CNIDARIANS

Coelenterates:

More references:

http://water.dnr.state.sc.us/marine/pub/seascience/jellyfi.html

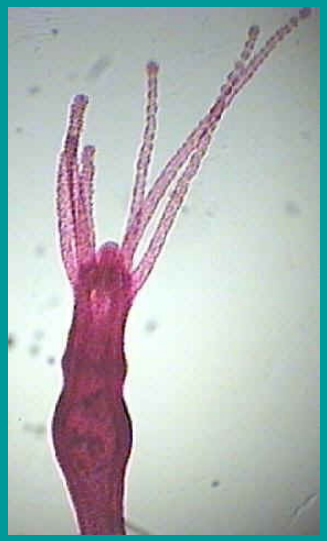
http://www.ucihs.uci.edu/biochem/steele/default.html

http://www.vattenkikaren.gu.se/fakta/arter/cnidaria/overcnid/nass05e.html

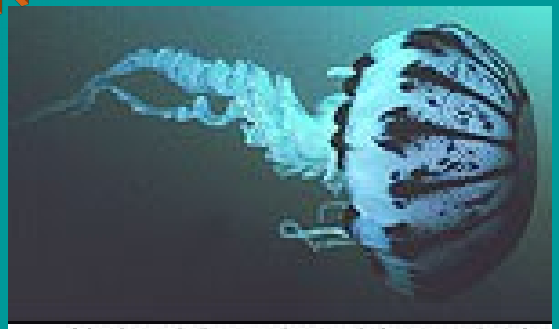
Marine Science

Four Main Examples:

hydra



jellyfish

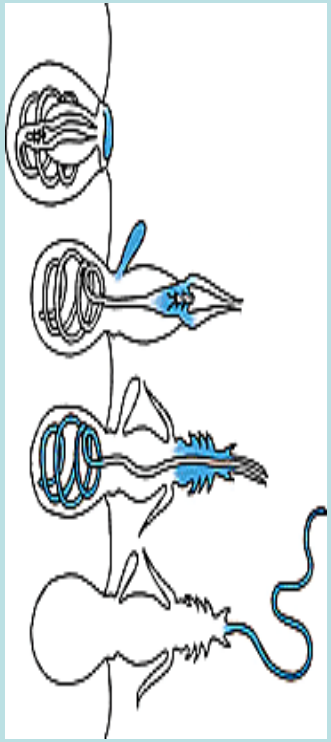


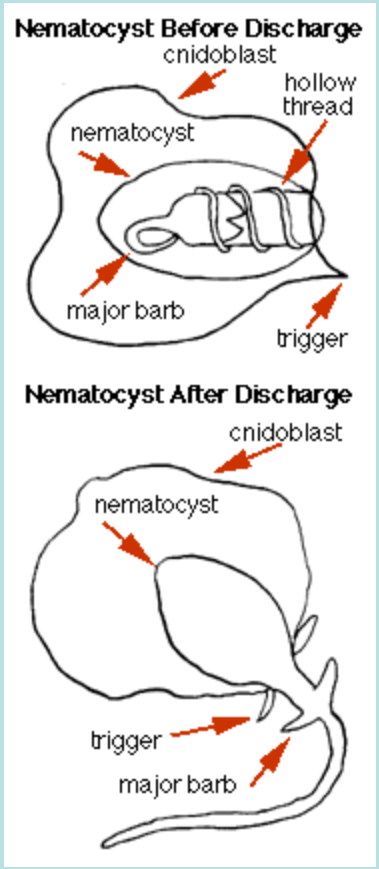
National Oceanic and Atmospheric Administration/ Department of Commerce

anemone

coral

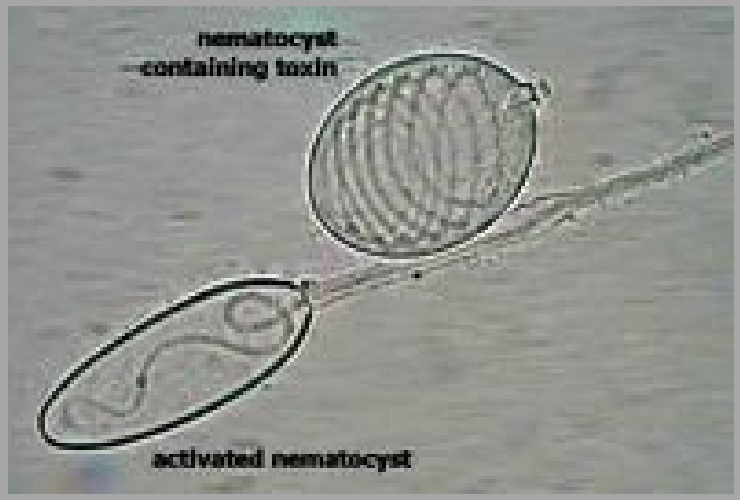
“Cnidaria” is from the main feature:





- Cnida = nettle
- Stinging cell is a **nematocyst** (“thread cell”) which is coiled until stimulated…then pressure forces it to discharge.
- Often has a stinger & poison

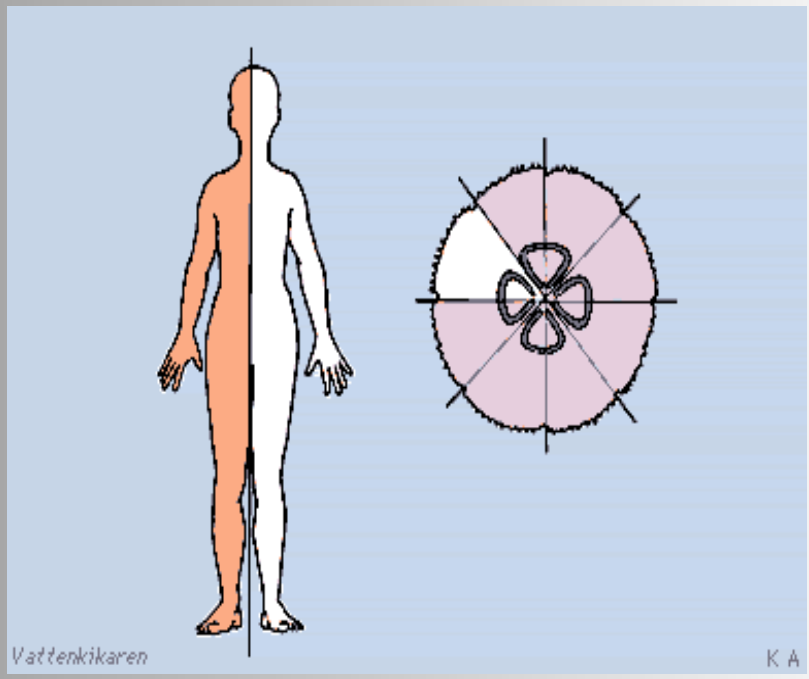
Nematocysts



- There are 30 types of stingers and once one has been discharged, it is useless and a new one replaces it.
- Some have poison, some barbs, and some are used just to wrap around prey until tentacles bring it to the mouth.
- Some poisons are strong enough to kill humans.

Symmetry

- While a human has bilateral symmetry meaning 2 equal sides, a cnidarian has RADIAL symmetry… meaning it can be cut any way and have 2 equal halves.



Body Structure

- 9000 species of Cnidarians which are either a polyp (attached) or medusa (swimming) stage.

Medusoid Shape

Polypoid Shape

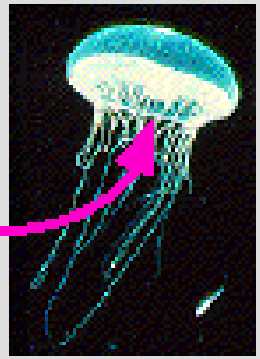
mouth, surrounded by tentacles with stinging cells, points **up**

Body slender stalk attached to surface

Polyp

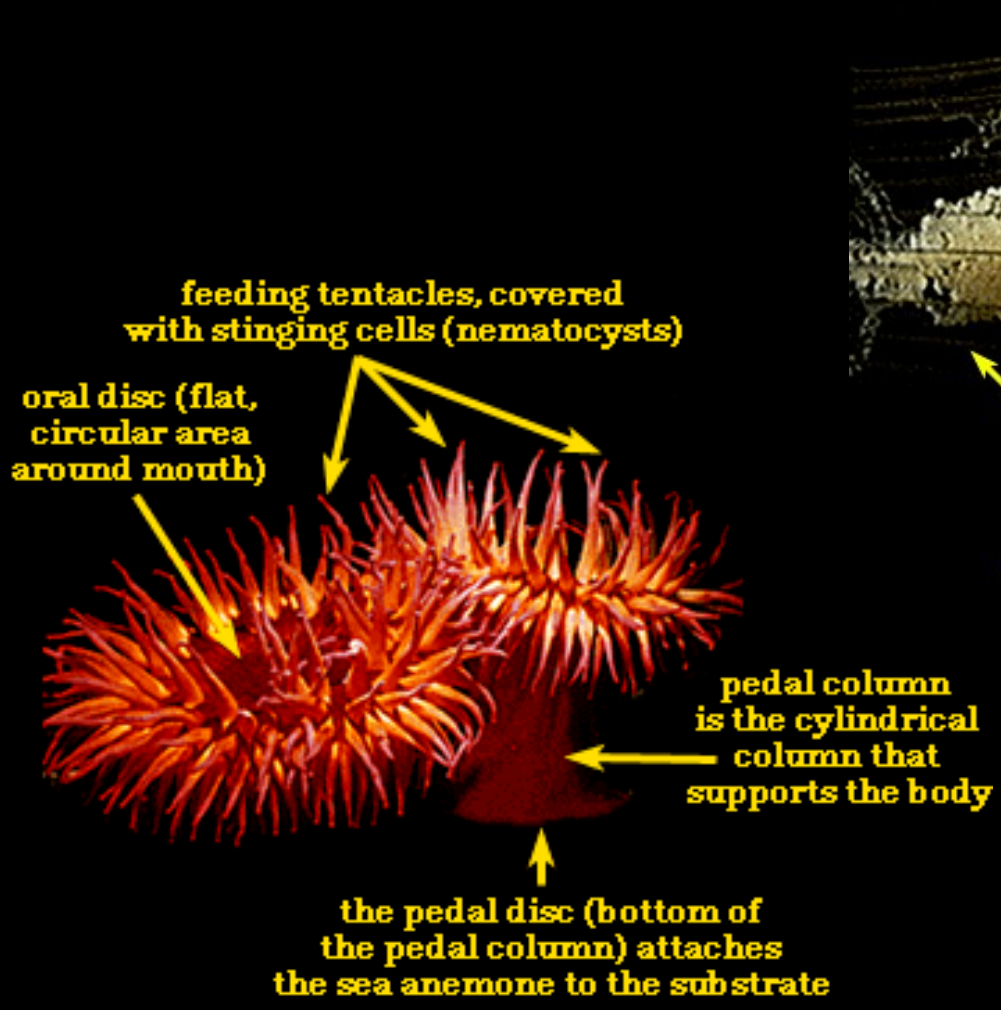
mouth, surrounded by tentacles with stinging cells, points **down**

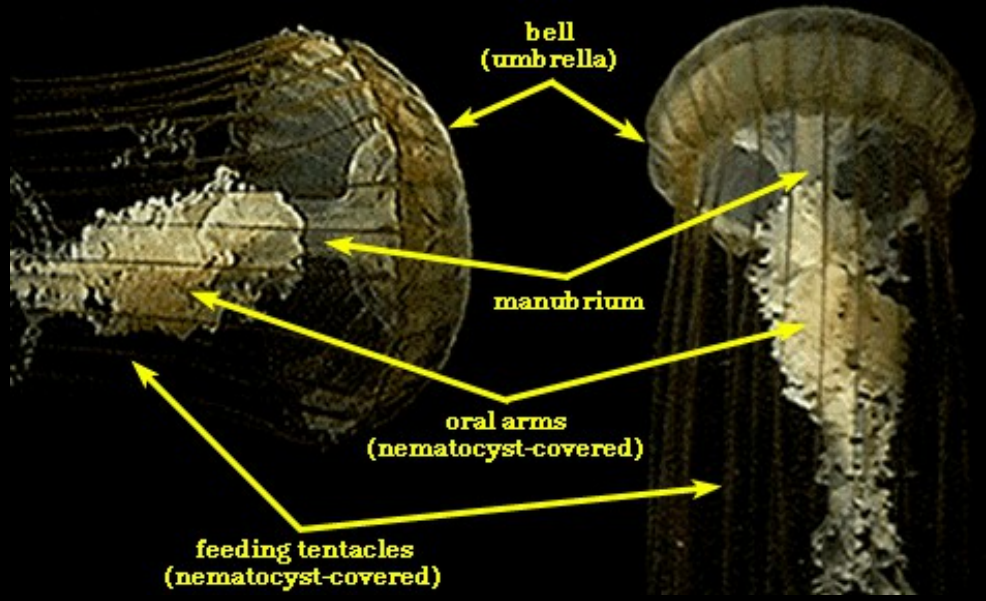
Body umbrella shaped; free-swimming



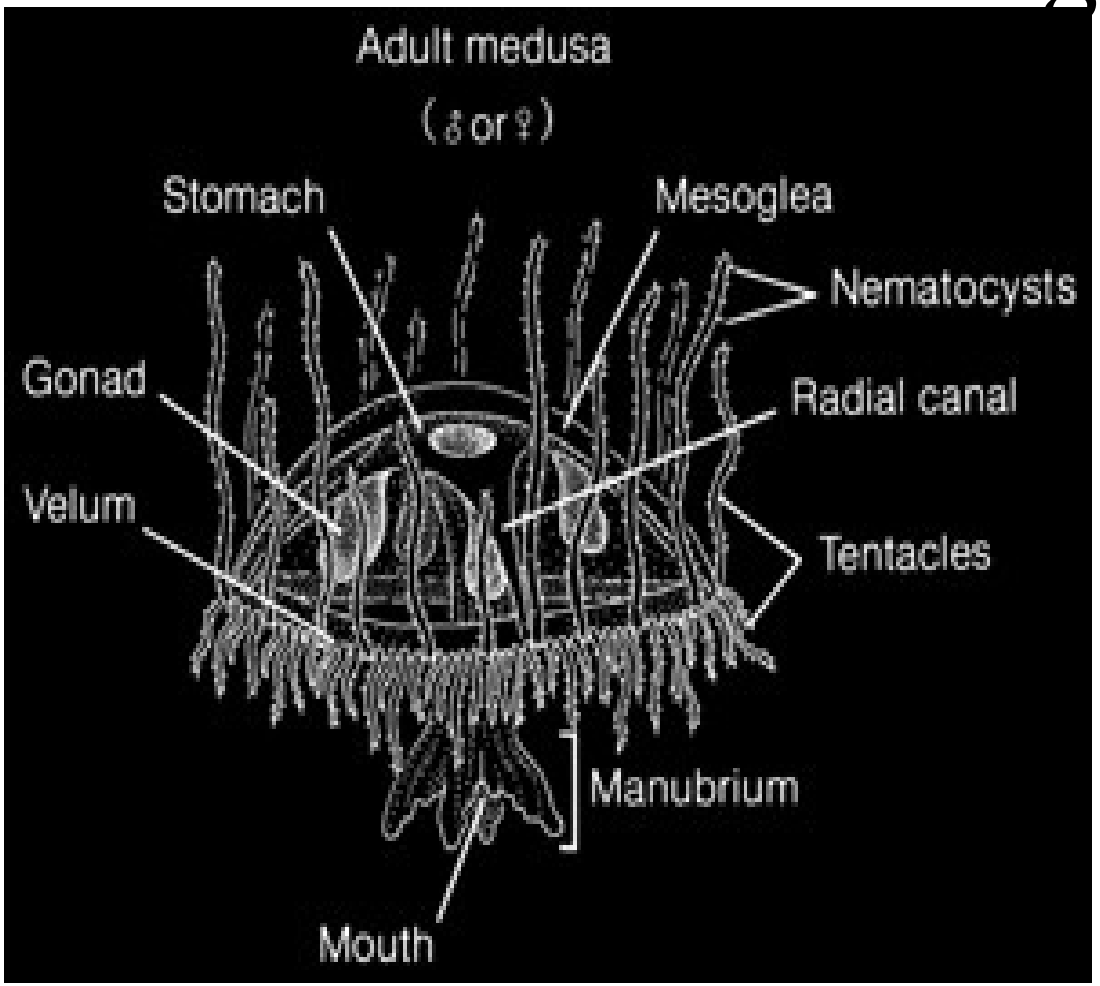
Medusa

2 stages morphology:



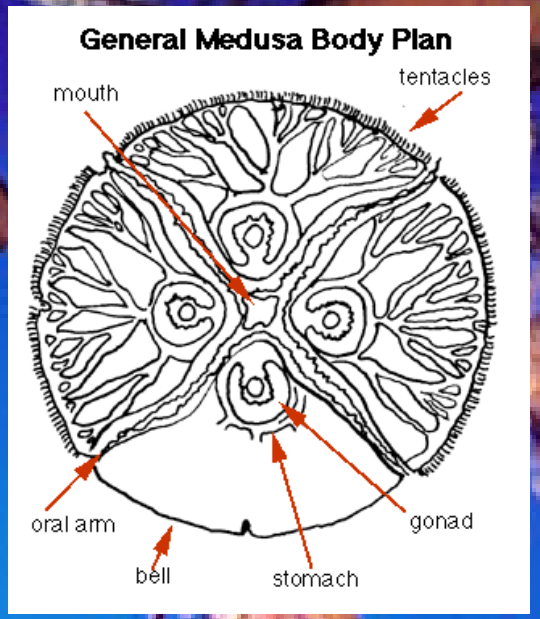


Medusa Stage



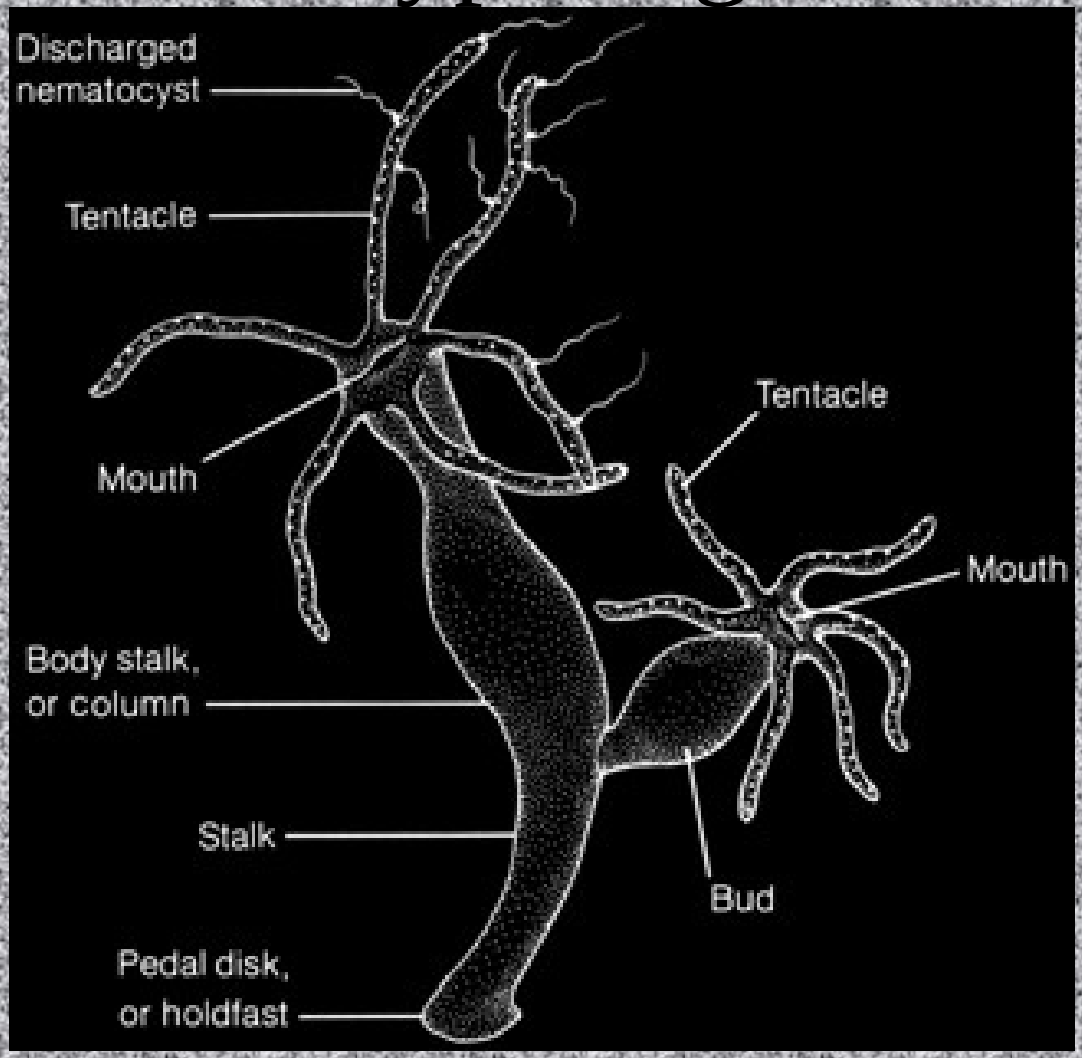
- Named for the mythological "goddess" with the wild tentacled hair

Medusa Stage

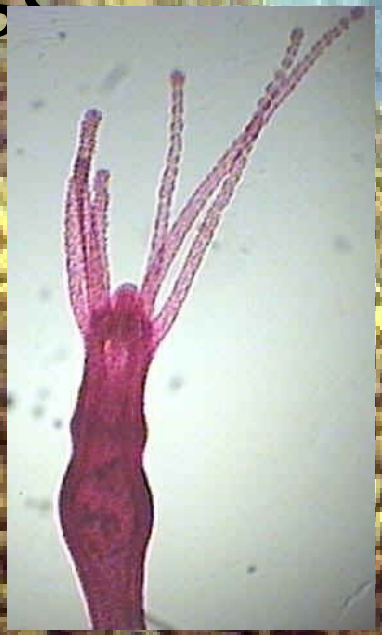


- Free swimming form with tentacles & mouth facing down.
- Jellyfish
- Tentacles bring food to mouth .

Polyp Stage

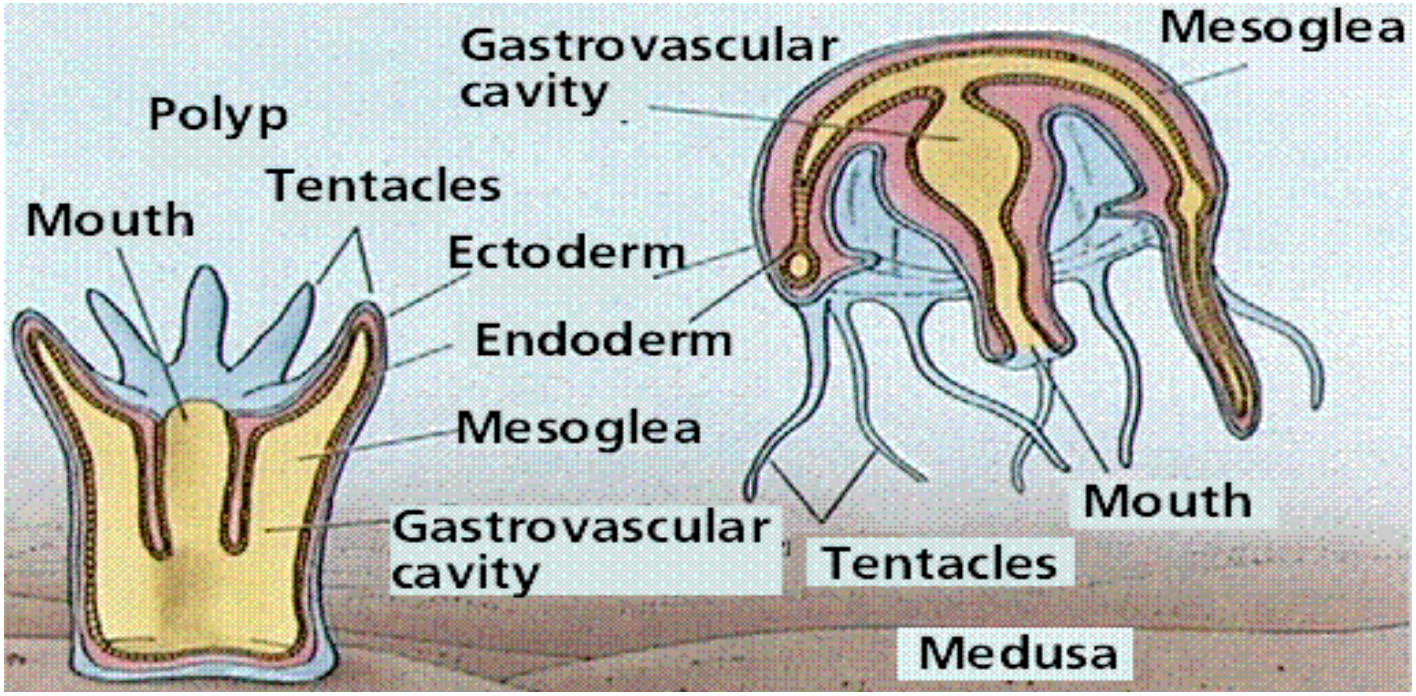

Discharged nematocyst
Tentacle
Mouth
Tentacle
Mouth
Body stalk, or column
Stalk
Bud
Pedal disk, or holdfast

Polyp Stage



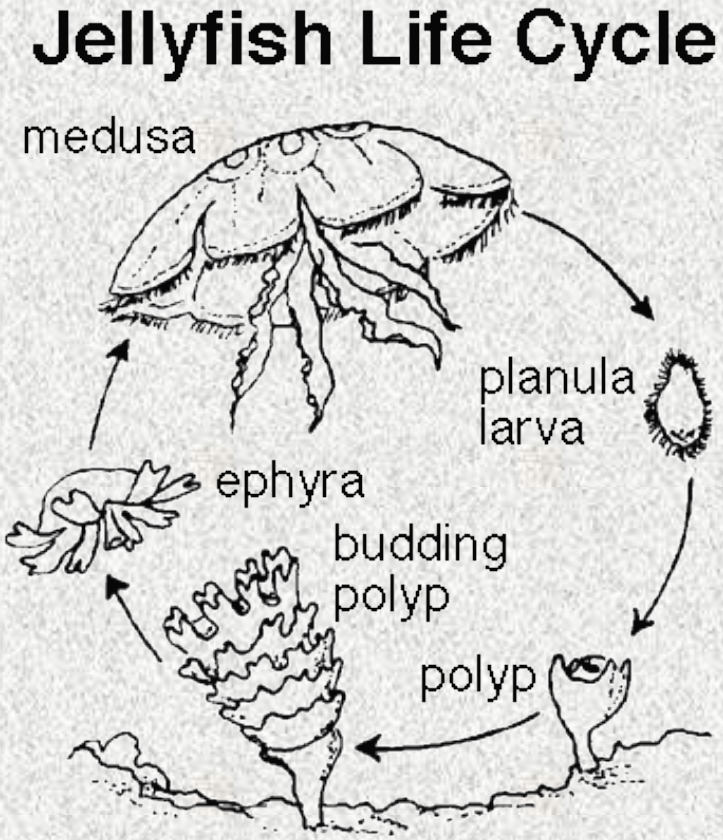
- **HYDRA, ANEMONES, & CORAL**
- **Sessile, attached, mouth & tentacles facing up.**

Basic Layers:



- Mesoglea = filler material
- Ectoderm (epithelium) = outter layer
- Endoderm (gastrodermis) = inner layer

Other General Characteristics



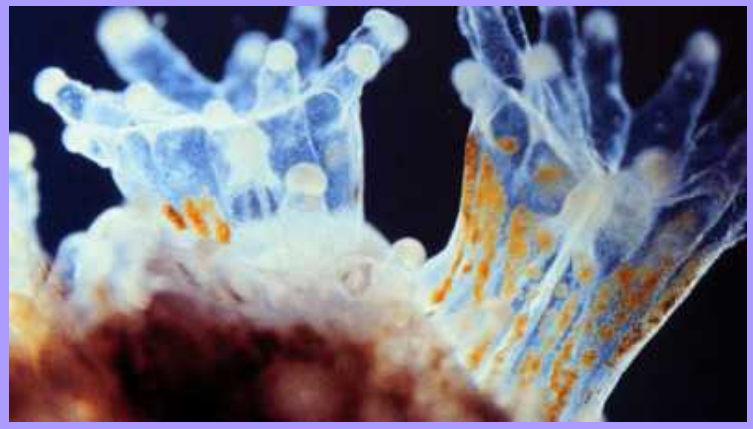
- Neural net allows response to stimuli.
- Formerly “coelenterata” = hollow gut
- No excretory or circulatory system… they rely on diffusion.
- Reproduction via polyp & medusa stages.

Other Interesting Relationships:

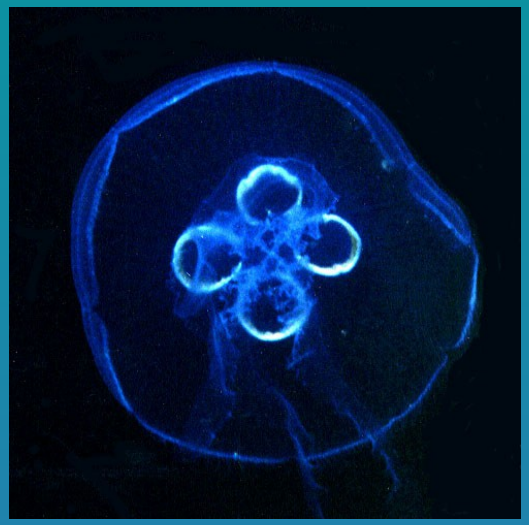
- The Portuguese Man-of-War is actually a colony of polyps…
- So are most corrals like the ones shown here.

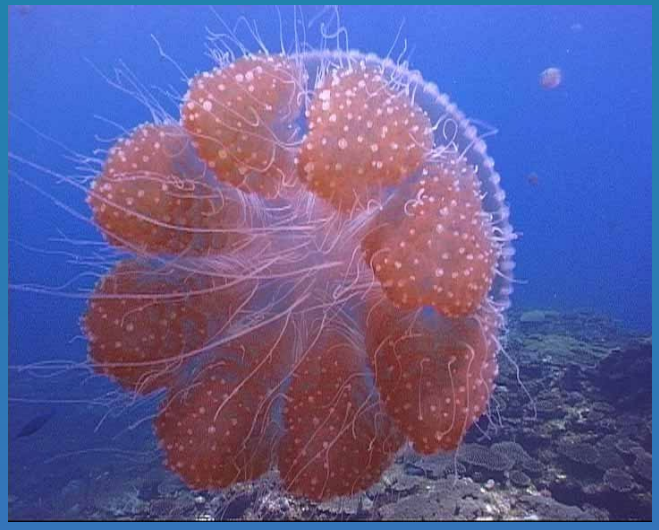
Other Interesting Relationships:

- The greenish stuff in the jelly of these polyps are zooxanthellae… microscopic protists which live in the jelly's tissues. SYMBIOTIC relationship as they photosynthesize to make food for both, while having the protection of the jelly.
- Also found in some medusas which have no mouth or stinging cells. (no need for them!)



Drifters…not swimmers.





The End