SCIENCE

COELENTERATA, PLATYHELMINTHES, NEMATODA, ANNELIDA

PHYLUM COELENTERATA (Sac like animals)

(Cnidaria) (koilos = hollow ; enteron = intestine)

(i) It includes aquatic (both fresh water and marine), solitary or colonial forms.

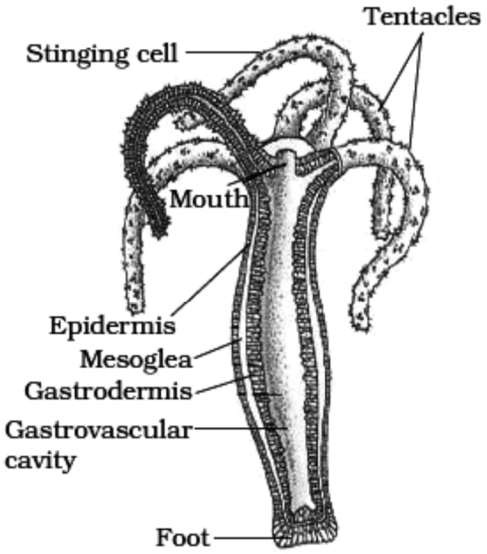
(ii) Body is **radially** symmetrical and diploblastic.

(iii) **Coelenterata** are unique in having **slender**, finger like projections called **tentacles**. Tentacles are collered with stinging cells or cnidoblasts or nematoblasts.

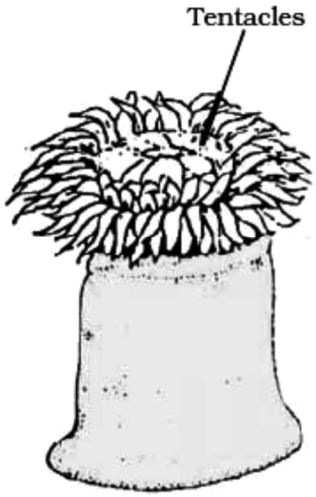
(iv) A cavity in the centre of the body called **gastrovascular cavity** or **coelenteron** is present.

(v) Reproduction is usually **asexual (budding)** in **polyp form** and **sexual** in **medusa** form.

Examples : Hydra, Obelia, Physalia (Portugese man - of - war), Aurelia (Jelly fish), Metridium (sea - anemone).



Hydra



Sea anemone

Differences between Porifera and Coelenterata

Poriferans	Coelenterates
1. They possess cellular level organisation.	1. Coelenterates have tissue level organisation.
2. The body has several pores, ostia and oscula.	2. The body has usually a single opening.
3. Appendages are absent.	3. Appendages occur in the form of tentacles.
4. Special cells are choanocytes or collar cells.	4. Special cells are cnidoblasts.

PHYLUM PLATYHELMINTHES (Flatworms)

(i) They are **mostly parasitic**, **some are free living** (e.g., Planaria).

(ii) They have organ **level of organsiation.** They are free living or parasite.

(iii) They possess **bilateral symmetry** (Animals can be divided into two halves by just one plane).

(iv) Body cavity (coelom) is absent *i.e.*, acoelomate.

(v) Excretion takes place through **flame cells.**

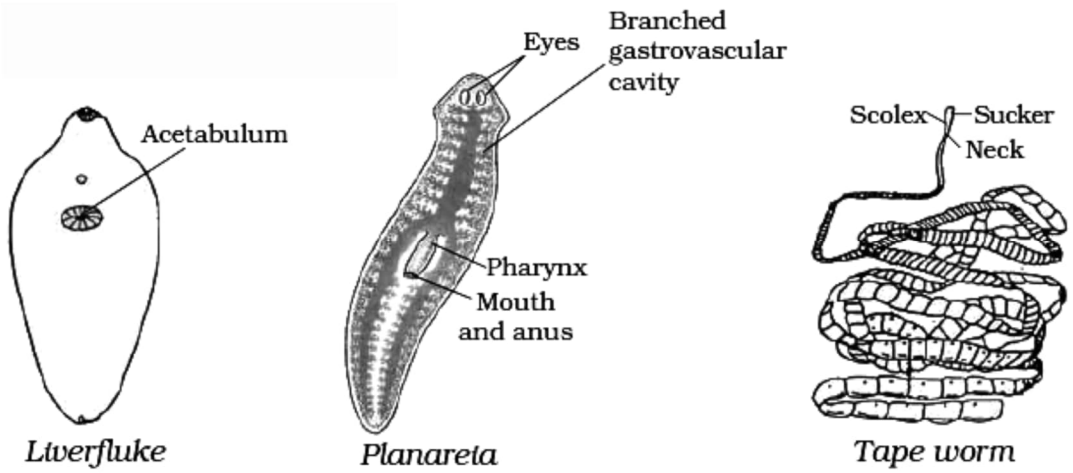
(vi) Most of them are **hermaphrodite** (organism contains both male and female sex organs).

(vii) Their body is **dorsoventrally** flat and leaf-like or ribbon-like (platy-flat).

(viii) They are the first **triploblastic animals** which means their tissues differentiate from three embryonic germ layers, but without a body cavity or coelom.

(ix) Hooks and suckers are organs of attachment in parasitic forms.

Examples: Dugesia (commonly known as planaria, it is free living), **Schistosoma** (blood fluke), **Fasciola** (commonly known as **liver fluke)**, **Taenia solium** (pork tapeworm), **Taenia saginata** (beef tapeworm).



Knowledge Enhancer:

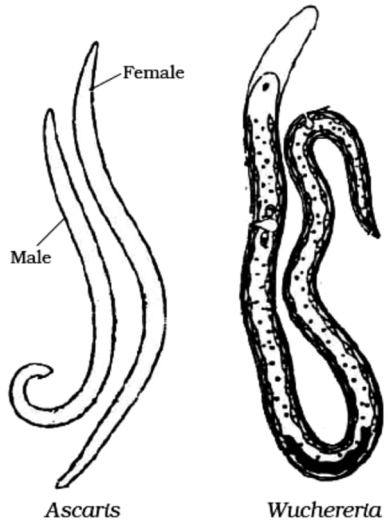
Parasites which complete their life cycle on one host are known as monogenetic parasites whereas, those parasites which complete their life cycle on two hosts are known as digenetic parasites. Fasciola and Taenia solium are digenetic parasites.

PHYLUM NEMATODA OR ASCHELMINTHES (Round or Thread worms)

Nematode – (Nema– thread, Helminth – worm)

(i) They are **parasitic** or **free-living worms**.

(ii) Triploblastic unsegmented animals with bilateral symmetry and organ system level of organization.



(iii) **Pseudocoelom** (false cavity) is present.

(iv) They have narrow, elongated and cylindrical bodies. Body is covered by cuticle.

Examples: Ascaris (round worm), Ancylostoma (hook worm), Wuchereria (Filarial worm cause elephantiasis), Enterobius (Pin worm).

Difference between Platyhelminthes and Aschelminthes		
Characteristics	**Platyhelminthes**	**Aschelminthes**
Form	They are flatworms	They are cylindrical in form and are called roundworms.
Coelom	Platyhelminthes are acoelomate.	They are pseudocoelomate.
Digestive tract	It is incomplete.	It is complete.
Sexuality	Animals are hermaphrodite.	Animals are unisexual.

PHYLUM ANNELIDA (Segmented worms)

The segmented animals. (Annulus = ring ; lidos = form) The phylum consists of triploblastic bilaterlally symmetrical animals having **organ system level of organisation**

(i) They occur in moist soil, fresh water and sea.

(ii) They are **bilaterally symmetrical** and **triploblastic animal**.

(iii) **First animals with true body cavity (coelom).**

(iv) Metameric segmentation is a type of segmentation where external divisions correspond to internal divisions. Each segment is known as **metamere**.

(v) **Chitinous setae** are locomotory structures in all **annelids except leech. Nereis** also has **parapodia** for locomoton.

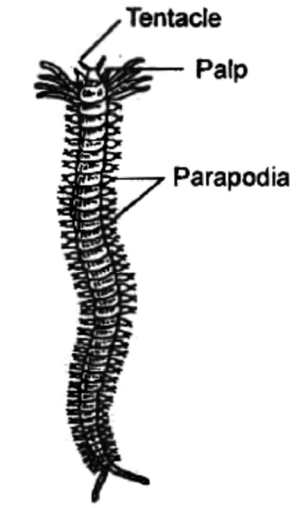
(vi) Blood in **annelids** is red due to the presence of haemoglobin. It is dissolved in plasma. RBC are absent.

(vii) Alimentary canal is complete.

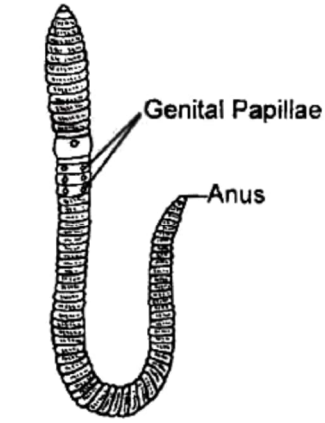
(viii) Circulatory system is closed (blood flows in well formed blood vessels).

(ix) Excretory system consists of excretory units called **nephridia.**

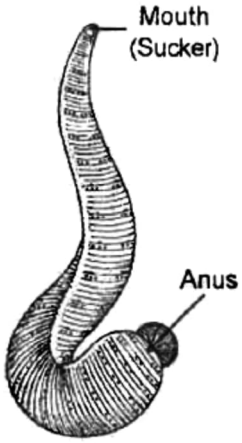
Example: Nereis (sand worm) Aphrodite (sea mouse), Pheretima (earthworm), Hirudinaria (Indian cattle leech) Leech-an **ectoparasite** which suckes blood from the host.



***Nereis* (Sandworm)**



***Pheretima* (Earthworm)**



***Hirudinaria* (Cattle leech)**