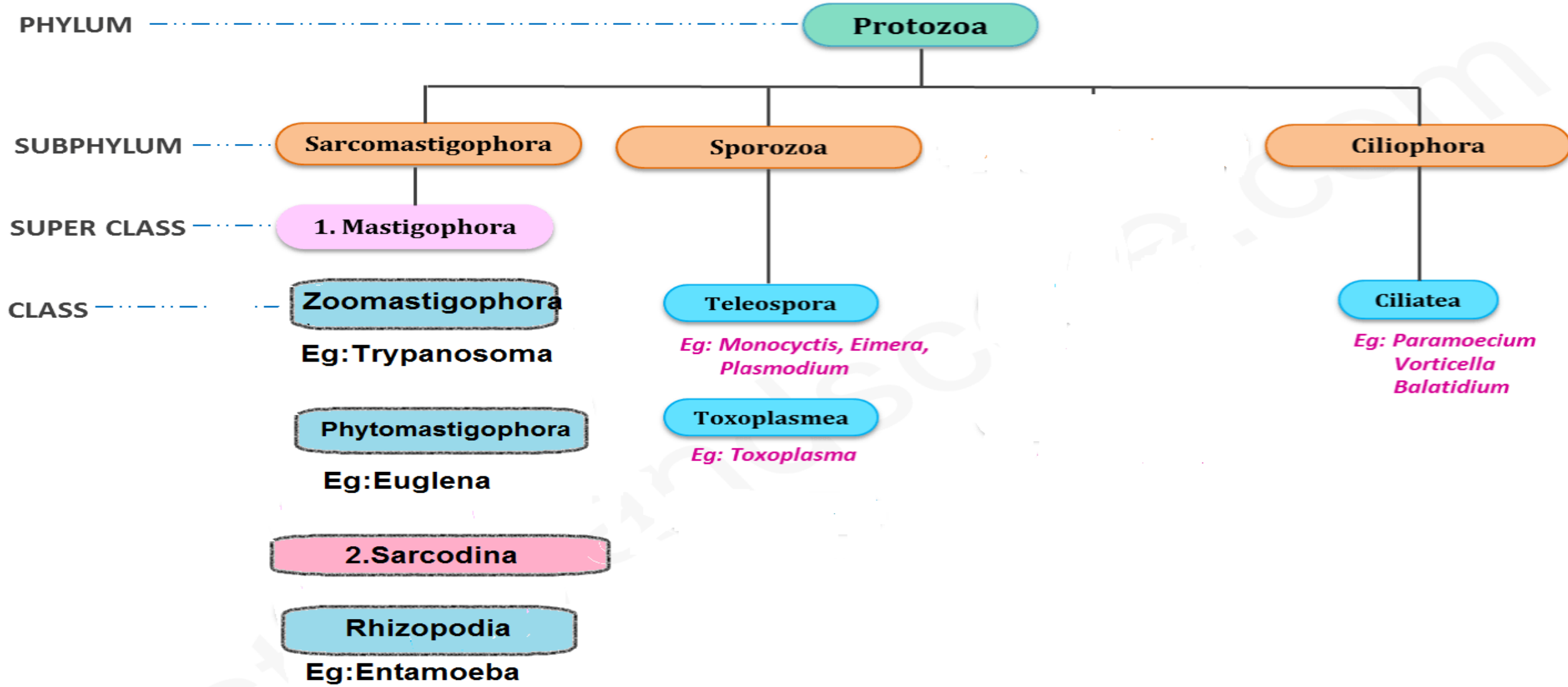


**Ministry of Higher Education
and Scientific Research
University of Ishik
College of education
Department of Biology**



Practical Invertebrates
Grade two(2018-2019)
Lab. 4

Yadasht Haydar



Subphylum :Ciliophora

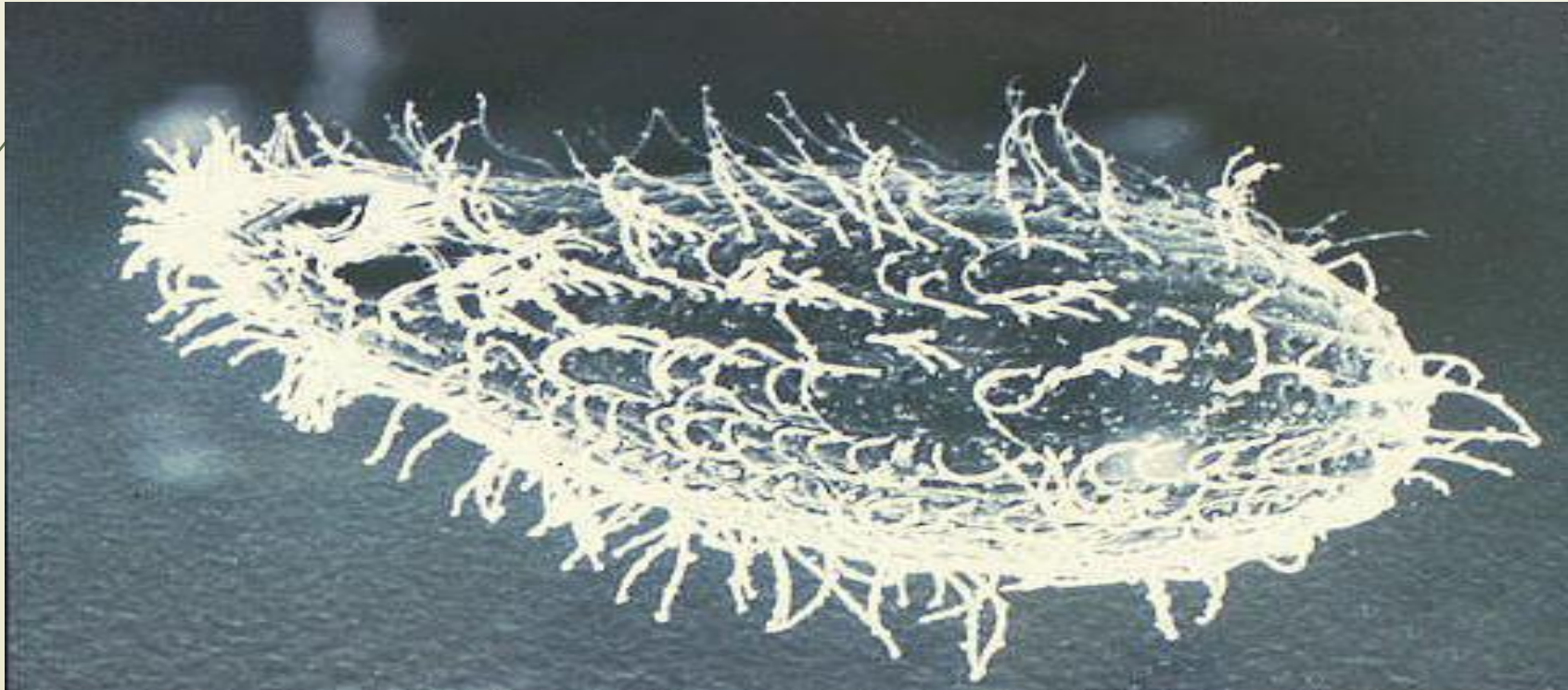


General Characteristics of subphylum ciliophora

- 1-Most Ciliophora possess a true mouth or cytostome often associated with a buccal cavity containing compound ciliary organelles. However, some ciliates are completely astomatous, that is, mouthless. Nutrition is heterotrophic in ciliates.
- 2-The Ciliophora possess simple cilia or compound ciliary organelles, often in abundance, in at least one stage of their life cycle
- 3- Ciliophora exhibit a type of binary fission commonly known as transverse division.
- 4-Ciliophora possess two kinds of nuclei, and at least one of each is usually present. The smaller, or micronucleus, contains recognizable chromosomes and behaves much as the single nucleus in cells of metazoan organisms. The larger, or macronucleus, is considered indispensable in controlling metabolic functions, and is recognized as having genic control over all phenotypic characteristics of ciliates.

Subphylum :Ciliophora

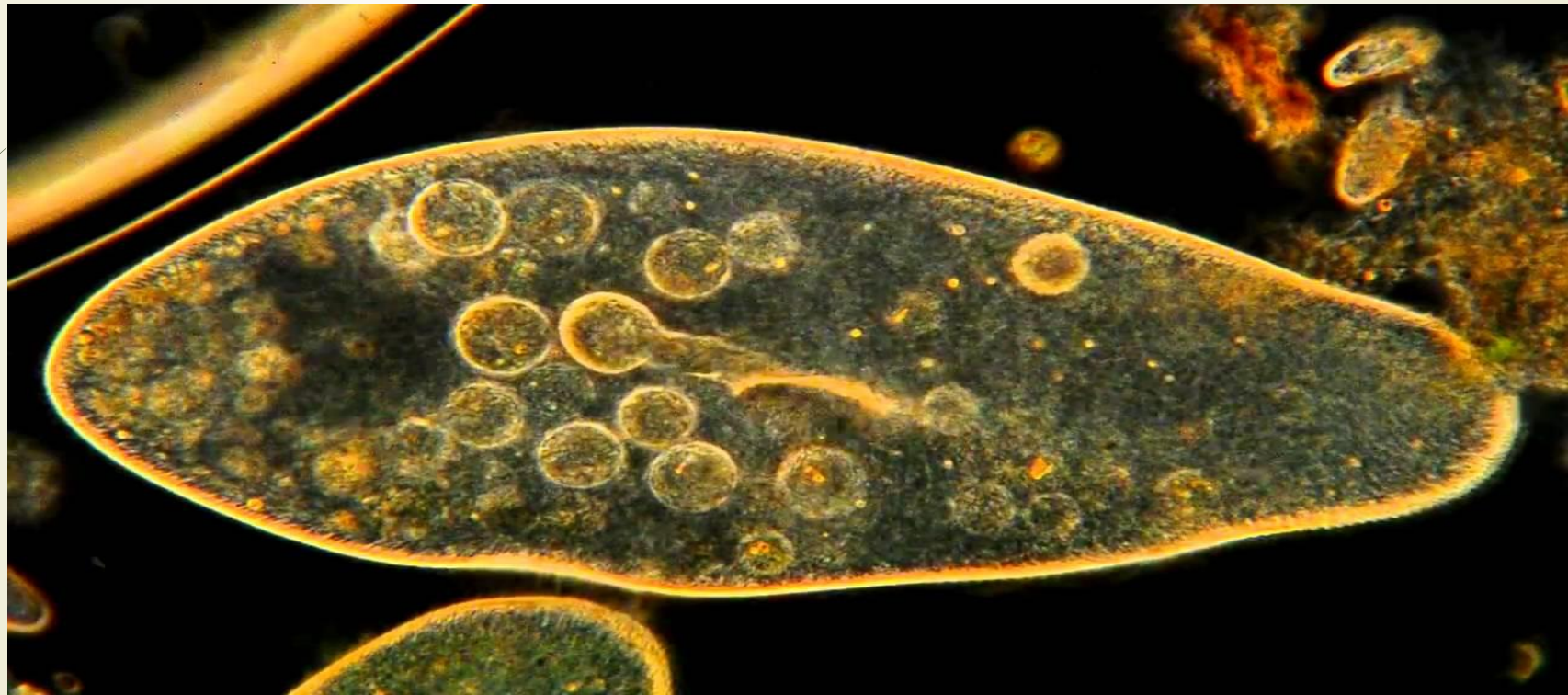
Class : ciliates are a fairly homogeneous group of highly differentiated, unicellular organisms. Over 5000 species have been described, and many more surely exist but remain to be discovered. Typically, ciliates are larger than most other protozoans, ranging from 10 to 3000 micrometers (about 1/2500 to 1/8 in.).



Subphylum : Ciliophora

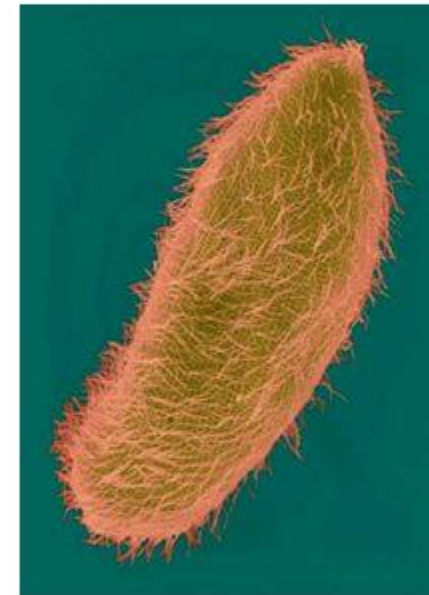
Class :Ciliatea

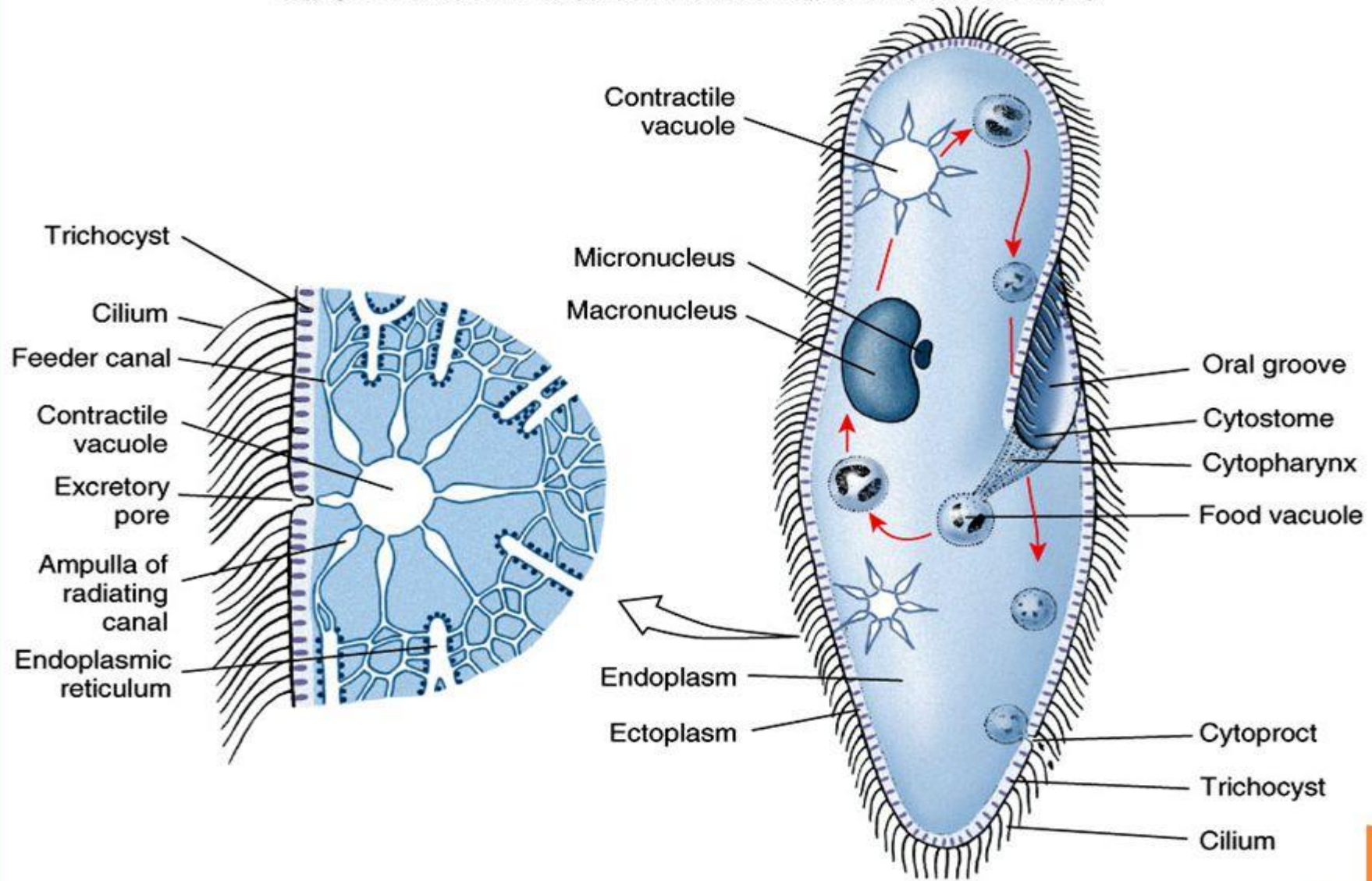
E.g. Paramoecium sp.



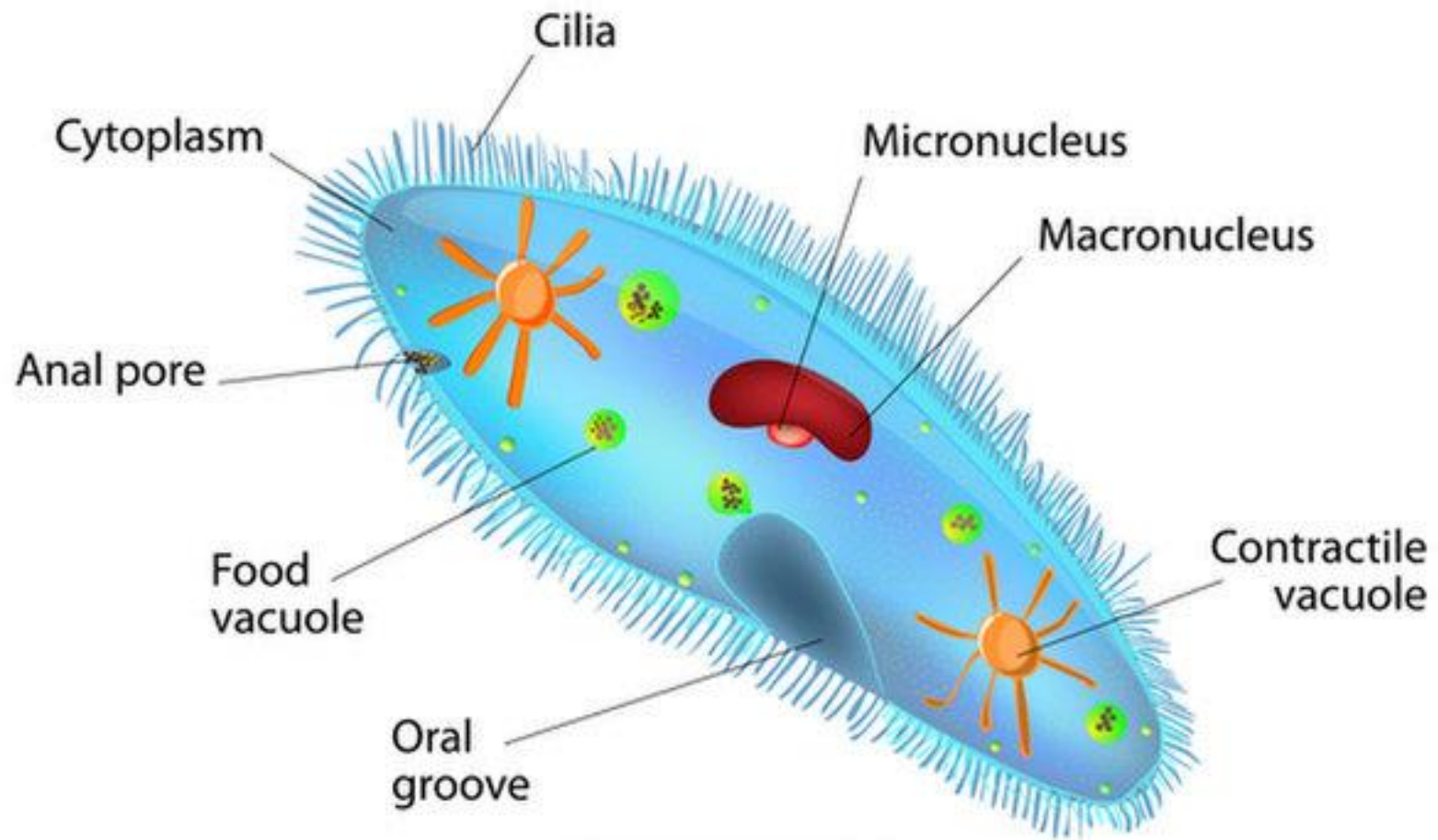
Paramecium Characteristics

1. Cilia beat rapidly- move very fast (wave like motion)
2. Food getting
 - a. Cilia pull food into the oral groove
 - b. Gullet encloses food in a food vacuole
3. Reproduction
 - a. Asexual (fission)
 - b. Sexual (conjugation)
 - i. Exchange of genetic material

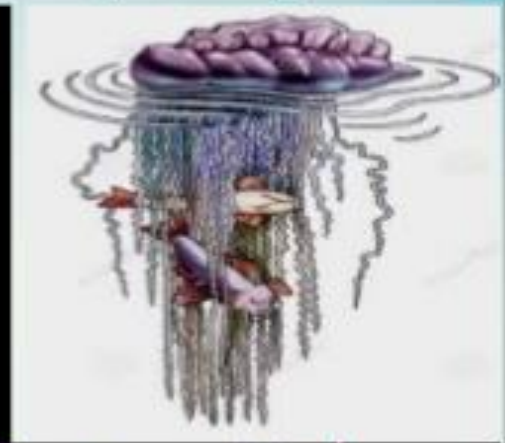




Paramecium sp.





PHYLUM CNIDARIA



PHYLUM -COELENTERATES (CNIDARIA)

- 1) All are aquatic, mostly marine but a few are fresh water forms.
- 2) They may be solitary or colonial.
- 3) They may be sedentary or free-swimming.
- 4) Head and segmentation is absent.
- 5) Tentacles encircle the mouth in one or more whorls. They are used for food capture, and defense.
- 6) These are all diploblastic animals. They show ectoderm and endoderm. In between jelly like mesoglea is present.
- 7) The cnidoblasts are important defensive and offensive cells. They are useful for food capture.
- 8) *Undifferentiated* free interstitial cells are found among the epithelial cells.
- 9) Mouth is present. Anus is absent.
- 10) Mouth leads into a central cavity called 'Coelenteron. Hence the name Coelenterate'.

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- 11) Coelenterates are acoelomate. Because there is no true body cavity, or coelom.
 - 12) Respiratory, circulatory and excretory systems are absent.
 - 13) These are radial symmetrical animals.
 - 14) Nervous system is diffused type.
 - 15) Polyp is a nutritive zooid and fixed zooid. The medusa is a free swimming zooid and sexual zooid.
 - 16) Nutrition is intercellular and intracellular.
 - 17) Locomotion in medusa is by muscles.
 - 18) IN Coelenterates Polymorphism tendency is seen in some examples.
 - 19) Asexual reproduction is by budding.
 - 20) Sexual reproduction takes place by the development of gonad and sex cells. Planula larva is seen.

Phylum Cnidaria is divided into 3 classes.

1) **HYDROZOA** example (Hydra sp. And Obelia sp.)

2) **SCYPHOZOA** example (*Aurelia aurita*)

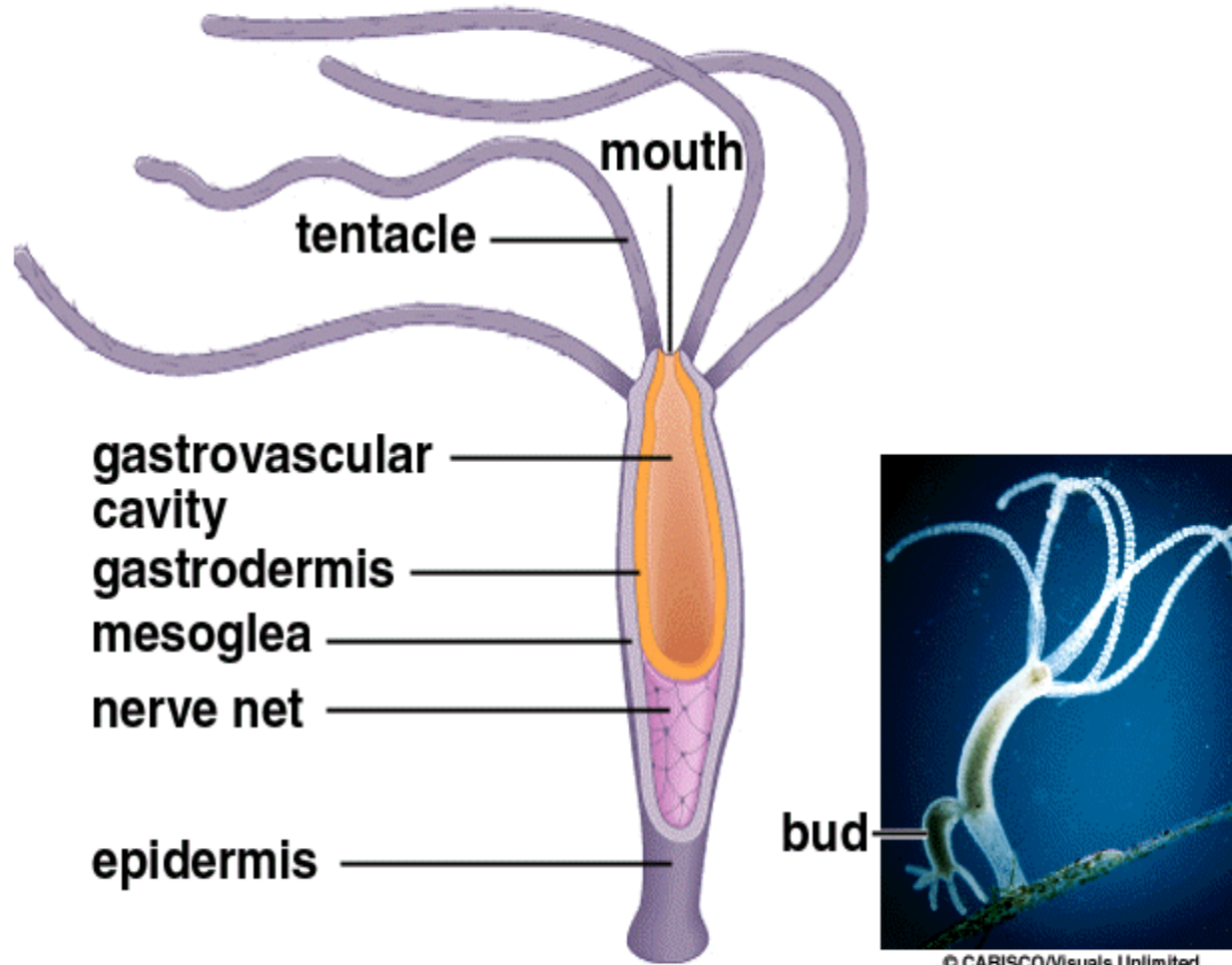
3) **ANTHOZOA** example (Alcyonium sp. And Metridium sp.)

CLASS I : HYDROZOA :

GENERAL CHARACTERISTICS OF HYDROZOA

- 1) Hydrozoa animals are multicellular, diploblastic animals.
- 2) They show mouth opening, and anus is absent.
- 3) They show both polyp and medusa forms. Medusa is a reproductive zooid. Polyp is a fixed stage.
- 4) In medusa the gastro-vascular-system is transversed by canals. In medusa definite sense organs like statocyst, nervous system, and muscular system are well developed.
- 5) Polymorphic tendency is well developed.
- 6) Gonads are seen.
- 7) Alternation of generations is seen in the life history of these animals.
- 8) Velum is present on the medusa (Craspedote)

Anatomy of hydra (2)





Order 1 : Hydroidea

Sub-Order 1 : Anthomedusae. Ex : Hydra, Bougainvillea.

Sub-Order 2. Leptomedusae. Ex : Obelia

Order2:Trachylina

Sub-Order I : Trachymedusae

Sub-Order II : Narcomedusae..

Order 3: Hydrocorallina

Order 4 : Chondrophora

Order 5: Pteromedusae: Pelagic

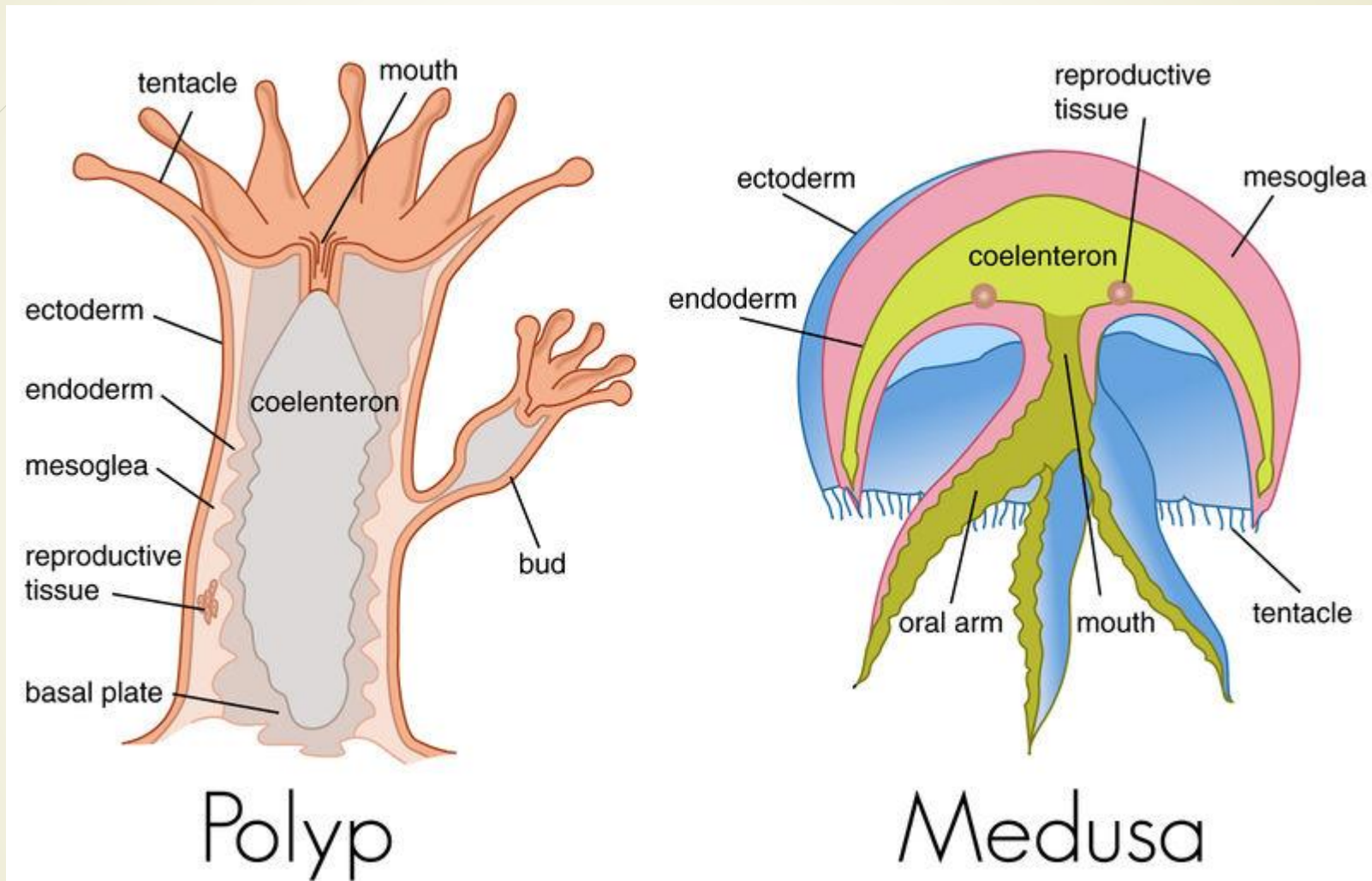
Order 6: Siphonophora

Class : Hydrozoa

In Hydrozoa, there occur two main types of individuals or zooids → Polyps and Medusa.

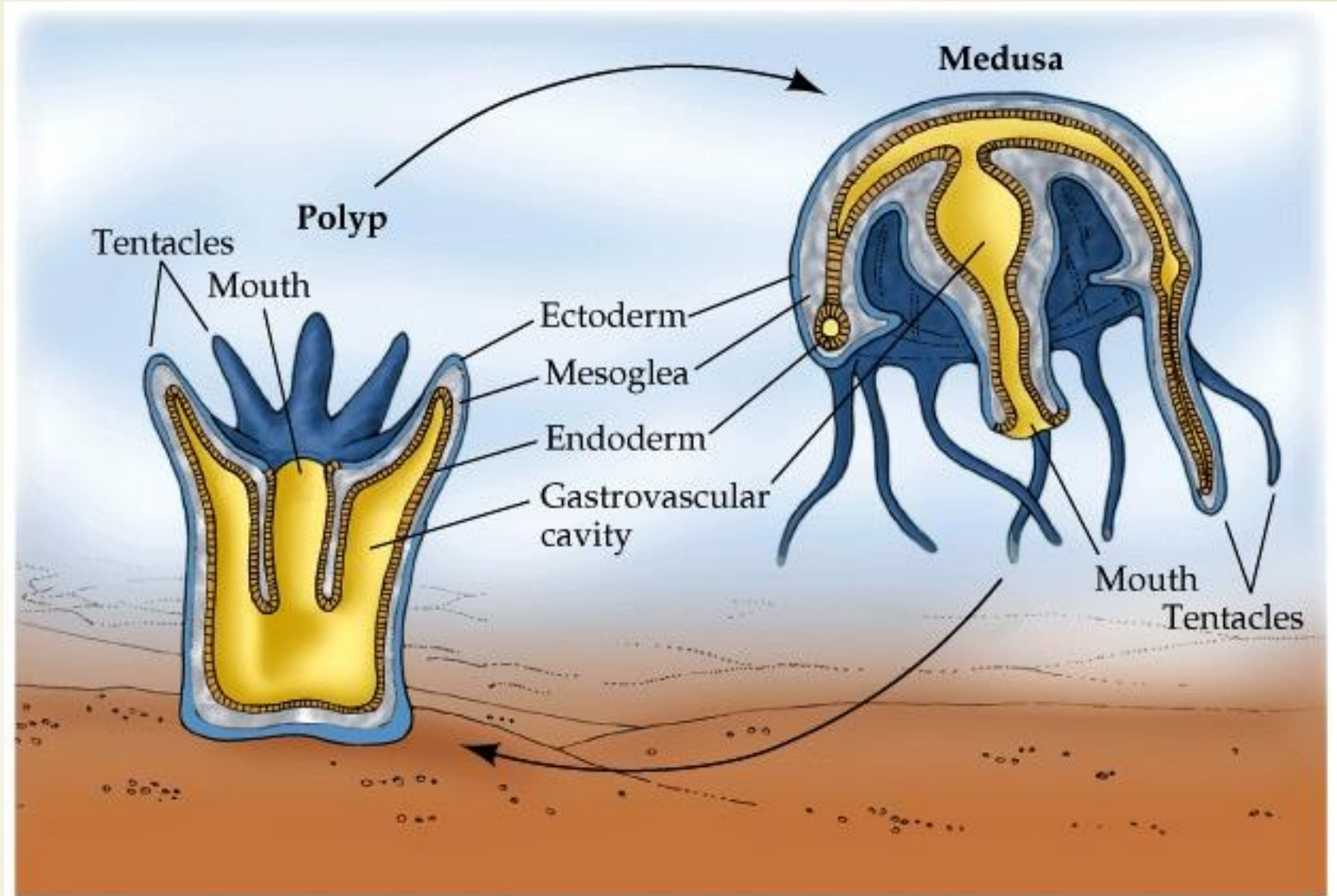
1. Polyps:-a polyp has a tubular body with a mouth surrounded by tentacles at one end. Other end is blind (no opening) and usually attached.

2. Medusa:-a medusa has an umbrella shaped body with marginal tentacles and a mouth, centrally located on a position (Manubrium) of



Polyp

Medusa





Questions?



Thank you for your
attention!