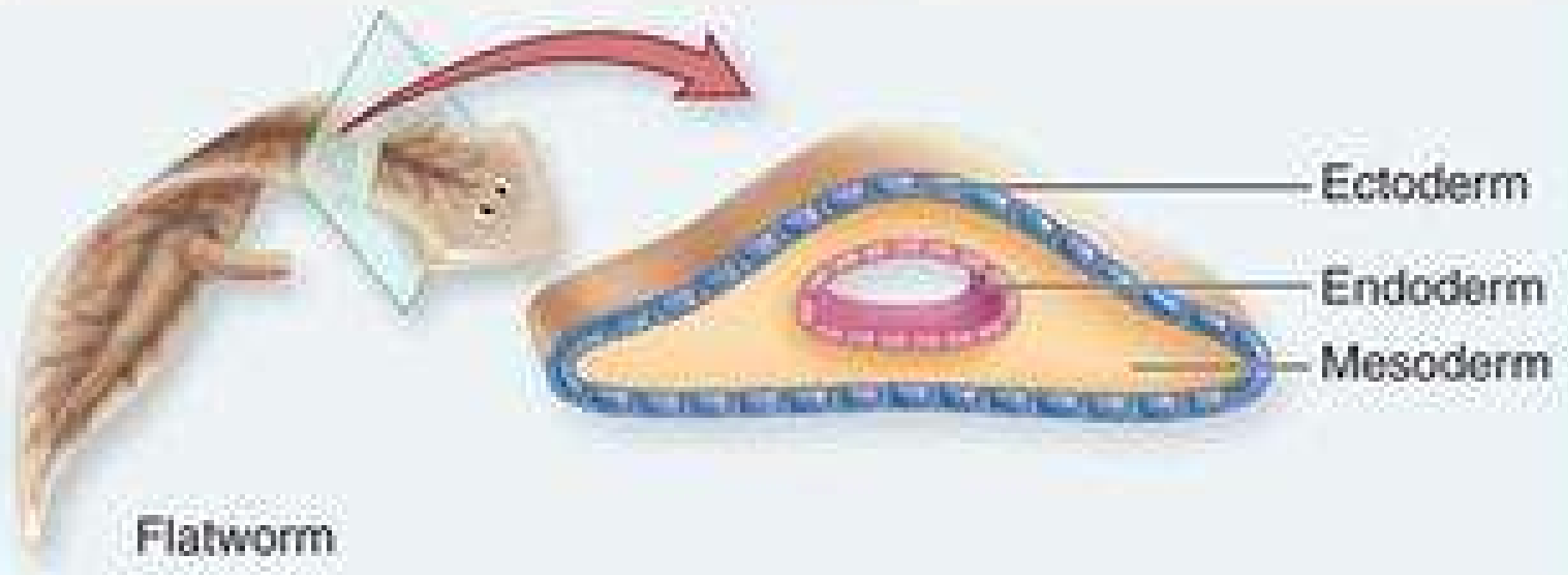


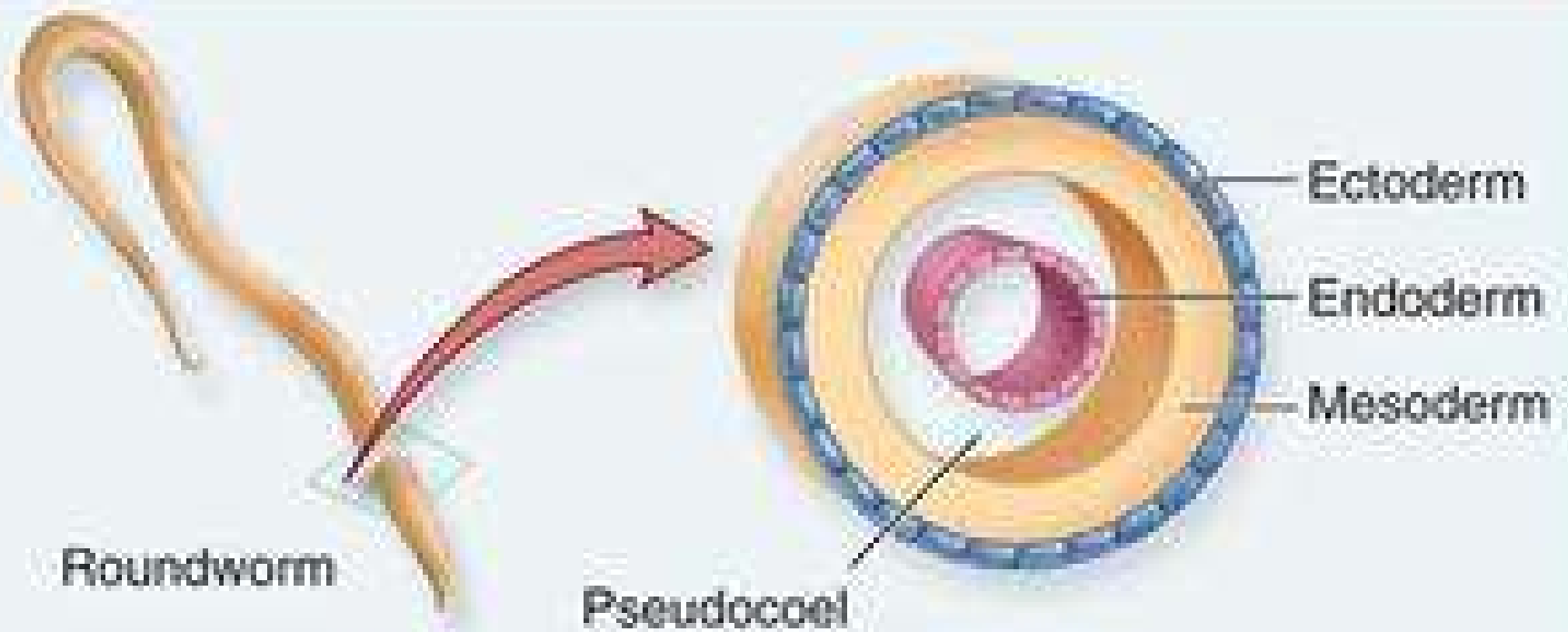
# PHYLUM ANNELIDA

The Segmented worms

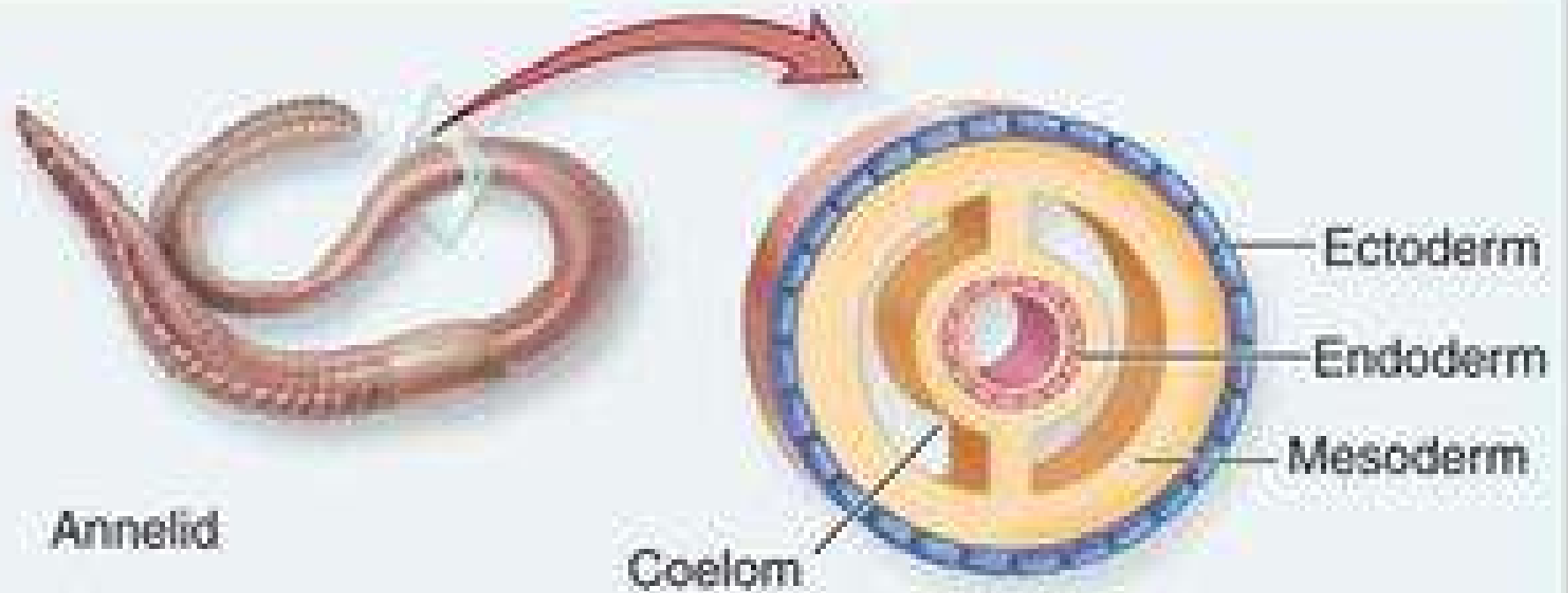
## Acoelomate



## Pseudocoelomate



## Coelomate



# WHAT IS A SEGMENTED WORM?



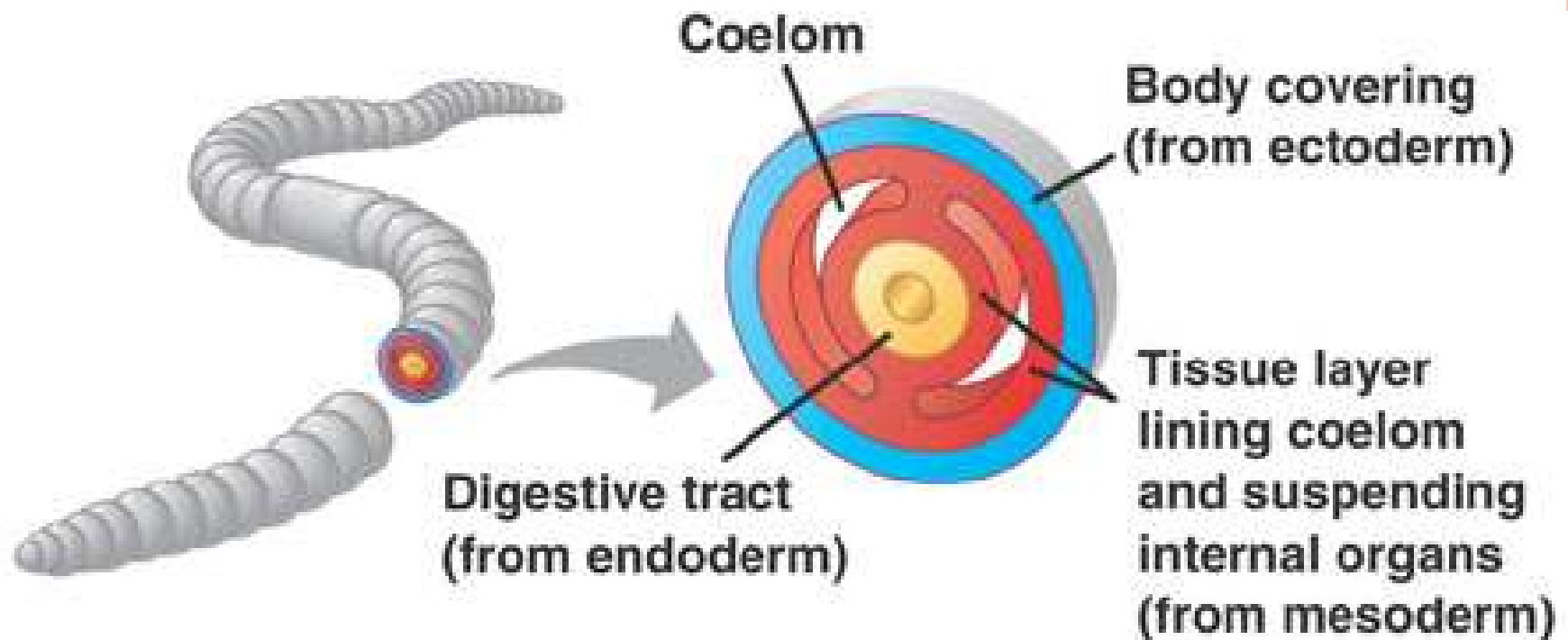
## GENERAL CHARACTERISTICS OF PHYLUM ANNELIDA

- 1. Coelom and bilateral symmetry
- 2. Segmented body (Metamerism)
- 3. Paired hairs or bristles found on their body (Setae)
- 4. Closed circulatory system with multiple “hearts”
- 5. Excretory system (Metanephridia)
- 6. Complete digestive system
- 7. Monoecious or dioecious



## BODY STRUCTURE

- It has a Coelom!!!



(a) Coelomate

- For your notes, write the items in red

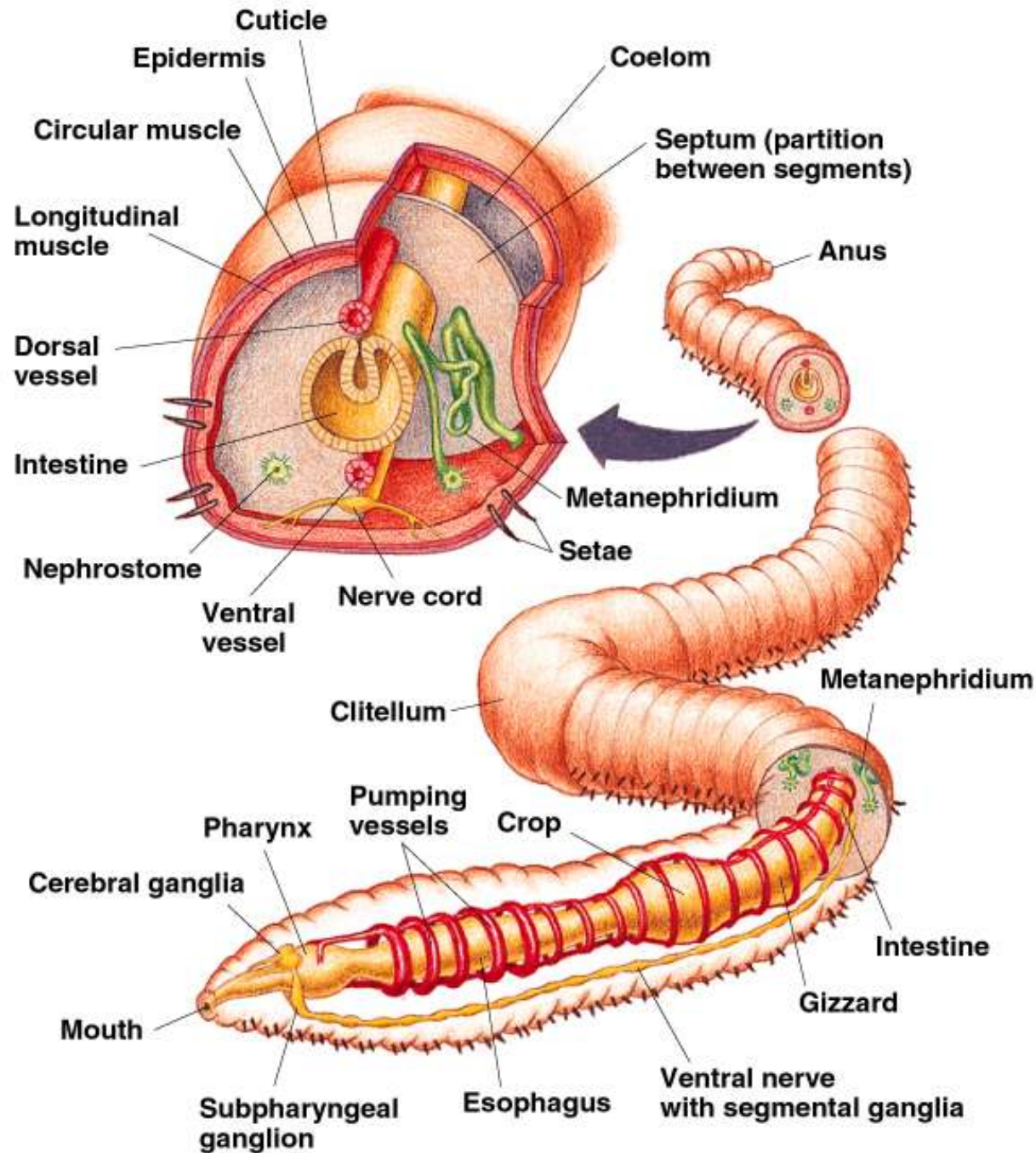




## SEGMENTATION- METAMERISM

- Body has ring-like segments
  - Divided internally
- Growth occurs at the posterior end
- Each segment has a pair of bristles





## SEGMENTATION- METAMERISM

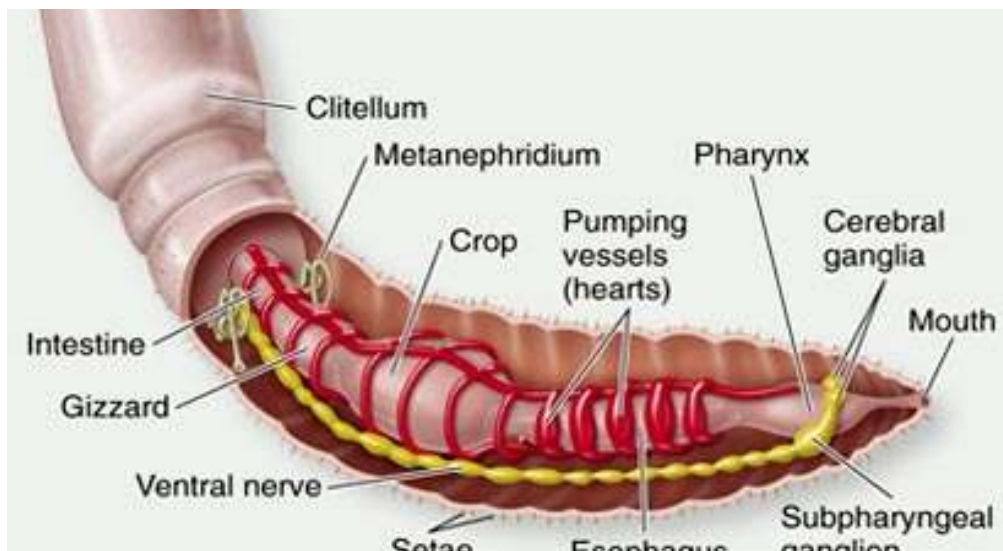
What are the advantages to body segments?

- Creates hydrostatic compartments that can be individually controlled
  - Greater variety of movement
- Lessens injury impact. Other segments can perform the same functions
- Allows for regions to be specialized
  - Feeding, movement, reproduction



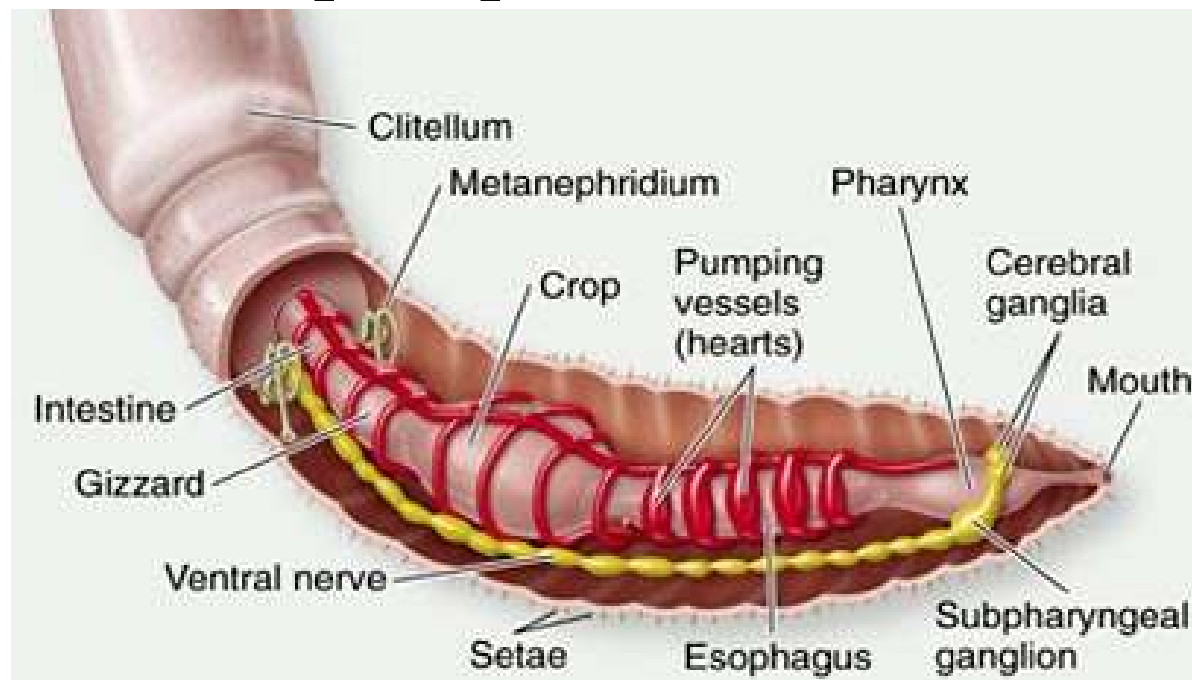
## FEEDING AND DIGESTION

- Aquatic worms filter feed
- Earthworms have a crop, muscular pharynx, gizzard and intestine



## CIRCULATION

- Closed circulatory system- vessels carry blood
- Expanded vessels act like hearts
  - Contract to pump the blood



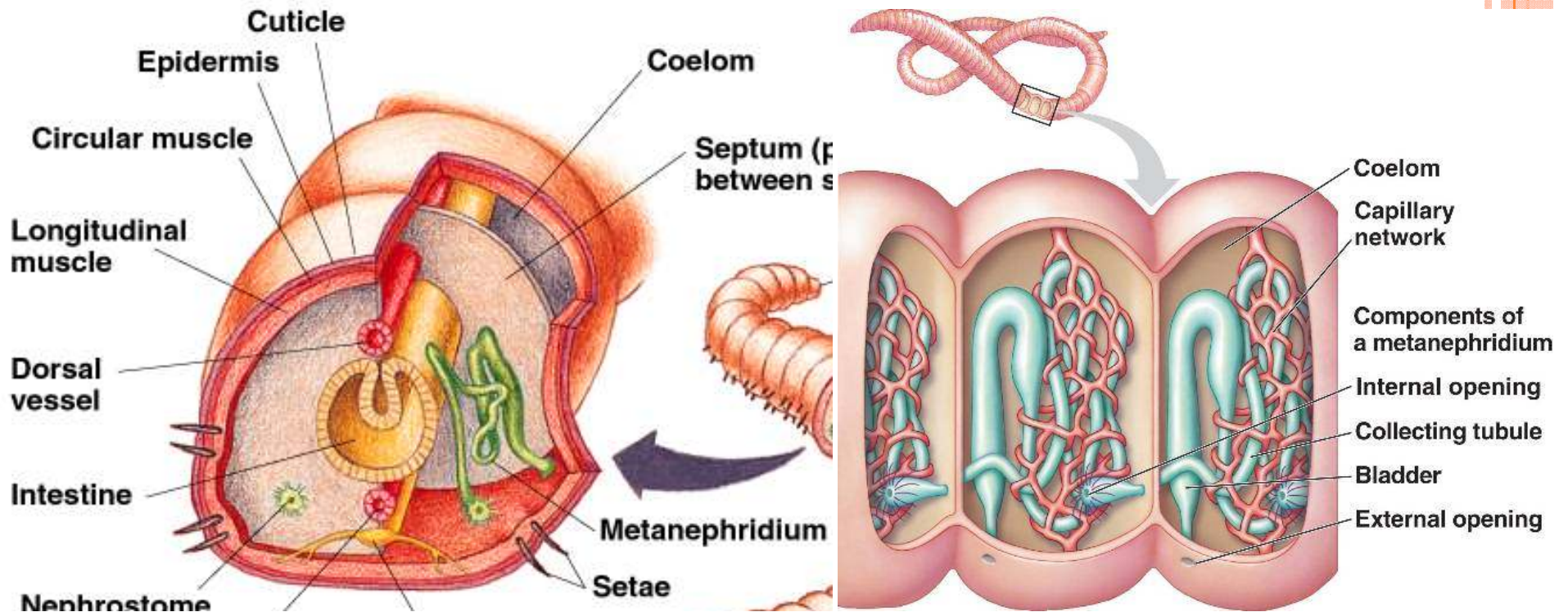
## RESPIRATION

- Aquatic annelids use gill-like structures
- Terrestrial annelids rely on moist skin and diffusion



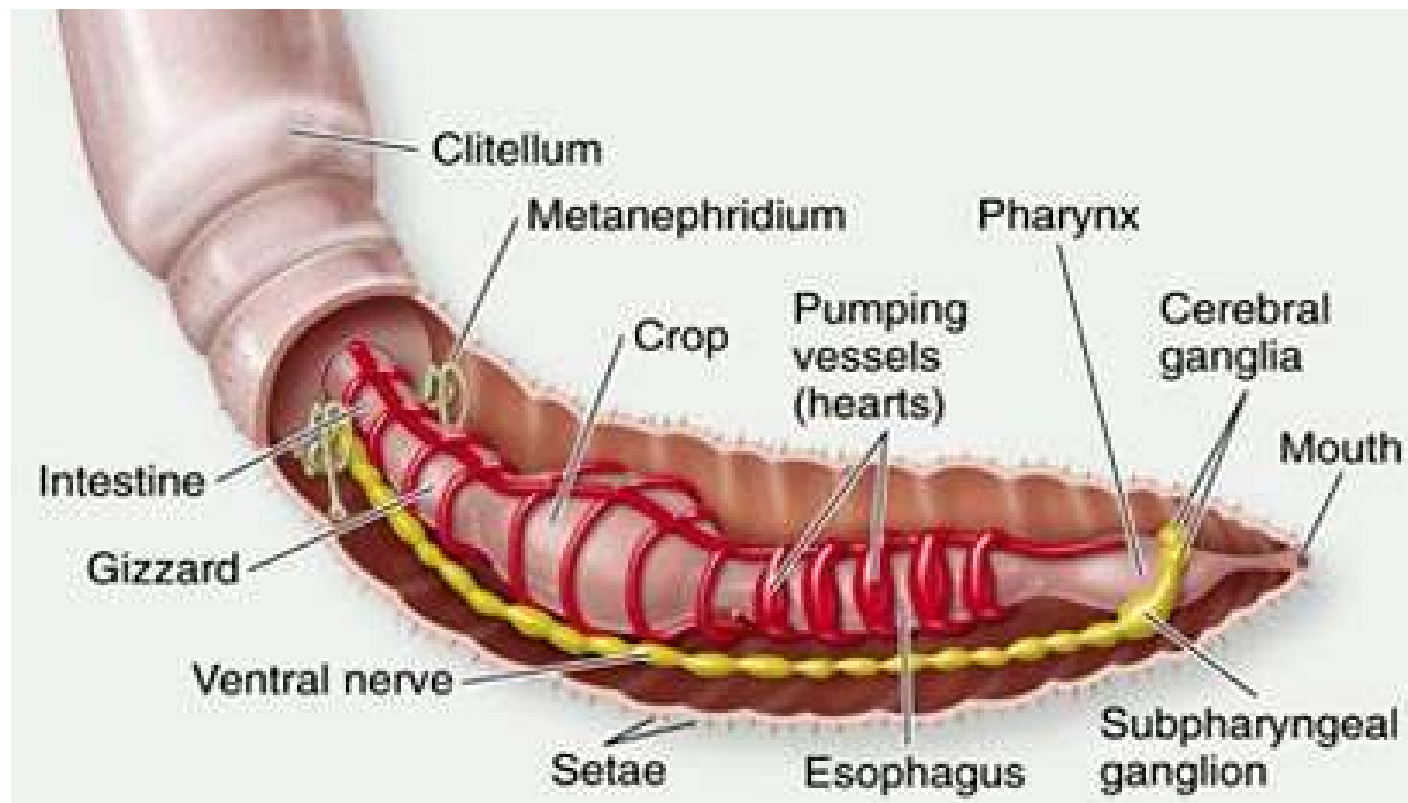
# EXCRETION

- Cellular waste is filtered from the fluid of the coelom by metanephridia



## RESPONSE AND SENSES

- Have a brain and nerve cords
  - Ventral nerve cord has ganglia

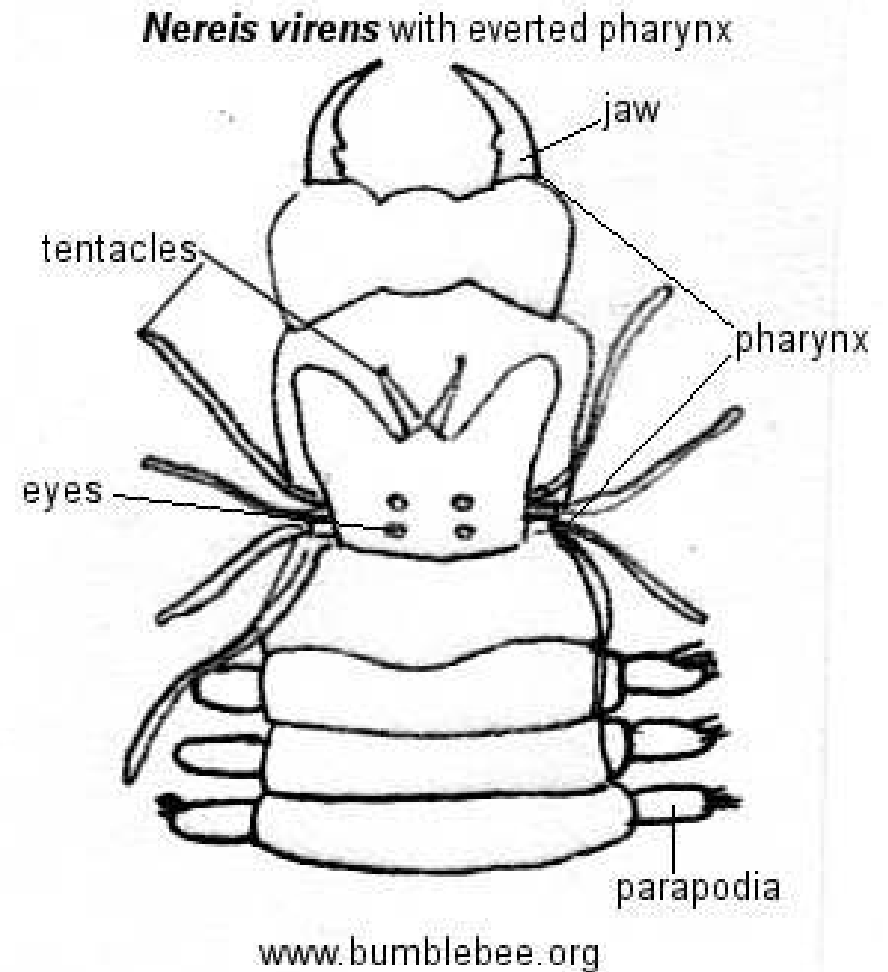




## RESPONSE AND SENSES

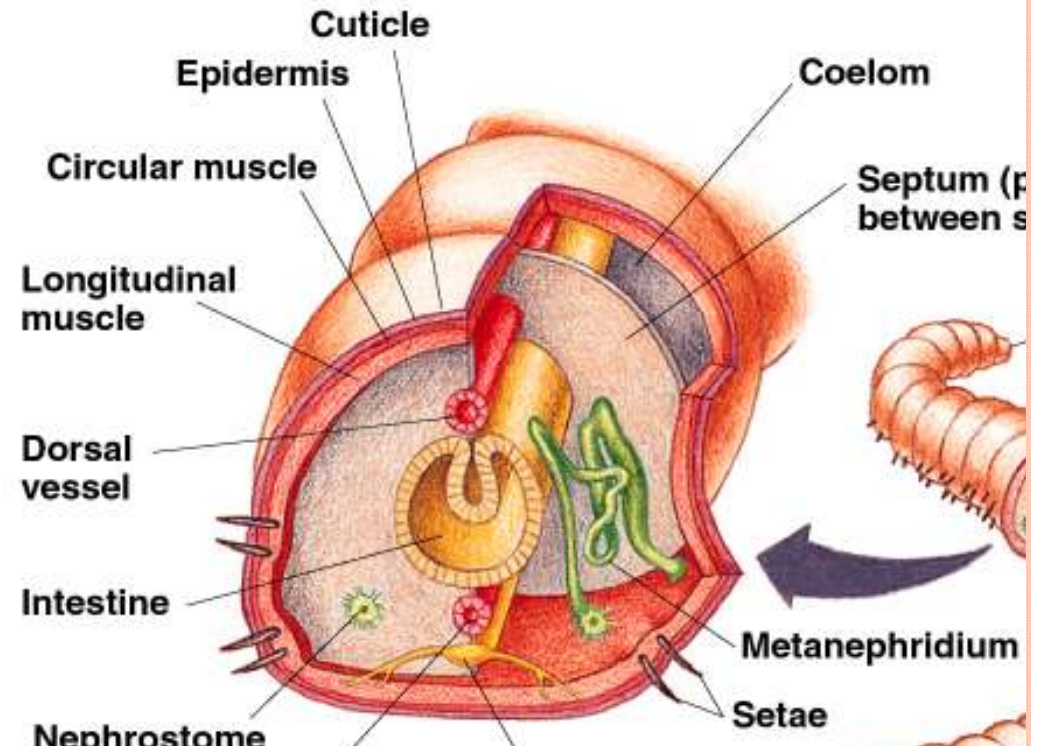
### ○ Marine annelids have sensory structures

- Tentacles, chemical receptors, statocysts and 2 or more pairs of eyes



# MOVEMENT

- Circular and longitudinal muscles contract with hydroskeleton
- Alternately contract
- Bristles give it traction



## REPRODUCTION

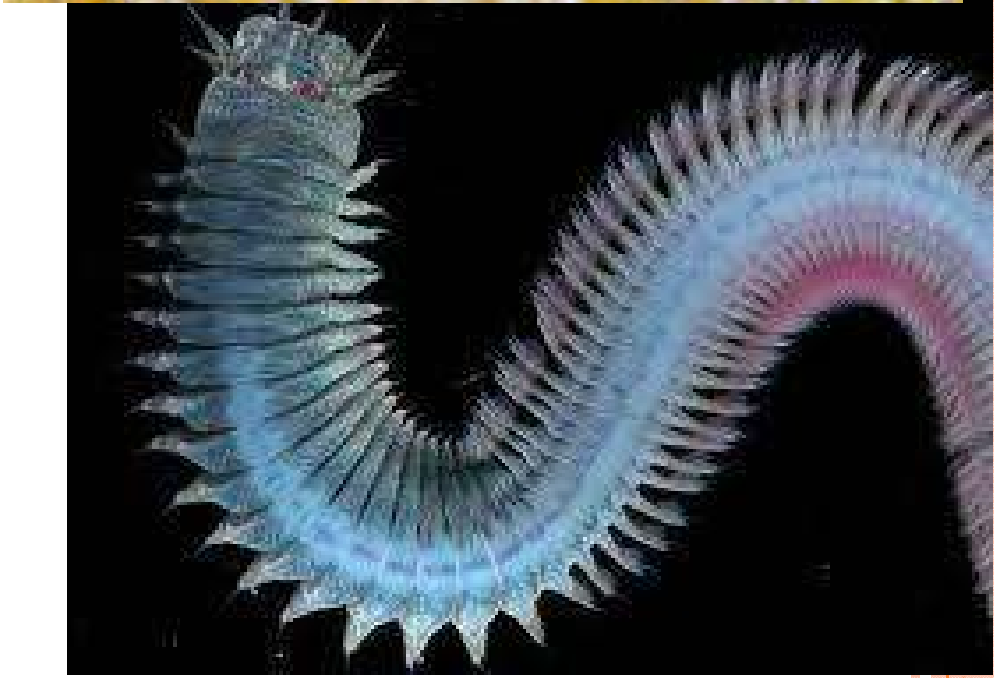
- Most annelids reproduce sexually
- Earthworms are hermaphrodites
- All monoecious
  - Both worms give and receive sperm
- Clitellum- saddle like structure
  - Slides off the worm and forms cocoon for eggs

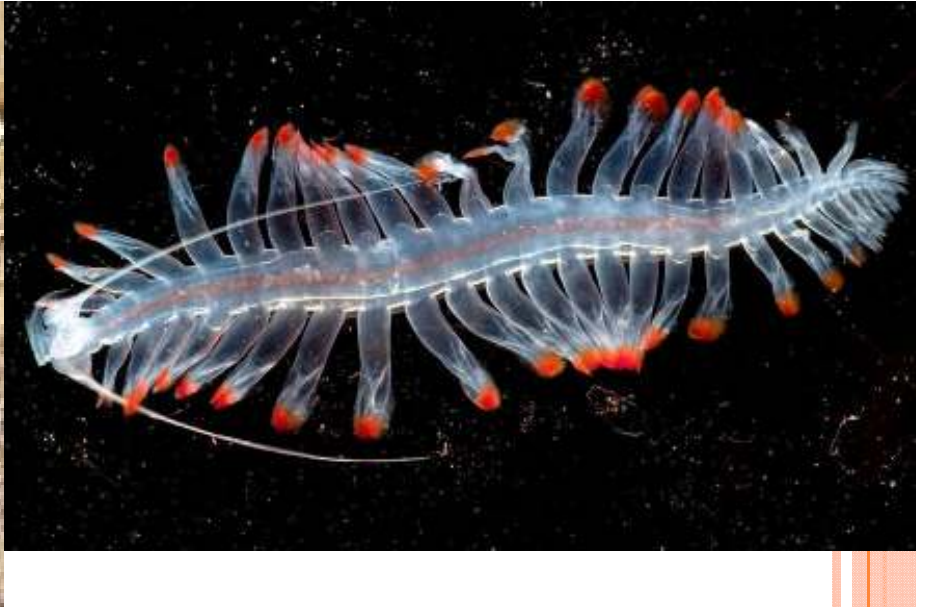


## CLASS POLYCHAETA

- Polychaetes are marine worms
  - Fan worms, feather worms, tube worms, bristle worms, clam worms
- Live on the ocean floor
  - Under rocks and sand burrows
- Heads have sensory structures
  - Eyes, antennae, palps
  - Parapodia
- Some can regenerate















## CLASS CLITELLATA

o Earthworms, leeches and their friends

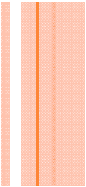


# EARTHWORMS

- Scavengers that eat dead vegetation
- Burrowers

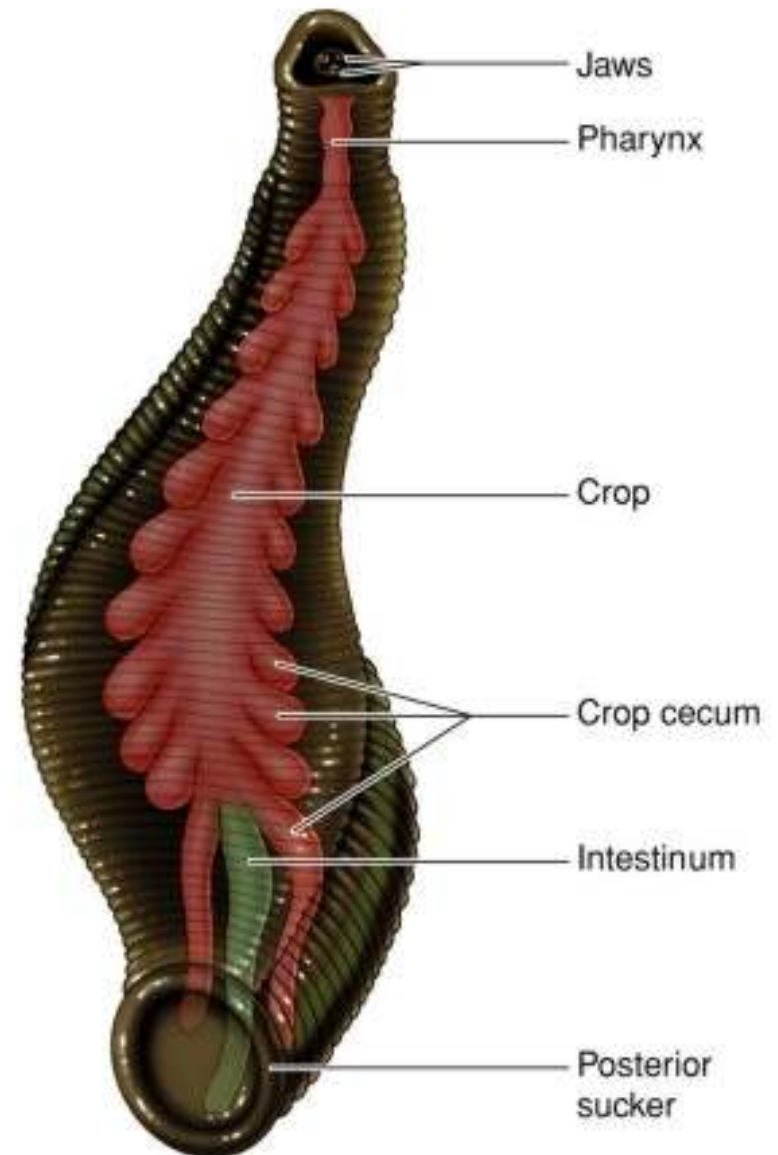






## LEECHES

- Eat invertebrates or vertebrate body fluids
- No internal segments
- Ends modified into suckers
  - Secrete hirudin as anticoagulant
  - One feeding lasts months
  - Increases 2- 10 times original size
  - Medicinal use





## TIME TO INVESTIGATE

- Choose one of the following leads and research the topic. Write a summary that gives the details of what you learned and mention why it is cool/interesting to you.
- Giant Earthworms
- Medicinal leeches and their rising use
- Giant tube worms
- Christmas tree worms
- The benefits of earthworms to the soil



## VIDEO LIST

- Shape of Life Overview: <http://shapeoflife.org/annelid>
- Tube worms: <http://www.arkive.org/giant-tube-worm/riftia-pachyptila/video-00.html>
- [http://www.bbc.co.uk/nature/life/Giant\\_tube\\_worm](http://www.bbc.co.uk/nature/life/Giant_tube_worm)
- Feather worms – aquarium  
<http://www.youtube.com/watch?v=kIoN2PCvL4o>
- Bristle worm:
- Plume Worm:  
[http://video.nationalgeographic.com/video/animals/invertebrates-animals/other-invertebrates/worm\\_plumed/](http://video.nationalgeographic.com/video/animals/invertebrates-animals/other-invertebrates/worm_plumed/)
- Terebellid Worm  
[http://video.nationalgeographic.com/video/animals/invertebrates-animals/other-invertebrates/worm\\_terebellid/](http://video.nationalgeographic.com/video/animals/invertebrates-animals/other-invertebrates/worm_terebellid/)
- Leech moving, sucking: <http://www.arkive.org/medicinal-leech/hirudo-medicinalis/video-00.html>
- Earthworms: Leafy Lunch  
<http://www.bbc.co.uk/nature/life/Lumbricidae#p01jwh21>





