PENANG SANGAM HIGH SCHOOL
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LESSON NOTES
WEEK 24

Year/Level: 13A/B **Subject:** BIOLOGY

Strand	3 Biodiversity Change & Sustainability
Sub Strand	3.2.6 Kingdom Animalia (Phylum Platyhelminthes)
Content Learning Outcome	• Describe the general characteristics of organisms in the phylum Platyhelminthes • Identify the organisms in the three classes of Platyhelminthes

TRIPLOBLASTIC ANIMALS

ACOELOMATES

PHYLUM: PLATYHELMINTHES (Flat Warms)

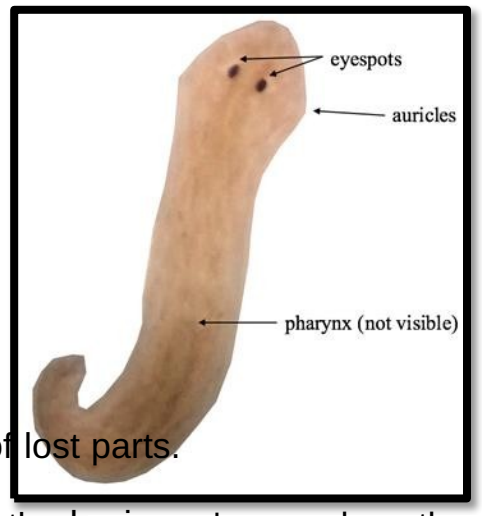
General Characteristics

- Are **bilaterally symmetrical**, **dorsoventrally, flattened**
- Body size ranges from microscopic to several inches long
- Shows greater division of labour than diploblastic animals, because the mesoderm is more developed.
- Have definite excretory, reproductive and neuromuscular organs and systems present:
  - Tubular **excretory system** known as **flame cell** system: eliminates water and (regulation of water balance).
  - Well-developed reproductive system and are **hermaphrodites** (self fertilisation is common, cross fertilization may occur).
  - Central nervous system has nerve cord and small brain ganglion in the head.
  - No respiratory and circulatory system.
- Shows **cephalisation** (there is a well-defined head at anterior end with sensory structures).
- Digestive system has one opening. Has muscular pharynx leading to the gastro vascular cavity which is branched. Digestion is mostly intracellular.

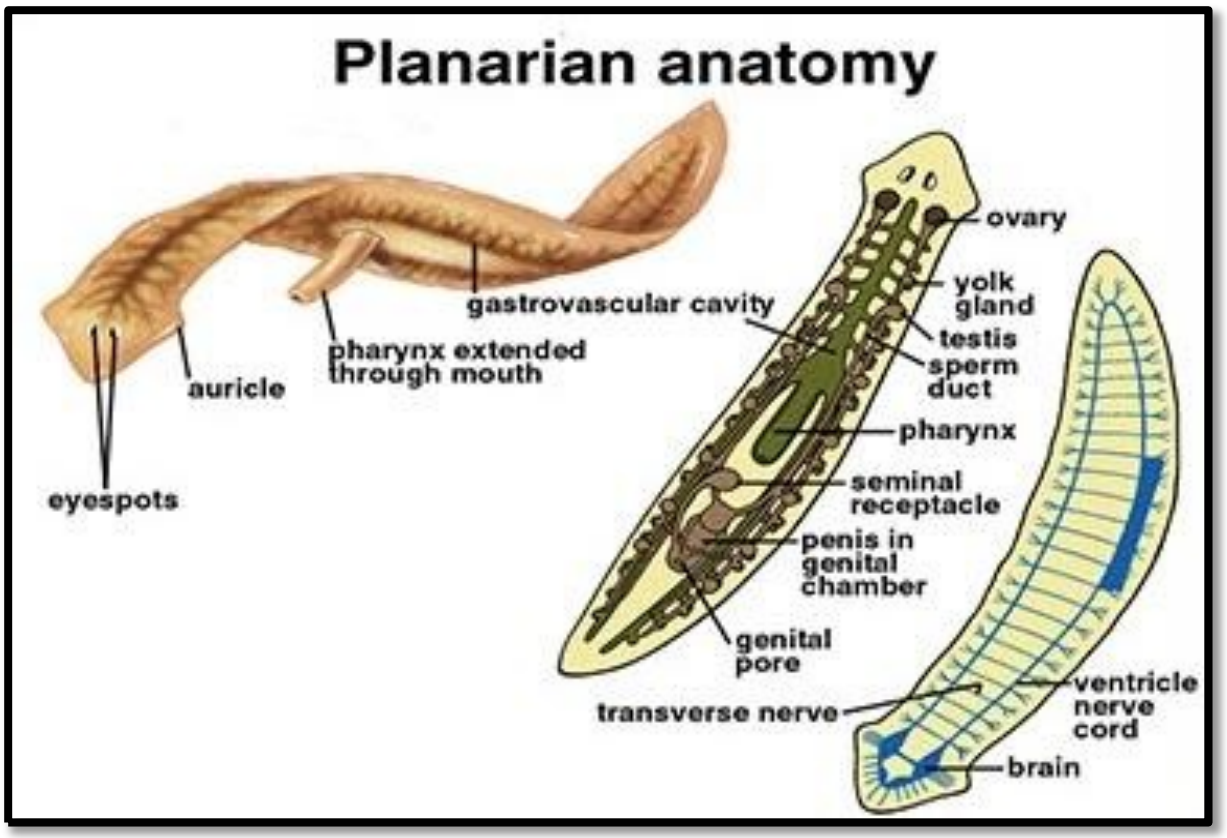
Phylum Platyhelminthes consist of **three classes**:

CLASS Turbellaria

Example: Planarians



- Are free living and of various sizes.
- Most live in water and **have ciliated body** .
- They have **pharynx** for engulfing food particles and exchange of gametes.
- Have well developed **flame cell system**.
- They have well developed reproductive system and undergoes both sexual and asexual reproduction.
- Are **hermaphrodite** (cross fertilization occurs).
- Can carry out binary fission and regeneration of lost parts.
- **Fertilization is internal.**
- Nervous system has two long cords tissue from the brain and runs along the body. Responds efficiently to external stimuli.



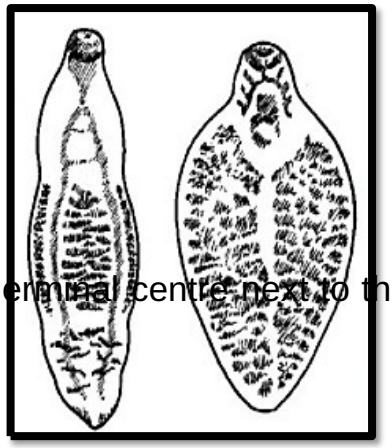
CLASS Trematoda (flukes)

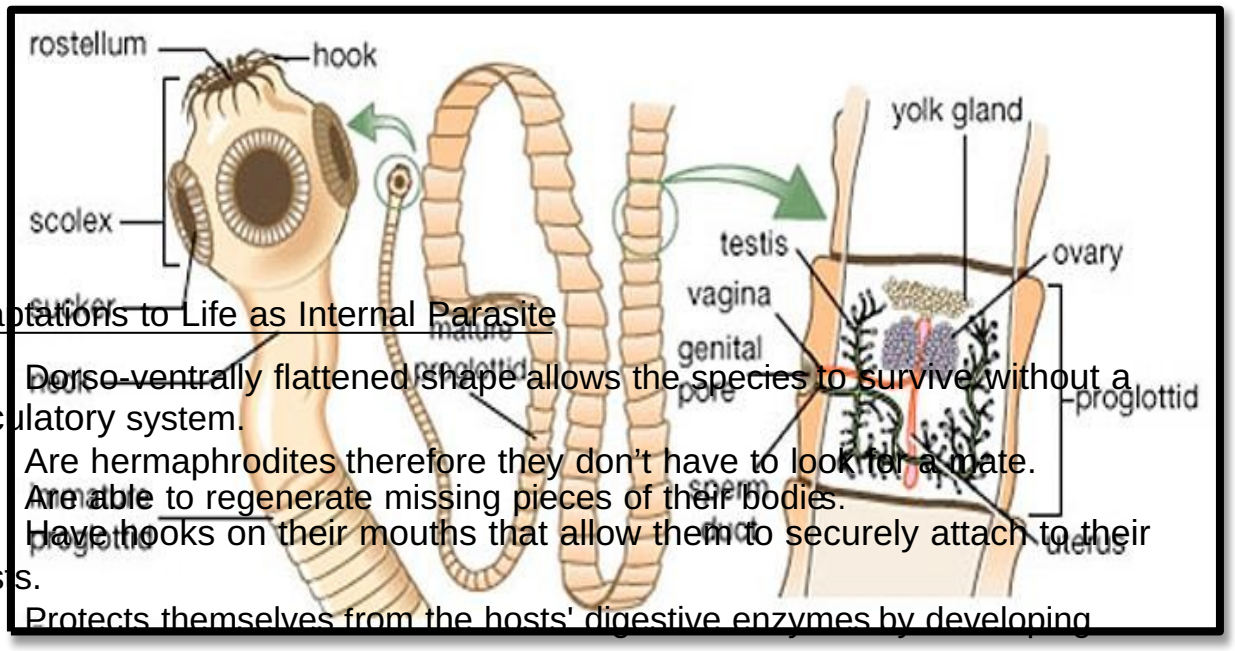
- **Dorsoventrally flattened** and **unsegmented.**
- Body is covered **by cuticle** (resistant to enzyme attack)

- Are parasitic
- Have two or more suckers for attachment onto hosts.
- Are hermaphrodites

CLASS Cestoda (tapeworms)

- Consists of a rounded head called a **scolex** and long chain of **proglottids** (multiple segments) at varying stages of maturity.
- The scolex has **hooks** and **suckers** for attaching to intestinal wall.
- Each proglottids has male and female reproductive organs. The gravid mature proglottids at the terminal end breaks off and are excreted in the host's faeces and transmitted to intermediate hosts.
- The worm grows by adding new proglottids from its germinal centre next to the scolex.





Adaptations to Life as Internal Parasite

- Dorso-ventrally flattened shape allows the species to survive without a circulatory system.
- Are hermaphrodites therefore they don't have to look for a mate.
- Are able to regenerate missing pieces of their bodies.
  - Have hooks on their mouths that allow them to securely attach to their hosts.
- Protects themselves from the hosts' digestive enzymes by developing

teguments or **cuticle** around their bodies.

ACTIVITY QUESTIONS:

1. Name the three classes of Platyhelminthes and give examples of each?

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2. Name the germ layers that make up the body of platyhelminthes?

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3. Describe feeding in the three classes of flat worms?

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4. Name the excretory system of platyhelminthes?

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5. What is the purpose of flame cell system in flatworms?

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6. Give an example of a freshwater flatworm? What physiological problem must these animals solve when living in that environment?

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7. What are the main neural structures found in flatworms?

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8. What is cephalization? How does bilateral symmetry favour cephalization?

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9. Give three structural adaptations in flatworms that enables them to live a parasitic mode of life?

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10. Define triploblastic, acoelomate conditions?

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11. State the term used to describe the body shape of organisms in this phylum?

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12. Describe two ways in which asexual reproduction is carried out in this phylum?_____

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