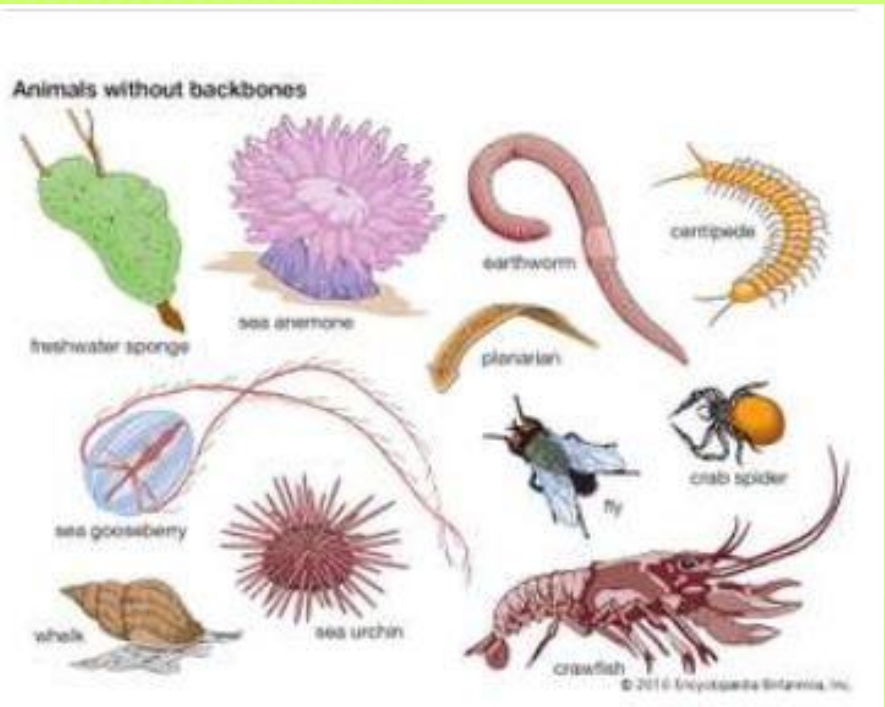


Introduction to Invertebrates



Dr. Shereen Ahmed Fahmy

Assistant Professor of Parasitology, Zoology Department.

2nd Zoology & Chemistry year Students (Credit hours)

Introduction to Invertebrates

1st Lecture

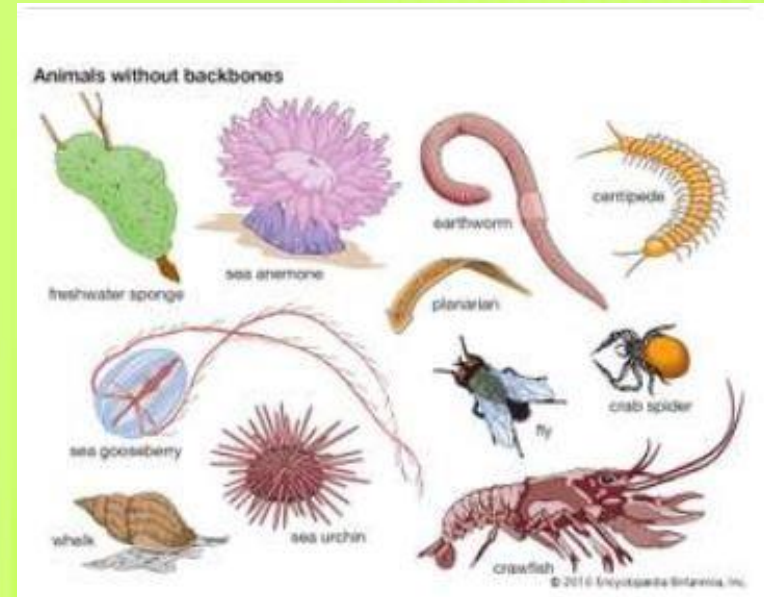
1ST Lecture

i- Introduction

- 1) Characteristics of Animals
- 2) Function of the body cavity
- 3) Present Invertebrate Phyla

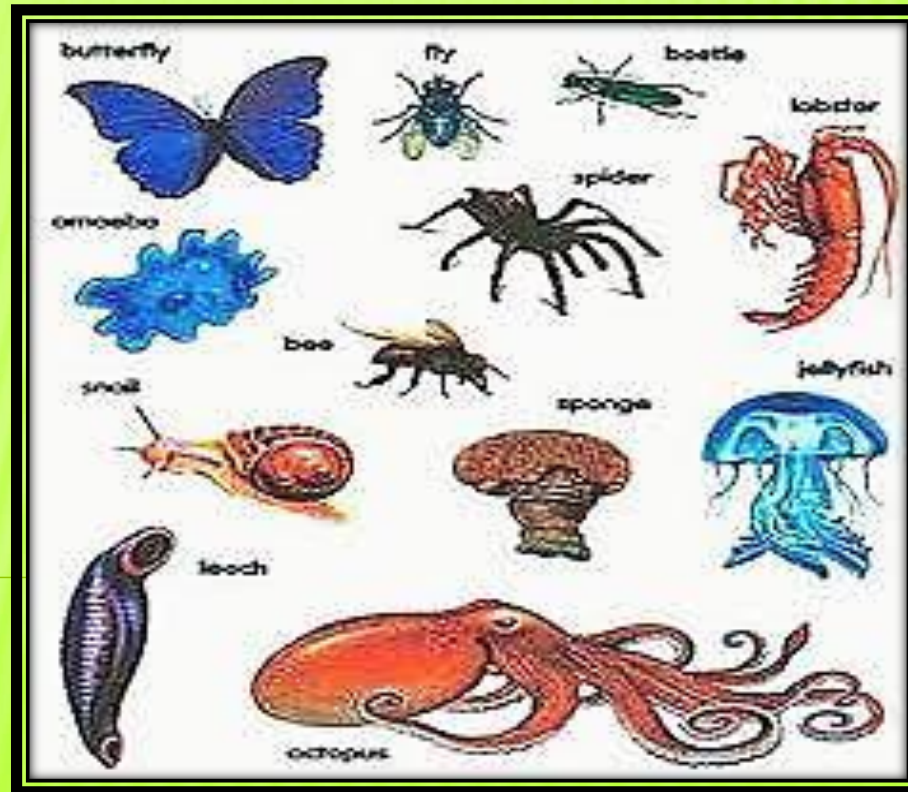
ii- Phylum Annelida

- 1) Introduction includes: name, Symmetry, Classification,
- 2) Class Polychaeta, General characters , ex. Nereis sp.



1) Characteristics of Animals

- Multicelled heterotrophic eukaryotes
- Require oxygen for aerobic respiration
- Reproduce sexually, and perhaps asexually
- Motile at some stage.
- Develop from embryos.



2) FUNCTION OF THE BODY CAVITY(COELOM)

BODY CAVITIES COELOM



Flatworm: *Pseudobiceros bedfordi*



Annelid: *Glycera*



Nematode: *Heterodera glycines*

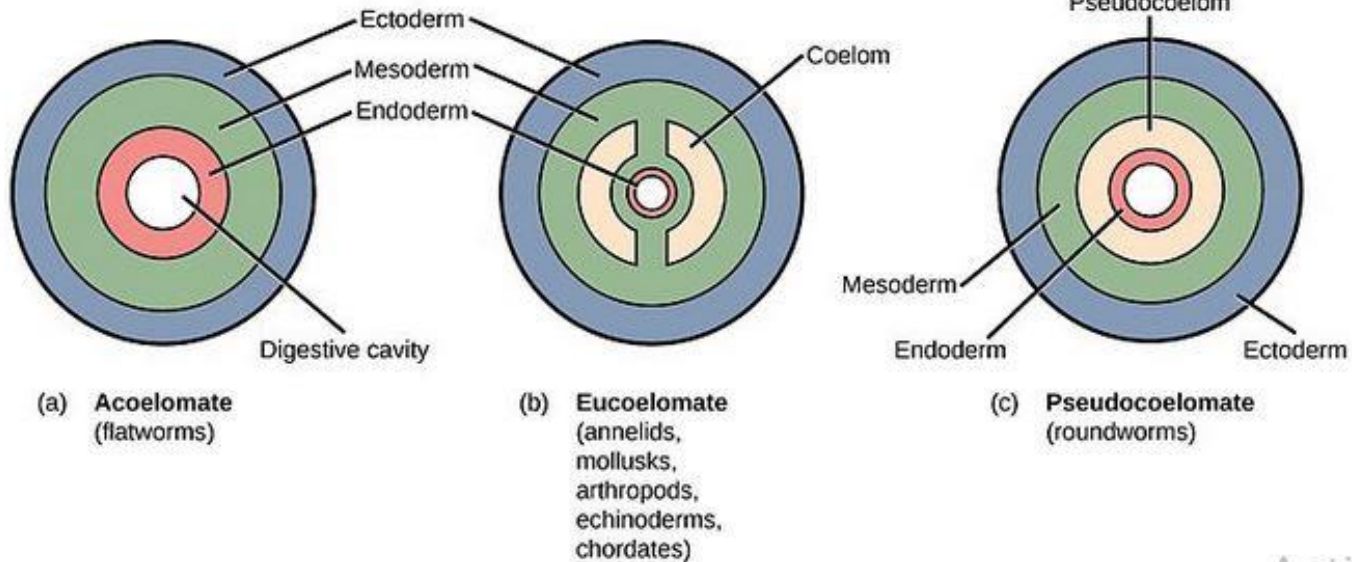


Figure 2: Acoelomates, coelomates, and pseudocoelomates

2) Function of the body cavity (coelom)

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1. Its fluid cushions the internal organs, helping to prevent internal injury.
2. The non-compressible fluid of the body cavity can function as a hydrostatic skeleton .
3. The presence of the cavity enables the internal organs to grow and move independently of the outer body wall.
4. Coelom allows digestive system to move independent of body wall.
5. Coelomic fluid assists respiration and circulation by diffusing nutrients and excretion by accumulating wastes.
6. This cavity may serve as a strong area for eggs and sperm.
7. Coelomic fluid protects internal organs and also serves as a hydrostatic skeleton.

3) Present Invertebrate Phyla

Invertebrates include those which are without backbone as opposed to vertebrates.

The invertebrates constitute about **90% of the unknown animals** which number over a million.

Present Invertebrate Phyla:

Presently there are **30 invertebrate Phyla,30 patterns** These phyla are:

Protozoa	Mesozoa	Porifera	Coelenterata	Ctenophora
Platyhelminthes	Nemertinea	Acanthocephala	Entoprocta	Rotifera
Gastrotricha	Kinorhyncha	Nematoda	Nematomorpha	Priapulida
Sipunculida	Mollusca	Echiurida	Annelida	Onychophora
Pentastomida	Arthropoda	Phoronida	Ectoprocta (Bryozoa)	Brachiopoda
Echinodermata	Chaetognatha	Pogonophora	Hemichordata	Tardigrada

3) Present Invertebrate Phyla (continued)

Major and Minor Phyla:

The invertebrate phyla have been divided into major and minor phyla. This division is based on **two factors**: (i) The number of species and individuals; (ii) Their participation in ecological communities.

The **lower invertebrates** include various phyla such as **Protozoa, Porifera, Coelenterata, Platyhelminthes and Nematoda**.

On the other hand, **the higher invertebrates** are generally larger in size and possess a complex body organization. These occupy higher position in the phylogenetic tree of the Animal Kingdom. The **higher invertebrates** also include various phyla such as **Mollusca, Annelida, Arthropoda, and Echinodermata**.



The higher invertebrates



Annelida



Arthropoda



Mollusca



Echinodermata

Annelida

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1) Introduction includes: name, Symmetry, Classification, Annelid, phylum name **Annelida**, also called **segmented worm**, any member of a phylum of invertebrate animals that are characterized by the possession of a body cavity (or coelom), movable bristles (or setae), and a body divided into segments by transverse rings, or annulations, from which they take their name. The coelom is reduced in leeches, and setae are lacking a few specialized forms, including leeches. the annelids number more than 9,000 species distributed among three classes: the marine worms (Polychaeta), the earthworms (Oligochaeta); and the leeches (Hirudinea)



1) Class Polychaeta, General characters , **ex. Nereis sp.**

General characters

1. Polychaeta (pol'e-ke'ta) (Gr. polys, many, + chaiti?, long hair).
2. There are about 5300 species.
3. Segmented inside and out; parapodia used in locomotion with many large number of chitinous bristles setae.
4. Distinct head with eyes, palps and tentacles
5. No clitellum.
6. Separate sexes.
7. Trochophore larva usually present.
8. Mostly marine.
9. Bristle worms.
10. Most free-living (live in substrate or free-swimming), but some live in mucus-supported tubes that are surrounded by substrate.
11. Many are active predators, while others are filter feeders.
12. Many crawl on or burrow in the seafloor.
13. A few drift and swim in the plankton.
14. Polychaetes include carnivores, scavengers, and planktivores.
15. The brightly colored fanworms trap plankton feathery tentacles.

Example: Nereis sp.

