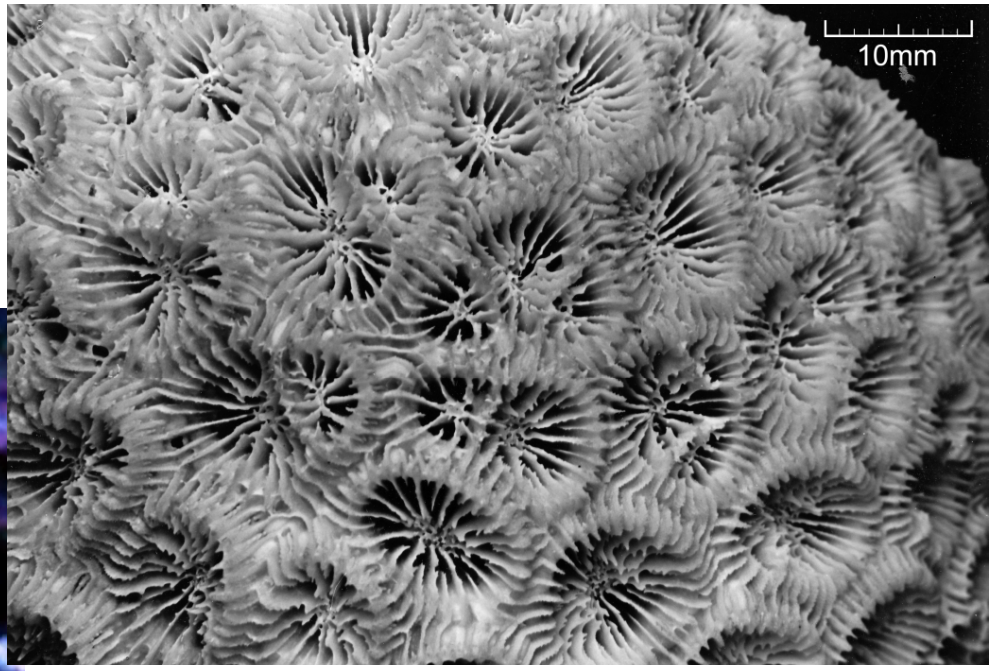
Pennatula

Adamsia

Flabellum

Fungia

Astraea and ***Favia***



Meandrina

Chironex fleckeri – box jellyfish

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