



1.7 DOMAIN EUKARYA: KINGDOM ANIMALIA

Learning outcomes



- (a) Describe the unique characteristics of Kingdom Animalia
- (b) State the classification of Animalia into nine phyla: Porifera, Coelentrata/Cnidaria, Platyhelminthes, Nematoda, Annelida, Arthropoda, Mollusca, Echinodermata and Chordata.
- (c) Discover the unique characteristics of the following phyla:
 - i. Porifera (e.g: *Leucosolenia* sp.)
 - ii. Cnidaria (e.g: *Obelia* sp.)
 - iii. Platyhelminthes (e.g: *Taenia* sp.)
 - iv. Nematoda (e.g: *Ascaris* sp.)
 - v. Annelida (e.g : *Pheretima* sp.)

Unique Characteristics of Kingdom Animalia



Eukaryotes

Multicellular

Heterotrophic -
Holozoic

Store excess
carbohydrate as
glycogen

Unique Characteristics of Kingdom Animalia



Dominant stage in the life cycle is diploid

Reproduce sexually (most)

Have differentiated tissue -response to stimuli & locomotion



b) The classification of Animalia into nine phyla:

KINGDOM ANIMALIA		
PHYLUM		EXAMPLE
Invertebrates		
i.	Porifera	<i>Leucosolenia</i> sp.
ii	Cindaria	<i>Obelia</i> sp.
iii	Platyhelminthes	<i>Taenia</i> sp.
iv	Nematoda	<i>Ascaris</i> sp.
v	Annelida	<i>Pheretima</i> sp.
vi	Arthropoda	<i>Valanga</i> sp.
vii	Mollusca	<i>Achatina</i> sp.
viii	Echinodermata	<i>Asterias</i> sp.
Vertebrates		
ix	Chordata	<i>Amphioxus</i> sp.

PHYLUM PORIFERA

(Leucosolenia sp.)



Unique Characteristics

No true tissues

Asymmetrical

No body cavity

Most are sessile



Leucosolenia sp.

Unique Characteristics

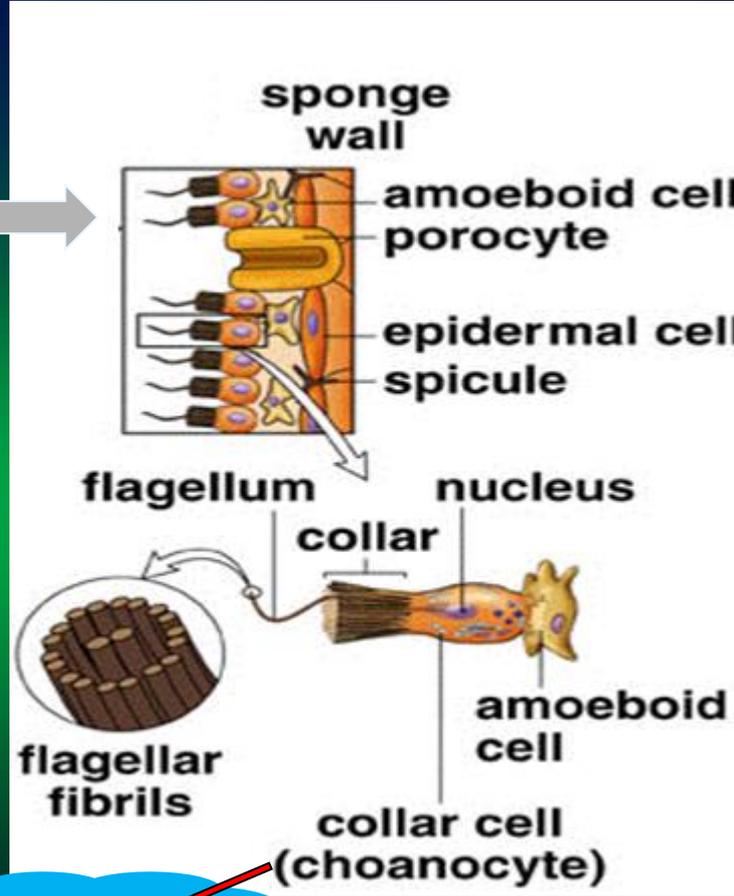
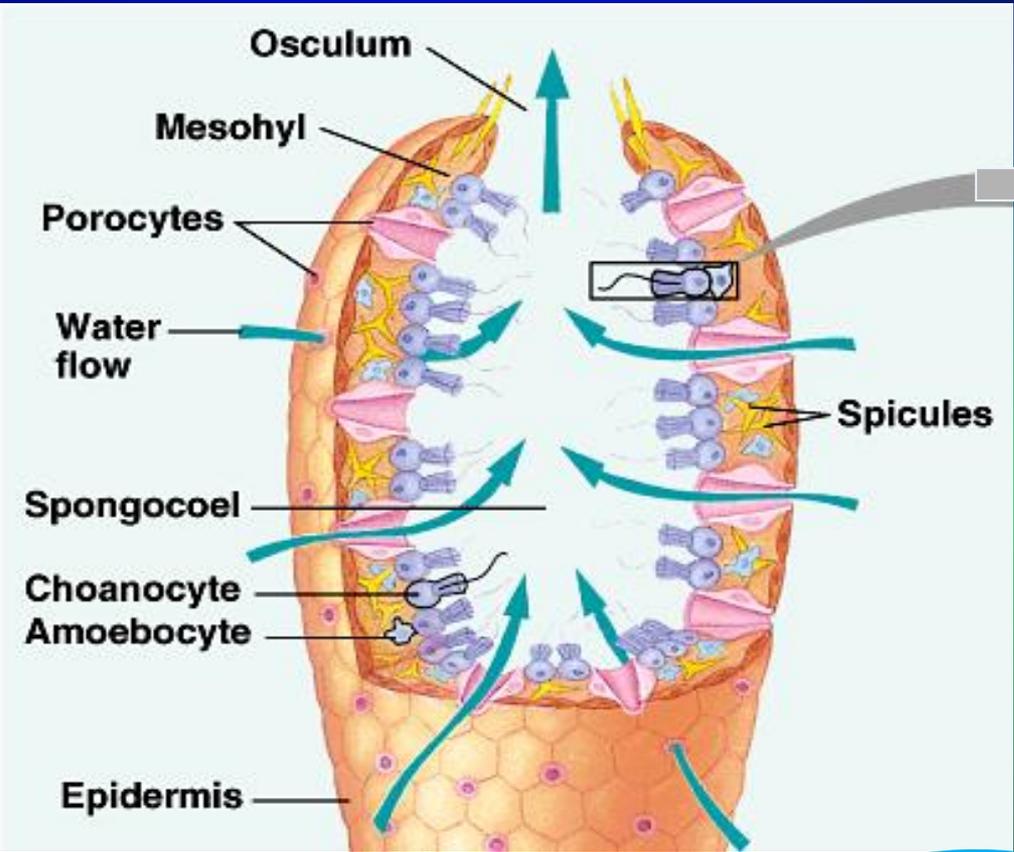
Body - endoskeleton
made up of spicules

Reproduce asexually and
sexually

Filter feeders

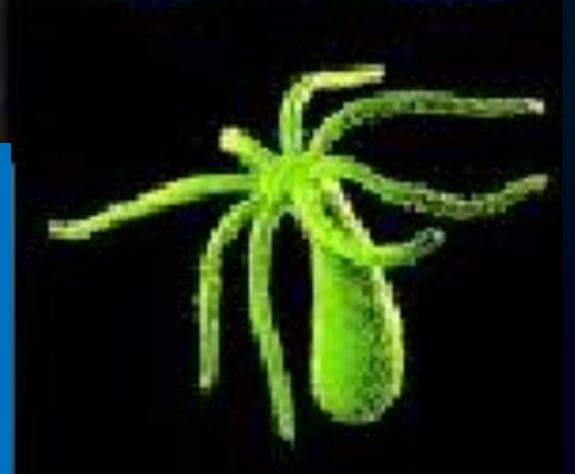
Aquatic mainly marine





-Regulate water intake
-Trap food





PHYLUM CNIDARIA

(*Obelia* sp.)

Unique Characteristics

Genus of Hydrozoans

Has simple structure

Mainly lives marine &
freshwater

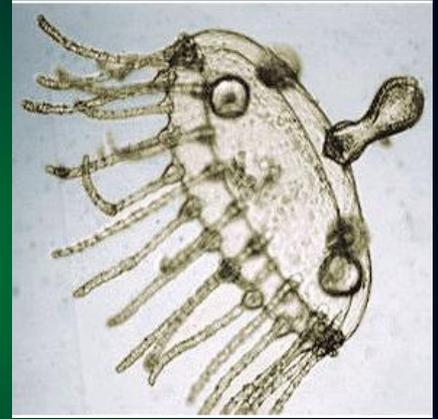
Dimorphism

Tentacle has cnidocytes



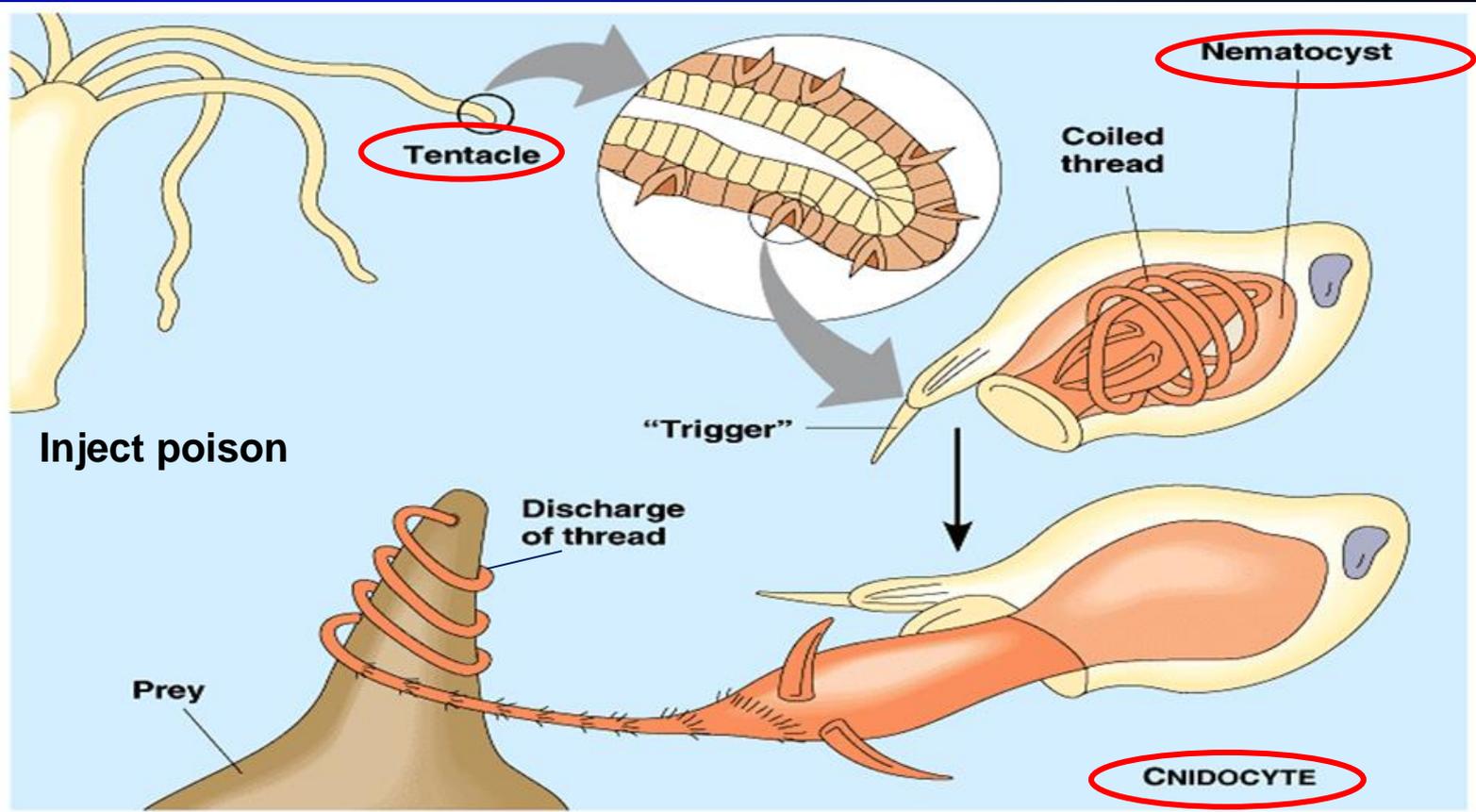
Obelia sp. in a
polyp form

← **Dimorphism** →

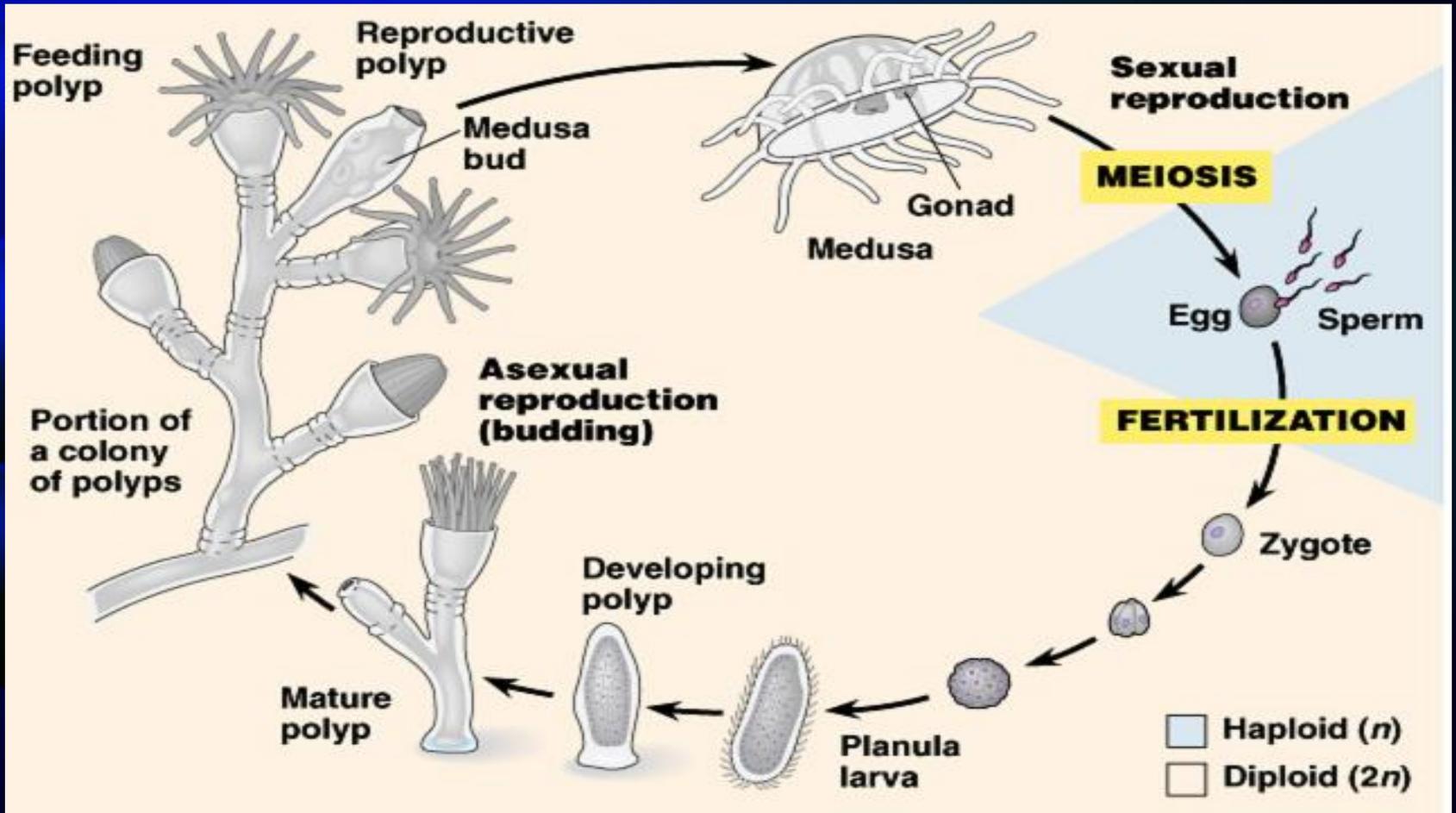


Obelia sp. in a
medusa form

Tentacle has cnidocytes



The life cycle of *Obelia* sp.



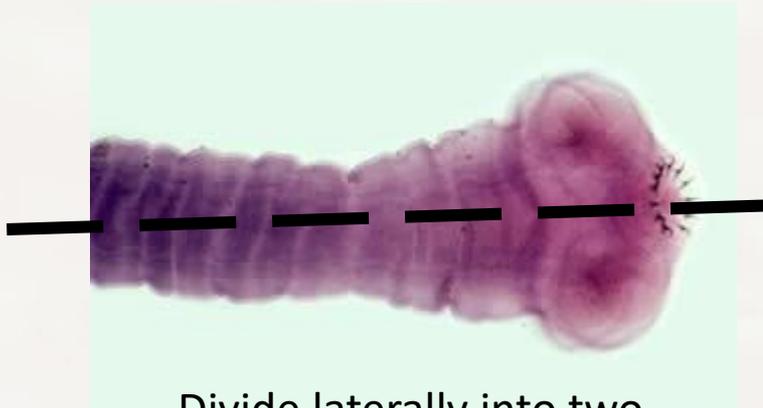
PHYLUM PLATYHELMINTHES

(*Taenia* sp.)



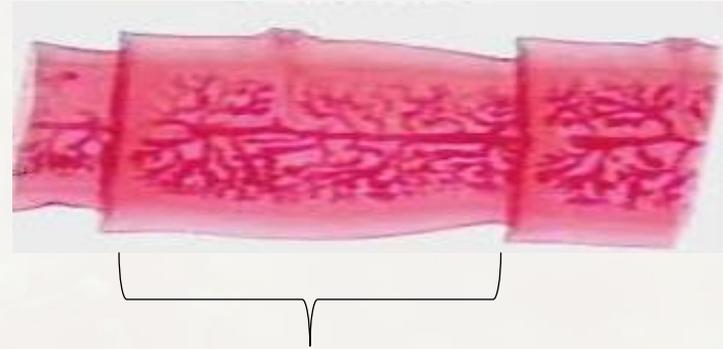
Unique Characteristics

Bilaterally symmetrical



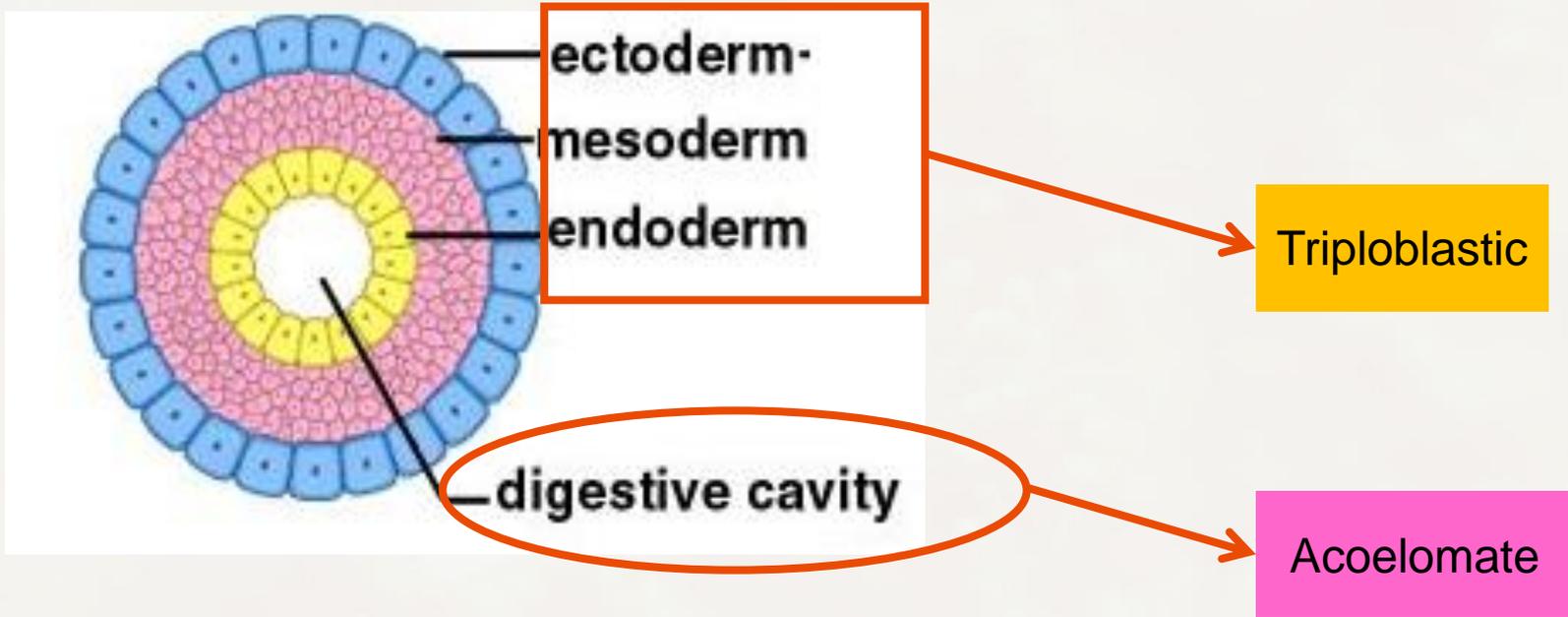
Divide laterally into two

Unsegmented



1 body not segmented

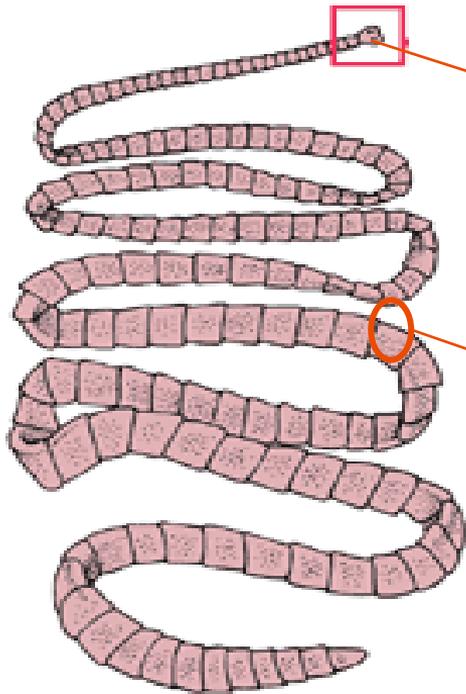
Unique Characteristics



Unique Characteristics

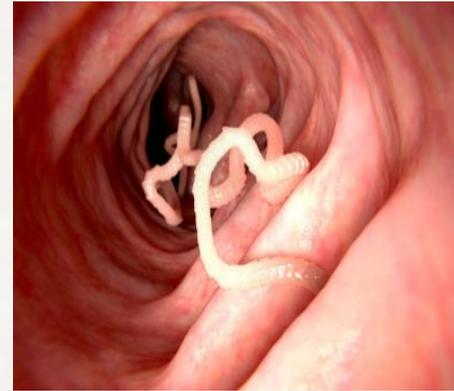
Shows cephalization

Parasitic



head

proglottids



In intestine



In eye

No specialized circulatory or respiratory structure

(anaerobic respiration, break down sugars to lactic acid and ethanol)

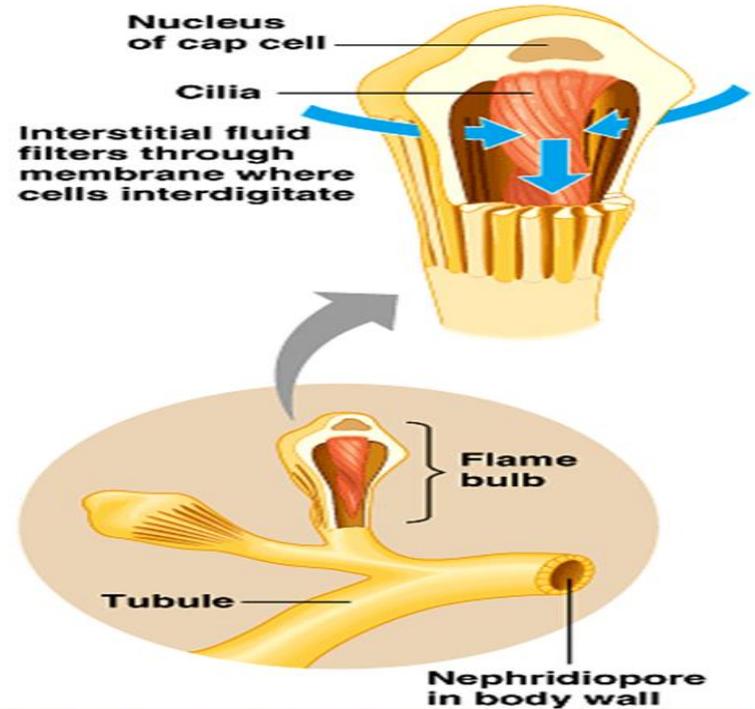
Incomplete digestive system

(has mouth, no anus)



Unique Characteristics

Excretory system
→ Protonephridia





PHYLUM NEMATODA

(Ascaris sp.)

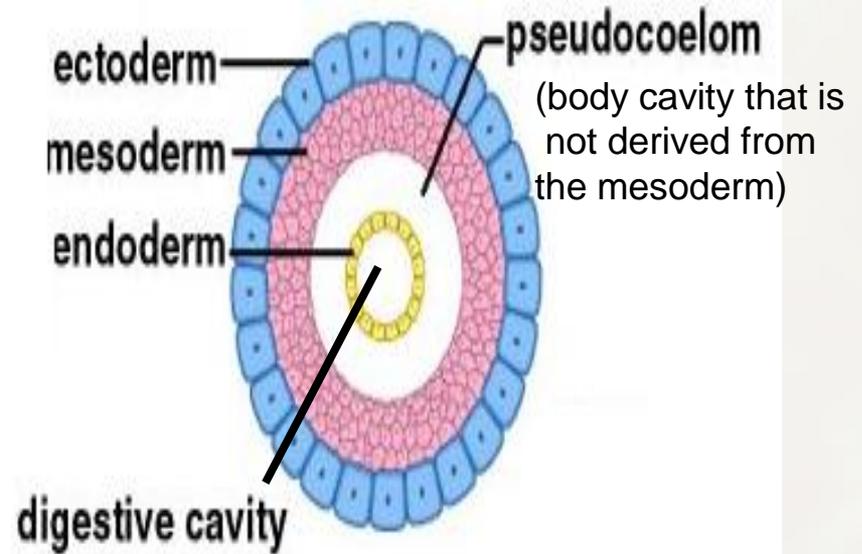
Unique Characteristics

Bilaterally symmetrical

Unsegmented

Triploblastic

Pseudocoelome



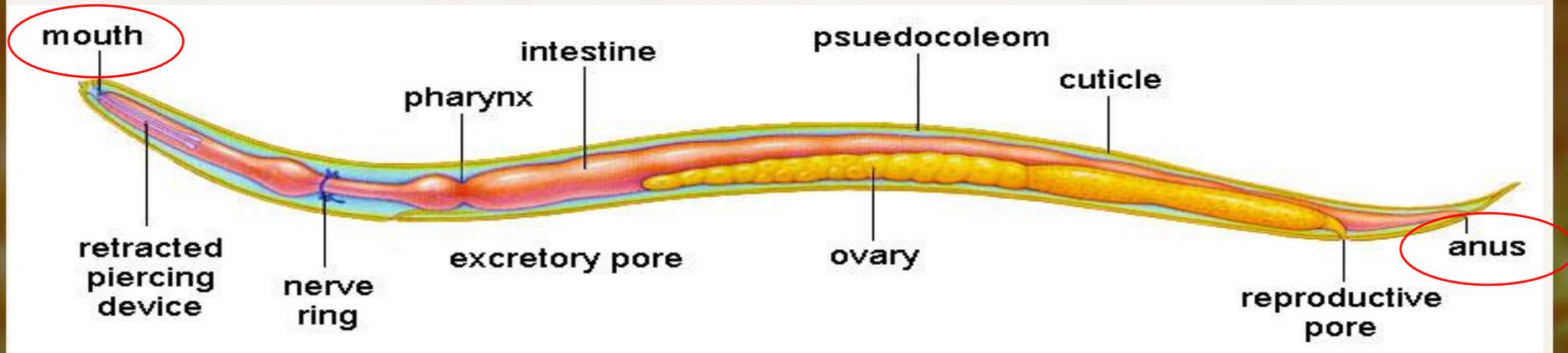
Unique Characteristics

Complete alimentary canal

Nervous system

Excretory system

No circulatory & respiratory systems



Unique Characteristics

hydrostatic skeleton

9

Reproduction-Bisexual

10

Body is covered with smooth cuticle

11

Some are parasitic

12



PHYLUM ANNELIDA

(*Pheretima* sp.)



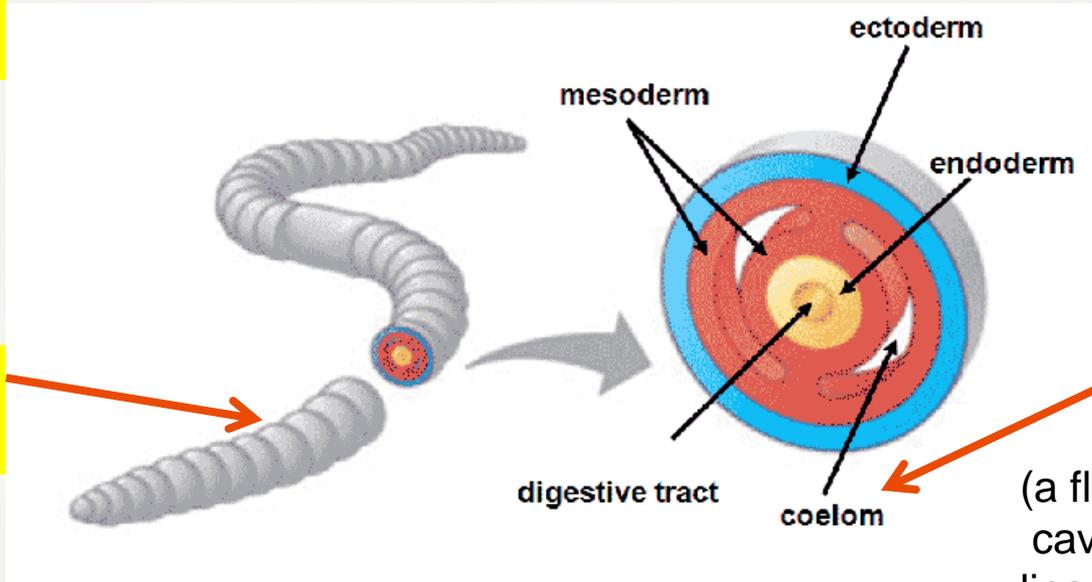
Unique Characteristics

Bilaterally
symmetrical

Triploblastic

Segmented

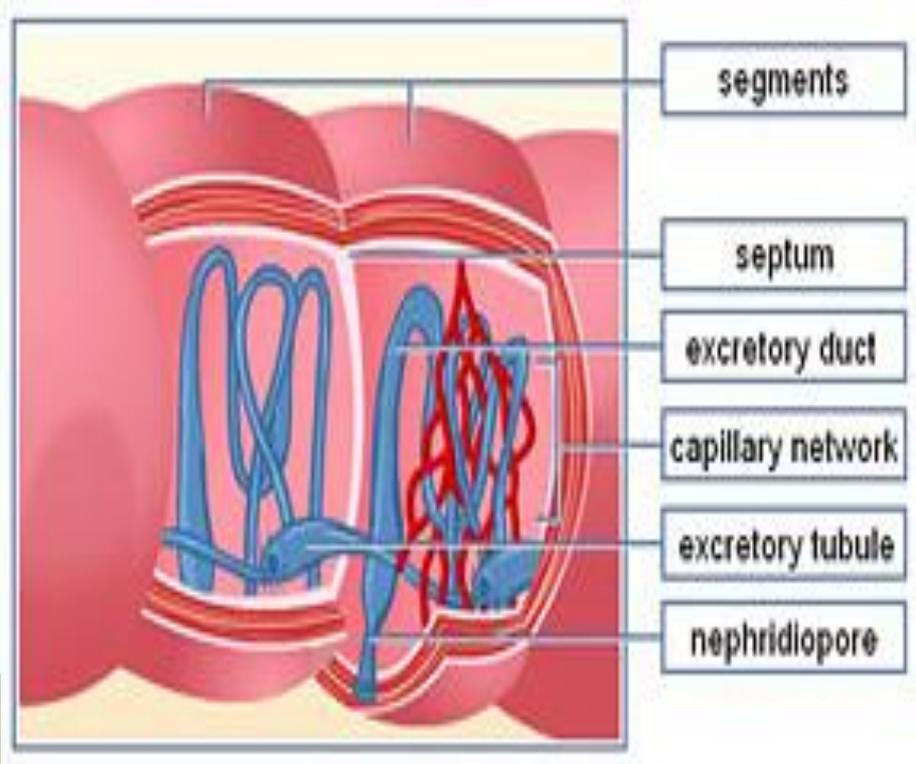
(A body formed of a longitudinal series of similar parts)



Coelomate

(a fluid-filled body cavity that is completely lined by tissue created from the mesoderm)

Unique Characteristics

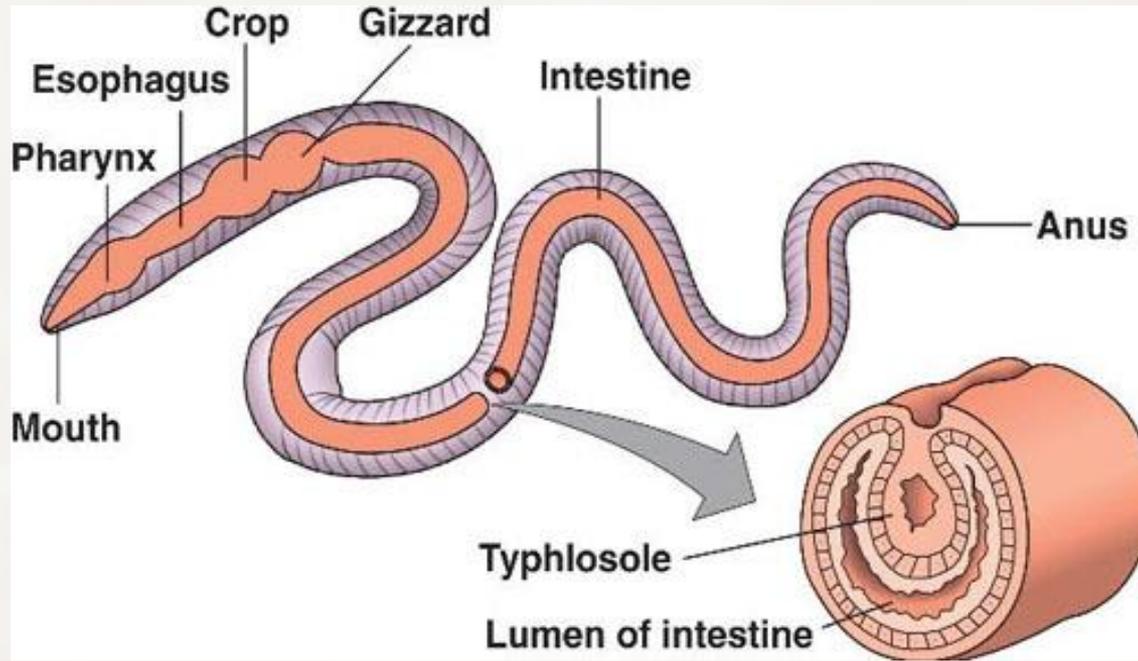


Metameric segmentation

Division of body into a number of segments each contains same organ (muscles, blood vessels, nerves)

Septum (membrane) between segment

Unique Characteristics



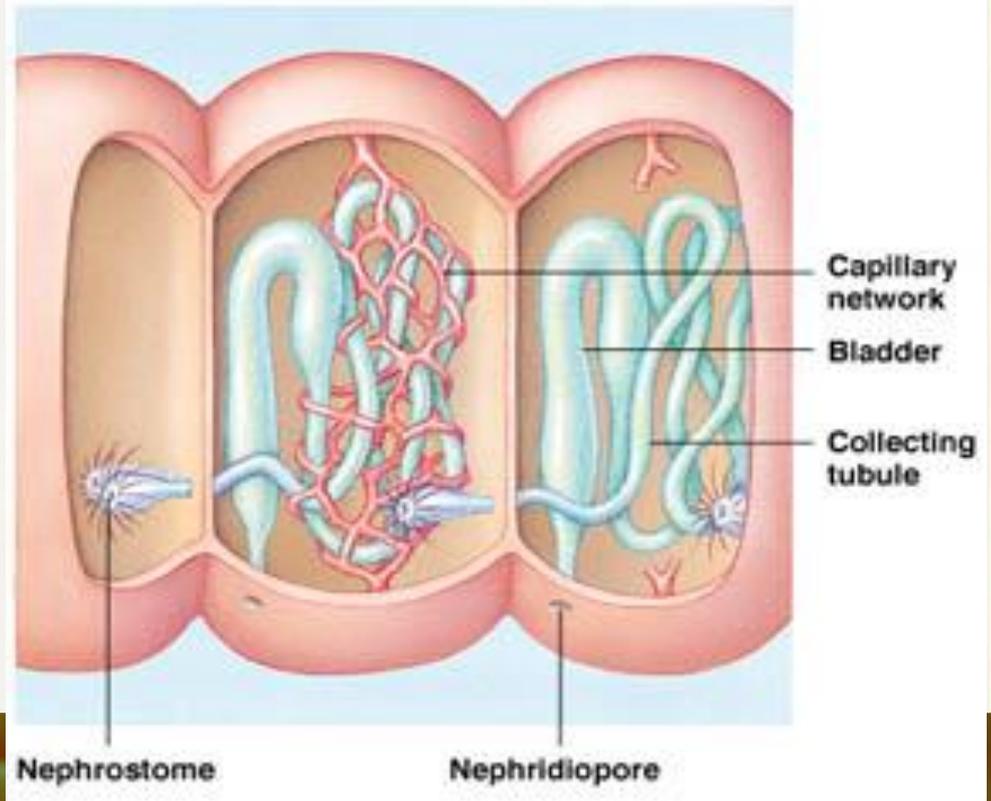
Complete digestive system

The digestive system consists of the pharynx, the esophagus, the crop, the intestine and the gizzard. After it passes through the esophagus, the food moves into the crop where it is stored and then eventually moves into the gizzard. The gizzard uses stones that the earthworm eats to grind the food completely

Unique Characteristics

Excretory system

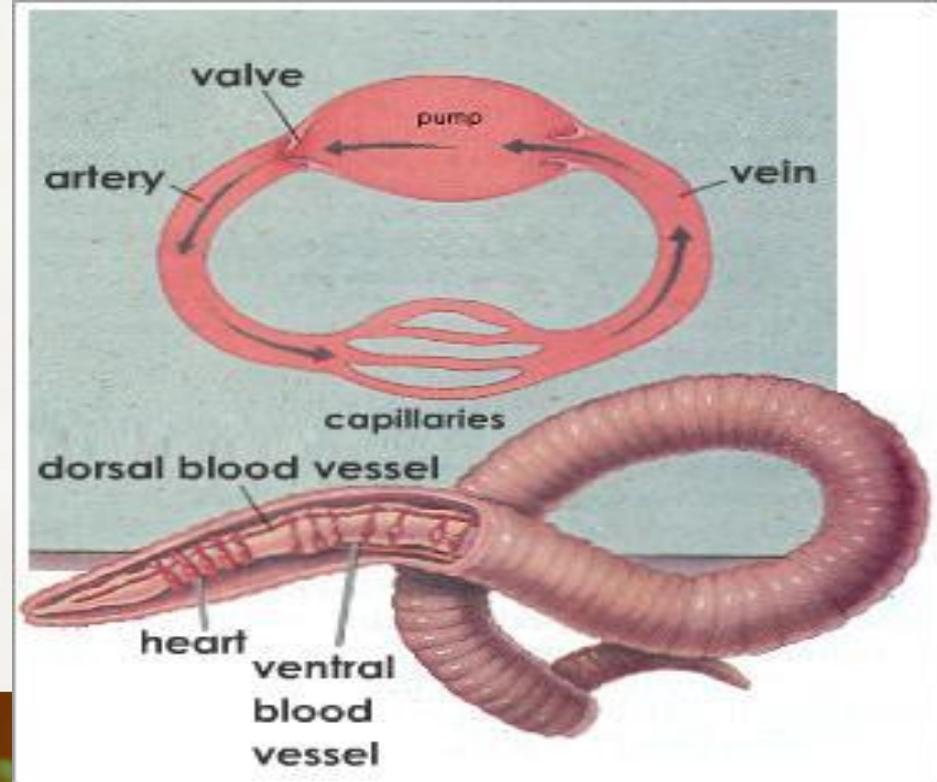
Excretory system consists of nephridia as **excretory** organ which is analogous to kidney of vertebrates. Nephridia are porous, long, thin and coiled tube which are found in all segments except first three



Unique Characteristics

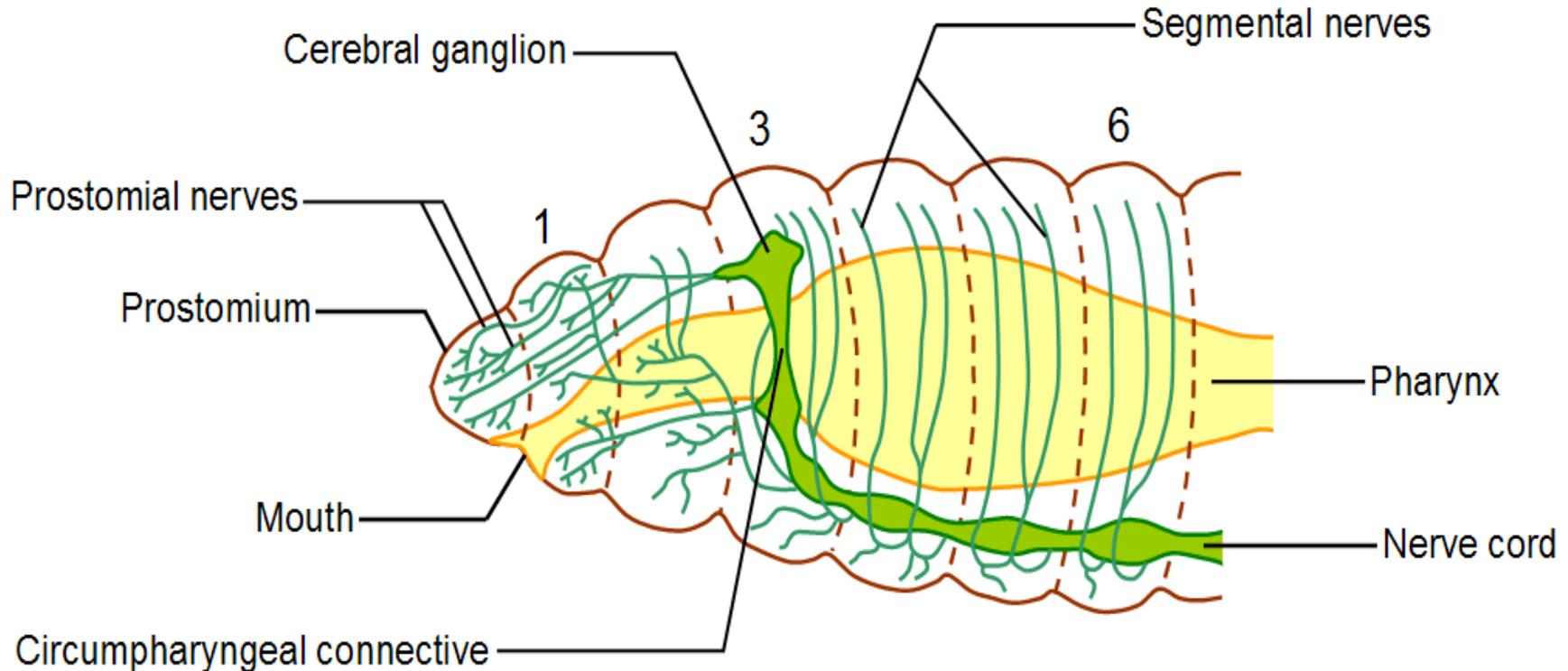
Closed blood circulation system

Circulates **blood** exclusively through vessels. There are three main vessels that supply the **blood** to organs within the **earthworm**. These vessels are the aortic arches, dorsal **blood** vessels, and ventral **blood** vessels.

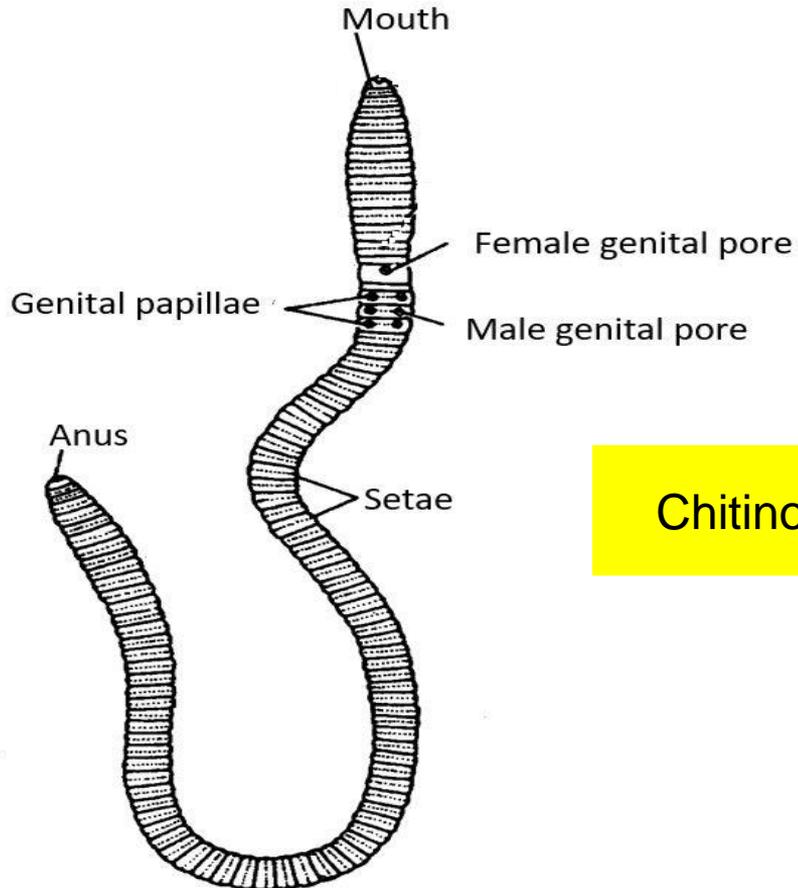


Unique Characteristics

Nervous & sensory system



Unique Characteristics



Reproduction system

Chitinous setae