

Phylum Platyhelminthes

The flatworms

General characteristics of phylum Platyhelminthes

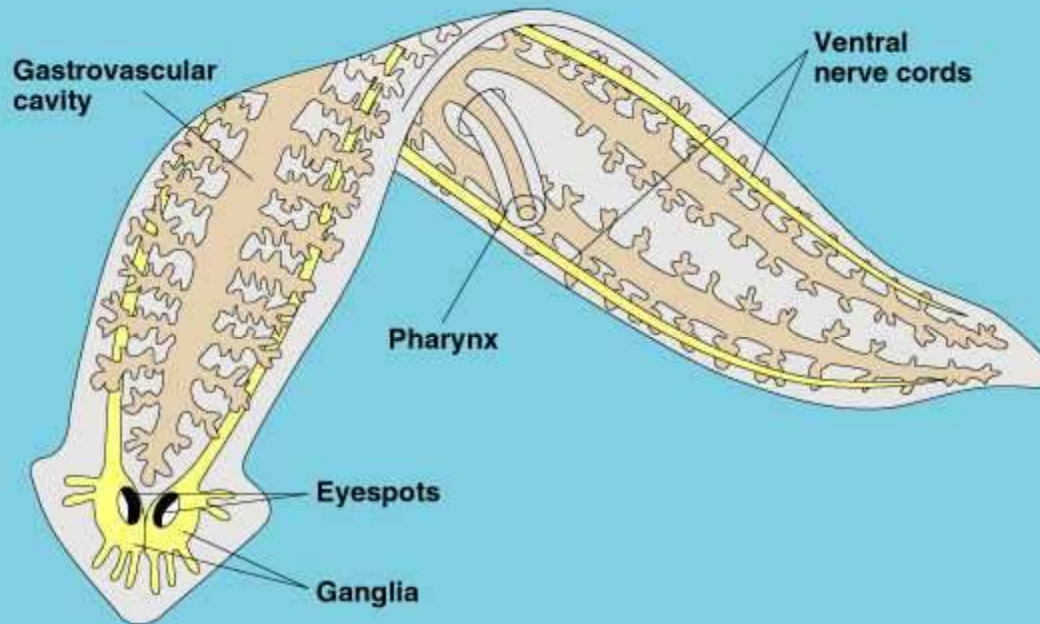
1. Bilateral symmetry
2. Flattened dorsoventrally
3. Tissues, organs and organ systems
4. Acoelomate
5. Mostly monoecious
6. Can be free living and parasitic

Fun Facts!

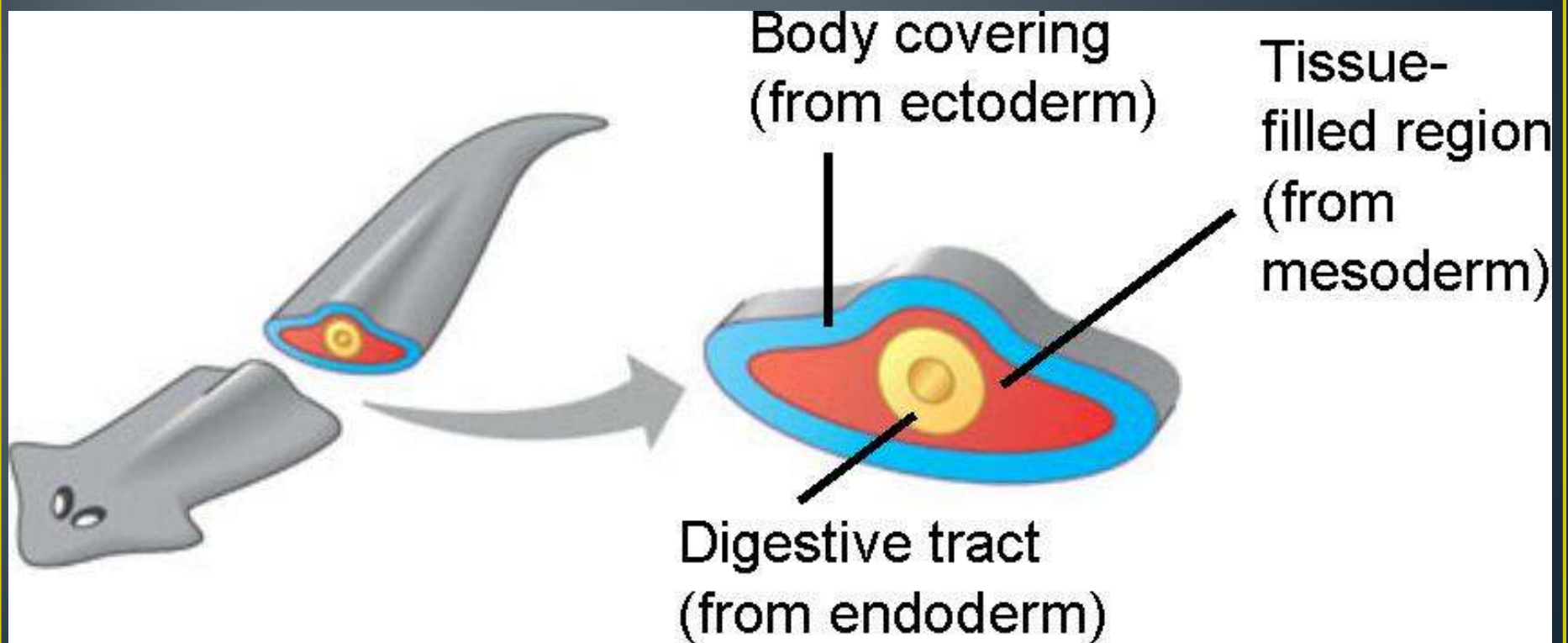
- Platyhelminthes- 20,000 species

Body Structure

- Basic cephalization
 - Mouth on ventral side
 - Anterior and posterior ends
- Acoelomate - no body cavity
- 3 layers of tissue: ectoderm, mesoderm, endoderm
- Have muscular system

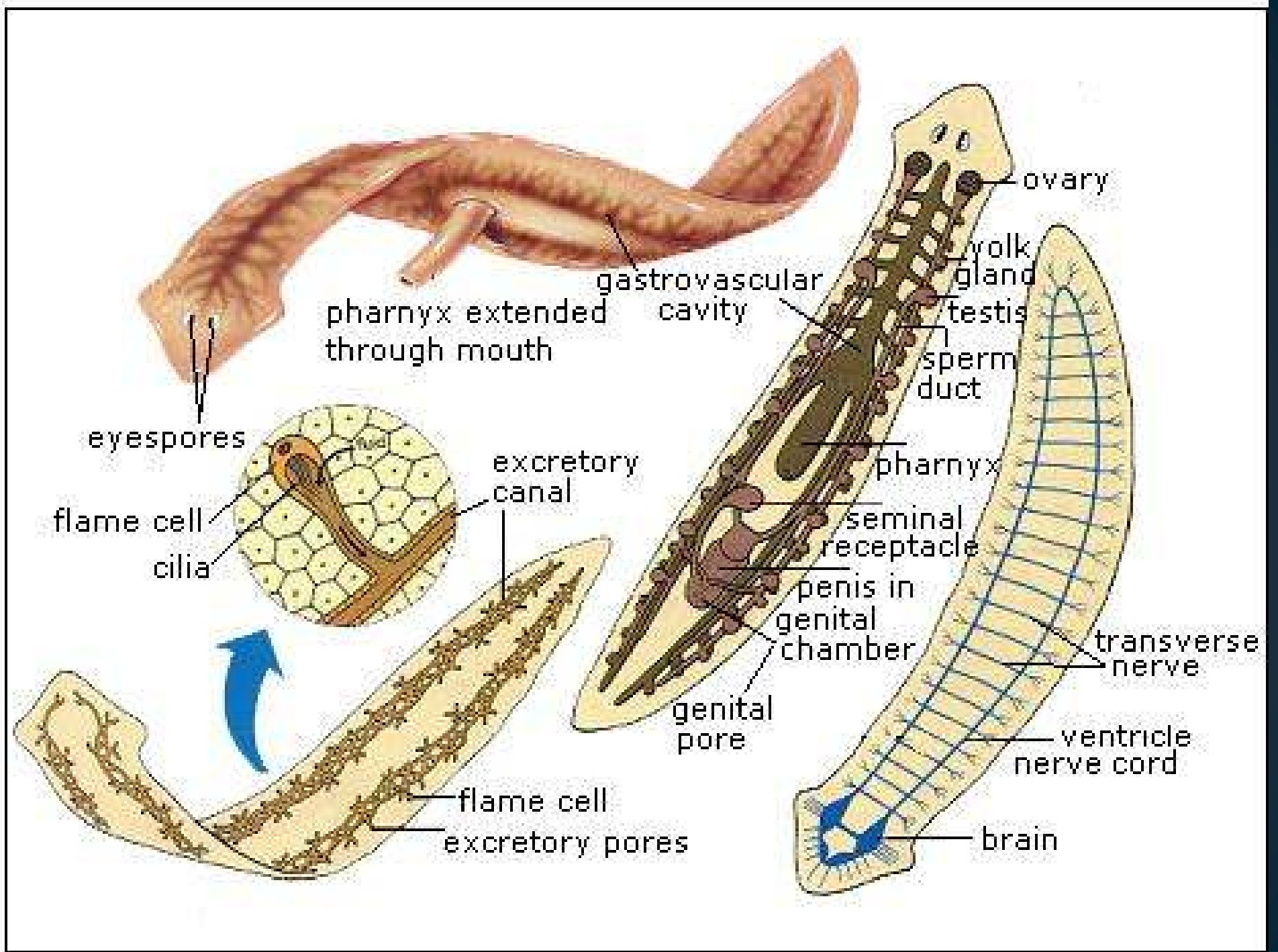


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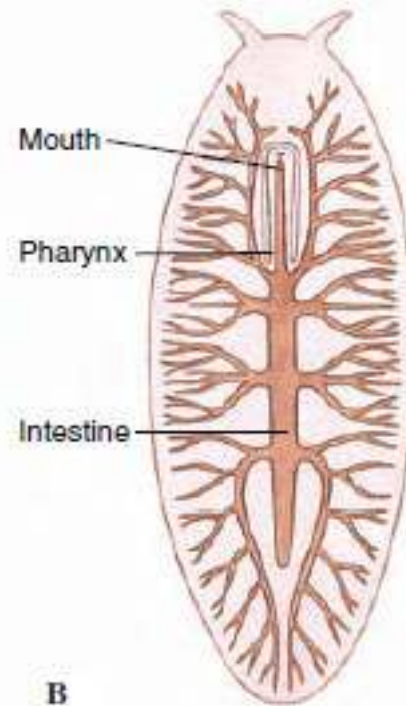
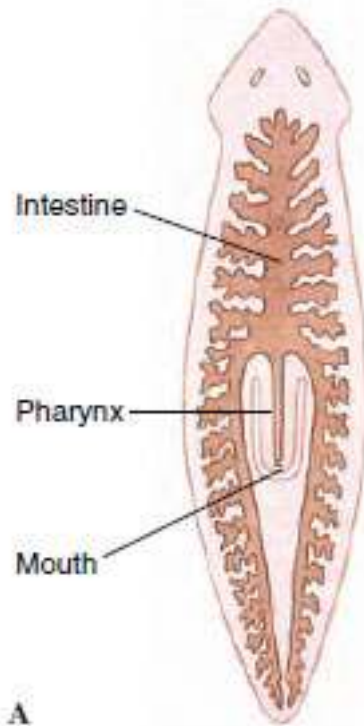
Feeding and Digestion

- Free-living worms are carnivores or scavengers
 - Digestive cavity has one opening
- Muscular pharynx extends from the mouth for feeding
 - Branching gastrovascular cavity
 - Extracellular digestion
 - Hammerhead feeding
 - <http://www.youtube.com/watch?v=zE84U4ctSLY>
 - Flatworm steals daphnia
 - http://www.youtube.com/watch?v=Yk7_O11kS-4
 - Feeding and Regurgitation
 - http://www.youtube.com/watch?v=rUq_H9qHj0A





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Feeding and Digestion

- Parasitic worms feed on blood or tissues
- Reduced digestive systems



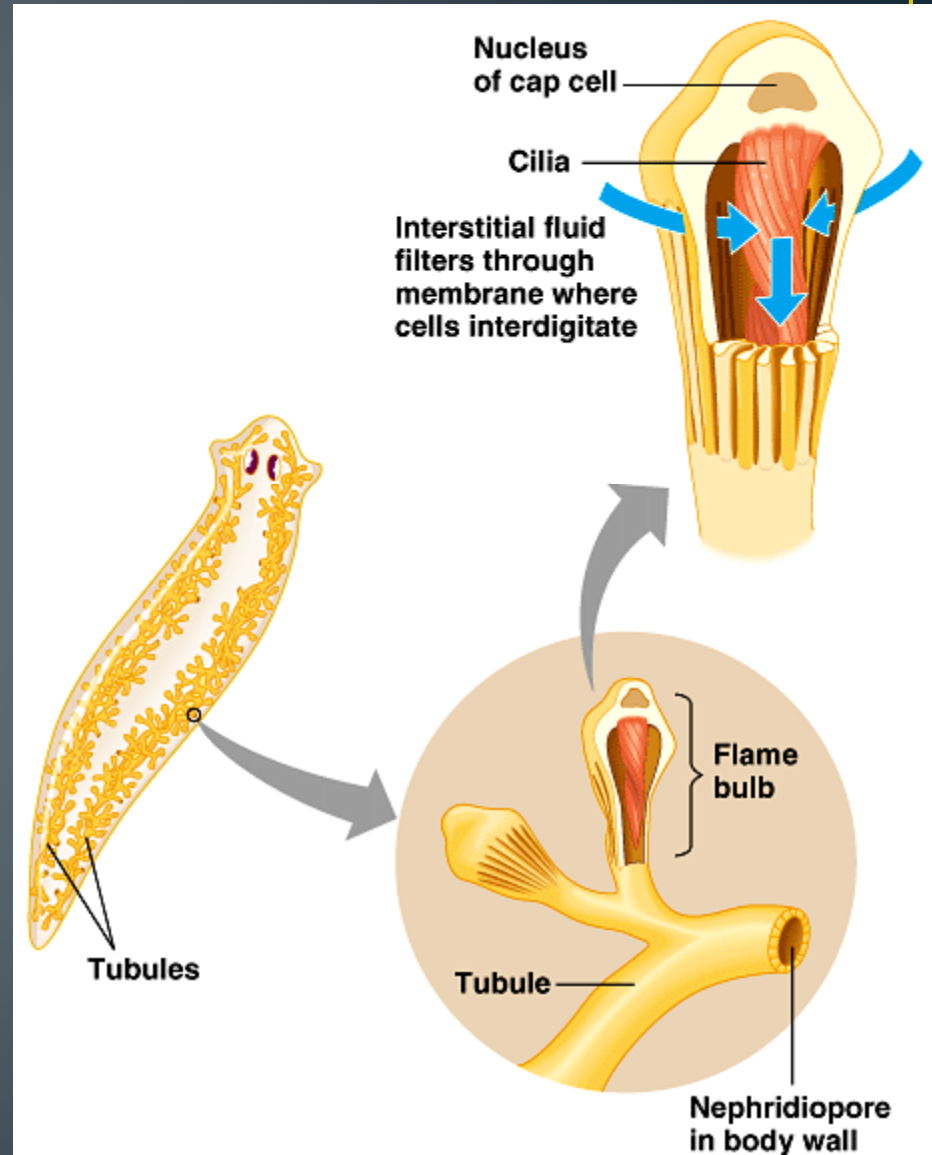
Respiration and Circulation

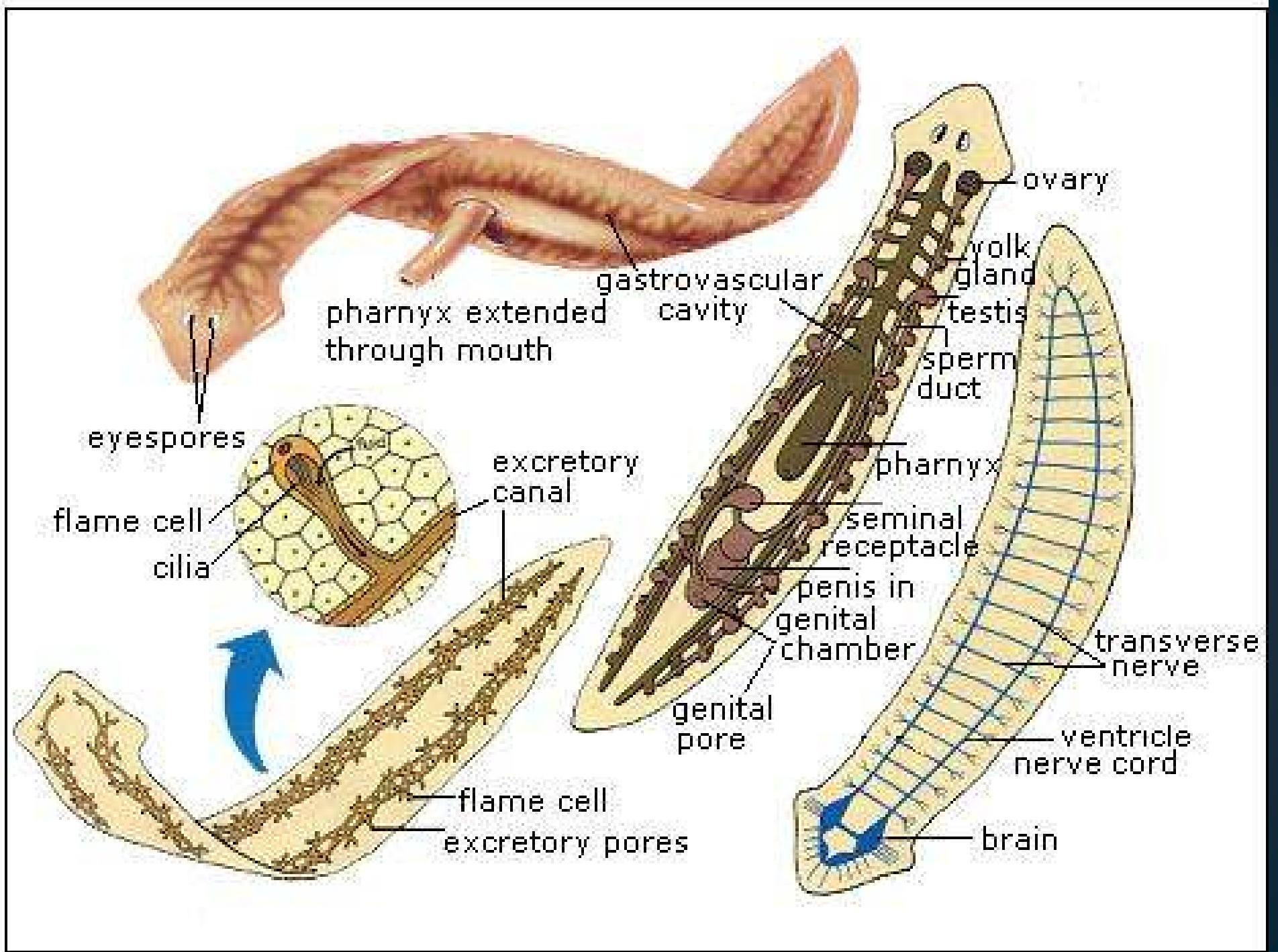
- Small flat bodies rely on diffusion
 - O_2 and CO_2
 - All cells are close to the surface



Excretion

- Excretory system
 - Flame cells and tubules
- Whipping cilia creates current
 - Removes waste

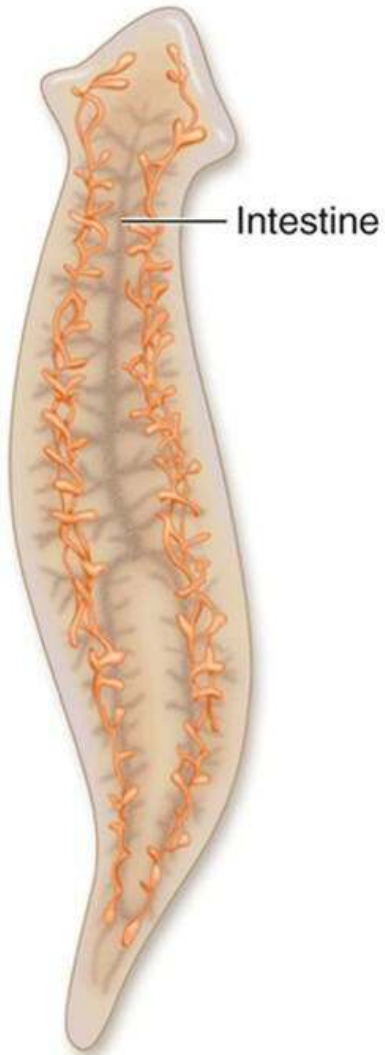




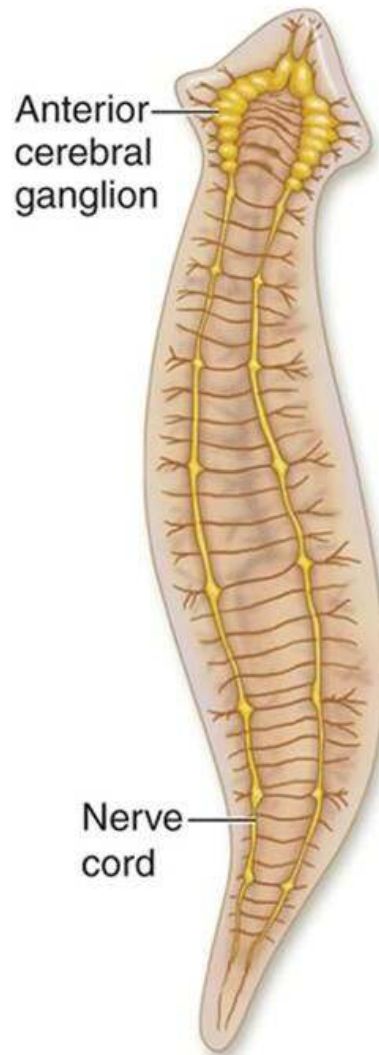
Response

- Have nervous system
 - Cerebral ganglia
 - Nerve cords and nerve net

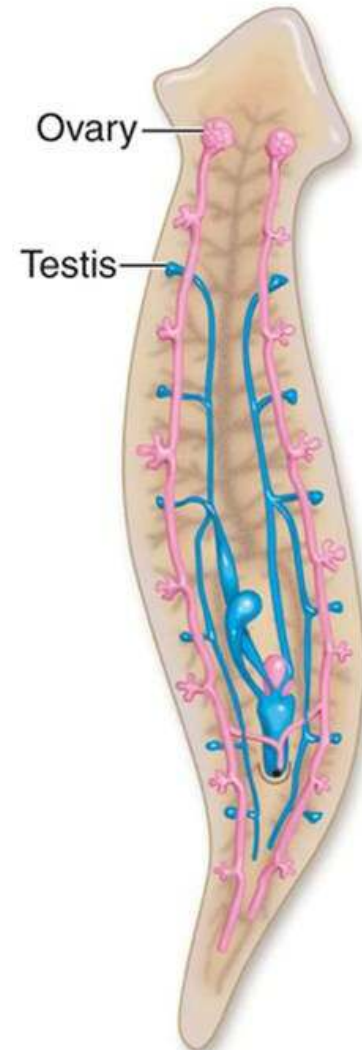
Excretory System



Nervous System

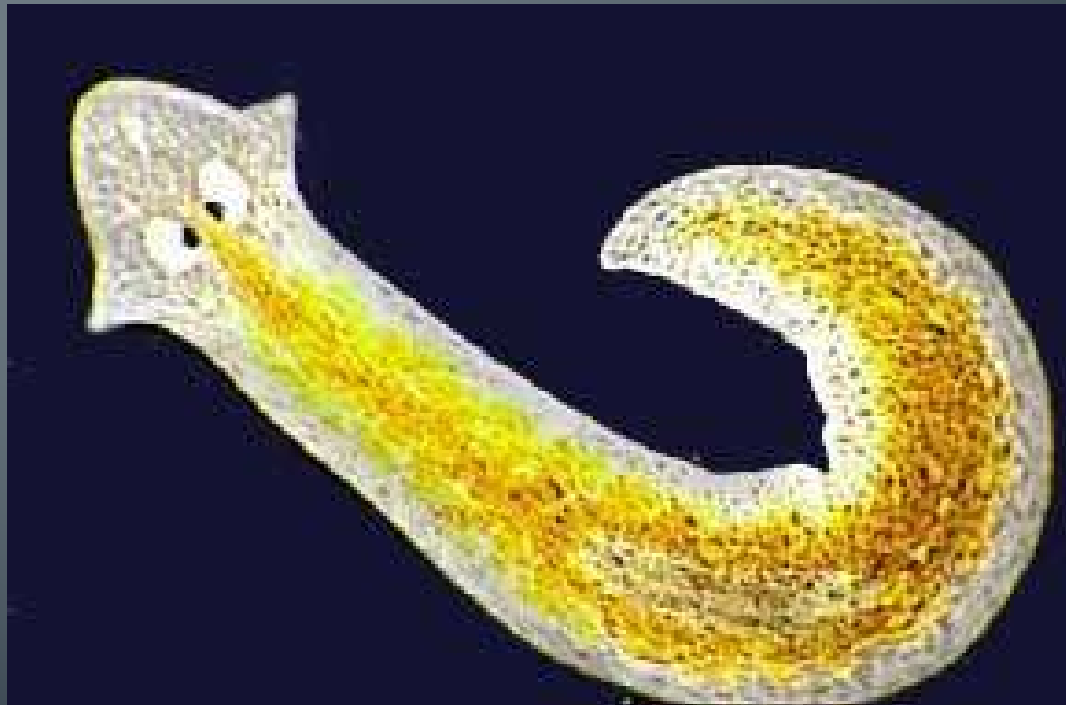


Reproductive System



Sensory Organs

- Eyespots (ocelli) sense light
- Auricles contain sensory cells
 - Sense chemical, touch and water current



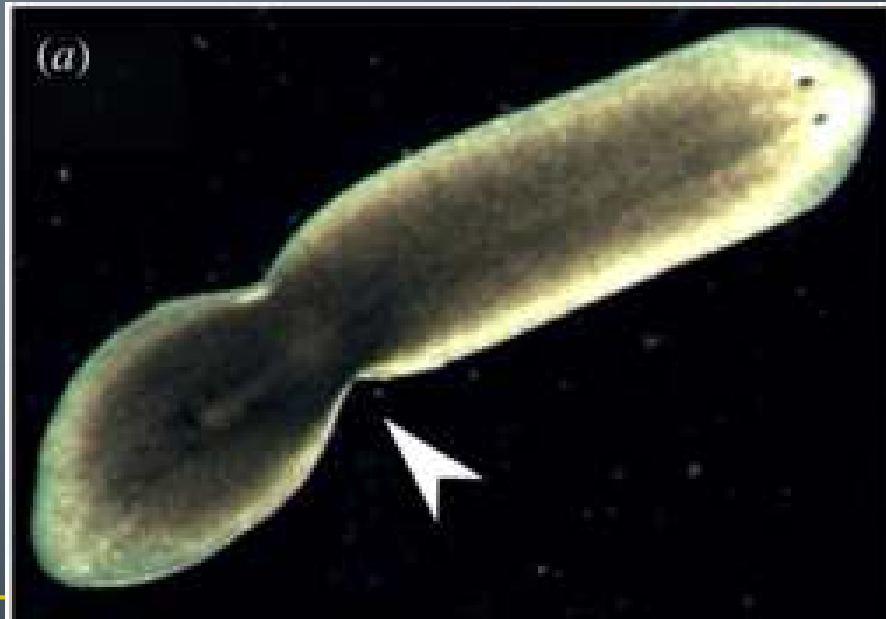
Movement

- Some secrete a mucus track, then use cilia to move them along
- Larger worms move by muscular contraction

- Leopard Flatworm
- http://www.youtube.com/watch?v=zCH37KI_R_E
- Flatworm landing
- <http://www.youtube.com/watch?v=7UkZHDlujUc>

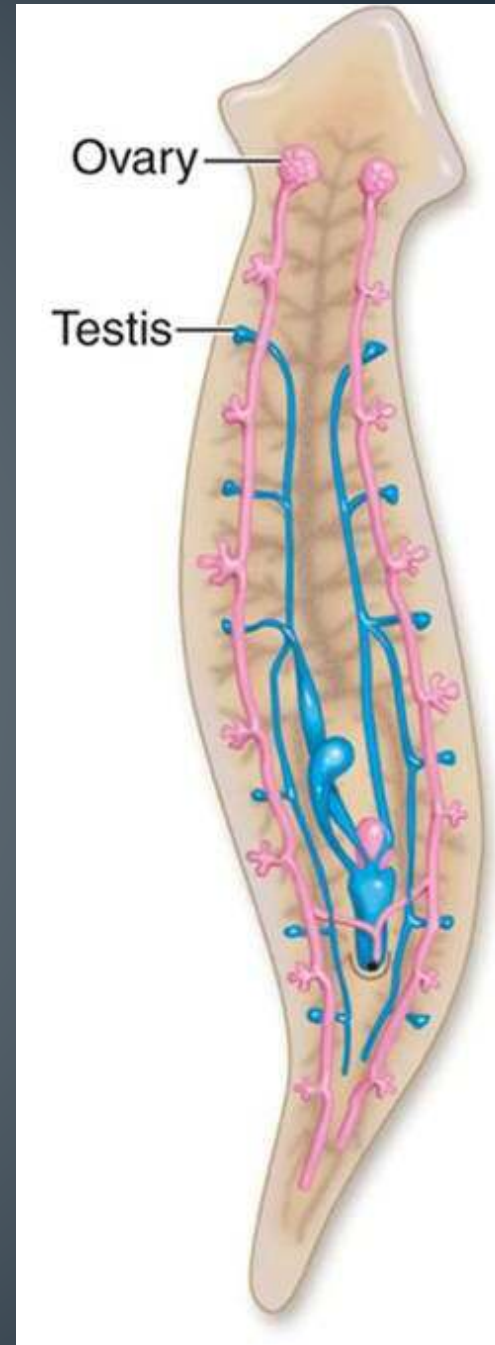
Reproduction and Regeneration

- Have reproductive system
- Asexual reproduction
 - Divide by transverse fission
 - Regeneration



Reproduction and Regeneration

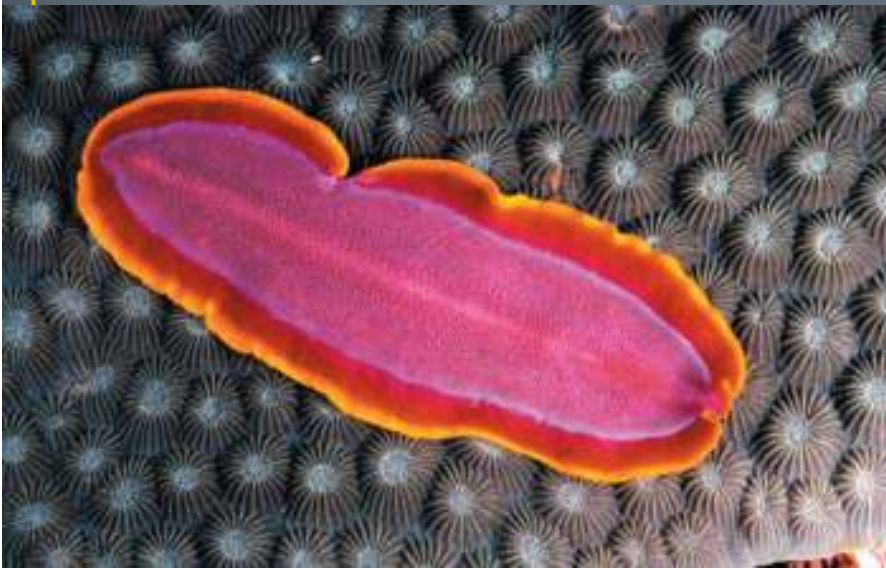
- Sexual reproduction
 - Monoecious - hermaphrodites
 - Individuals exchange sperm
 - Fertilization occurs and eggs are laid



Class Turbellaria

- Planarians
- Free-living: freshwater or marine
- 5mm-50 cm

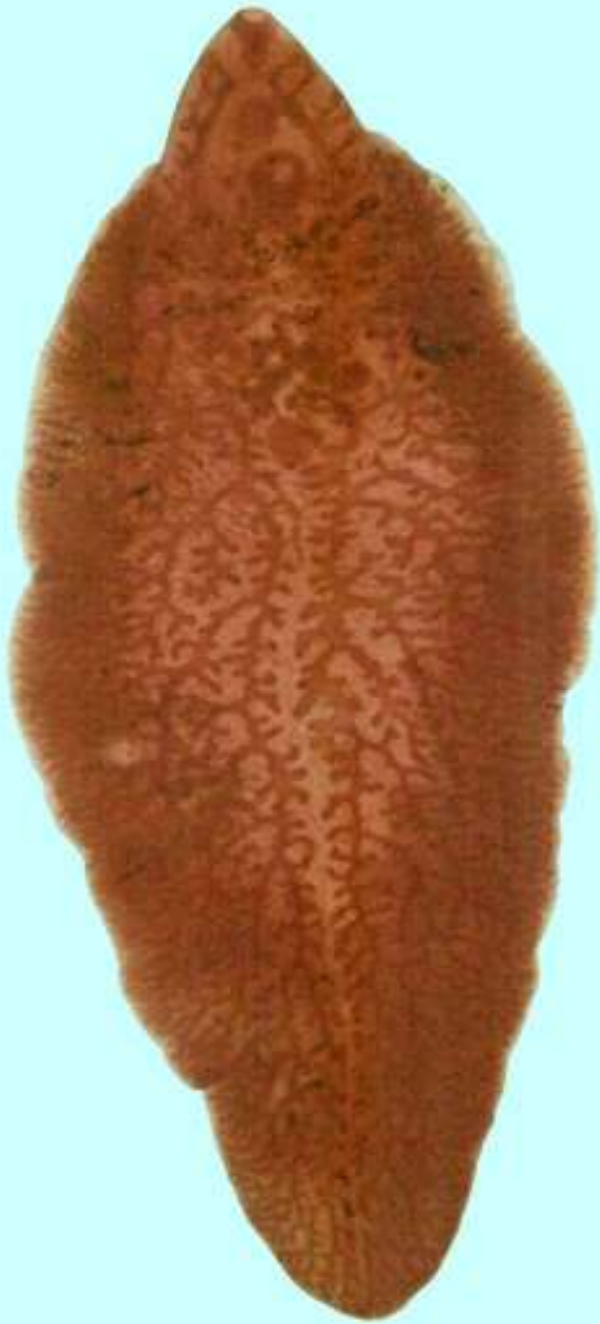






Class Trematoda

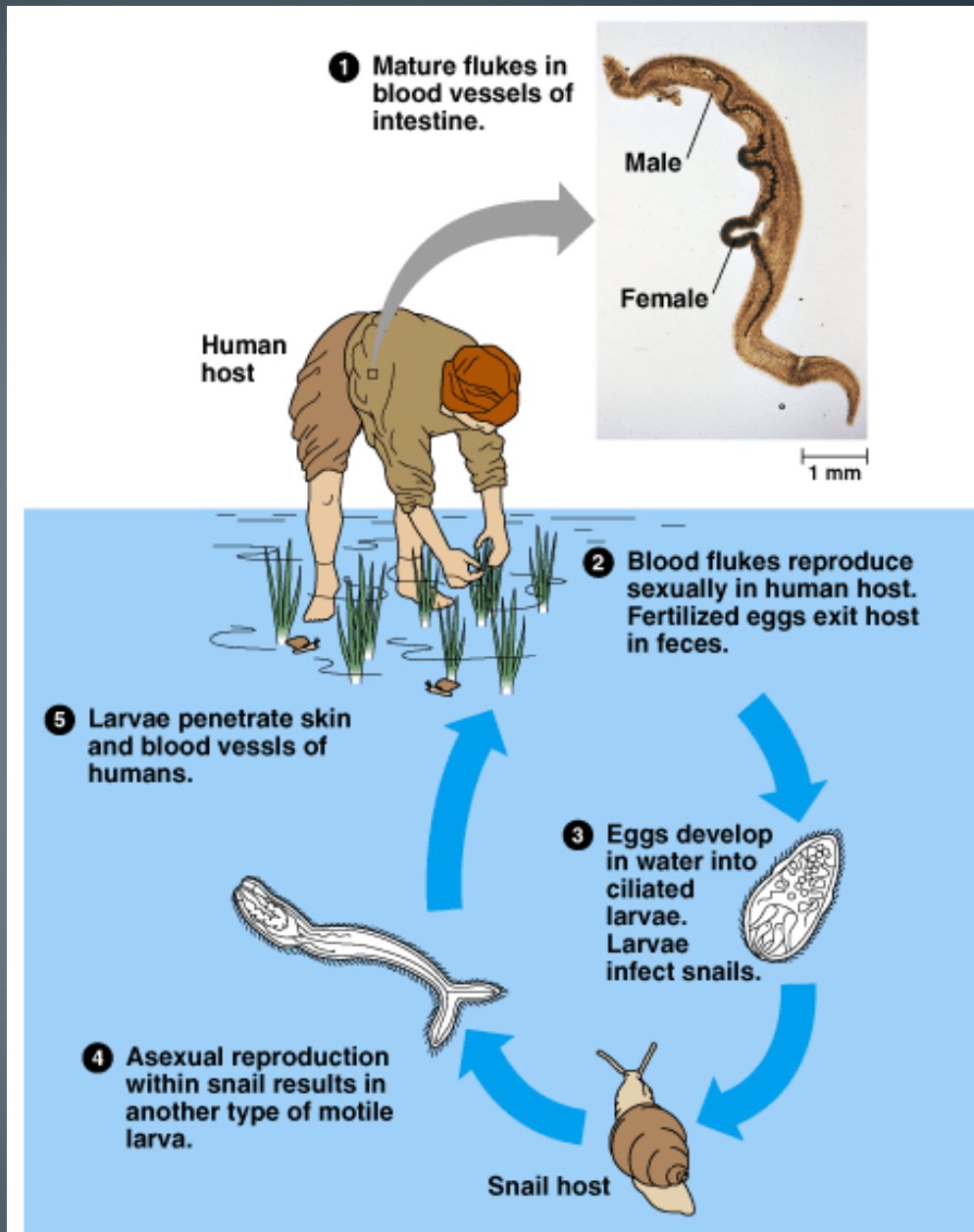
- Fluke worms
- Parasites- eat host cells
- Flat, oval bodies
 - 1 mm- 6 cm
- Attach to host using suckers
- Individuals live at least 2 different hosts
 - Most complex life cycles in animal kingdom





Important Flukes

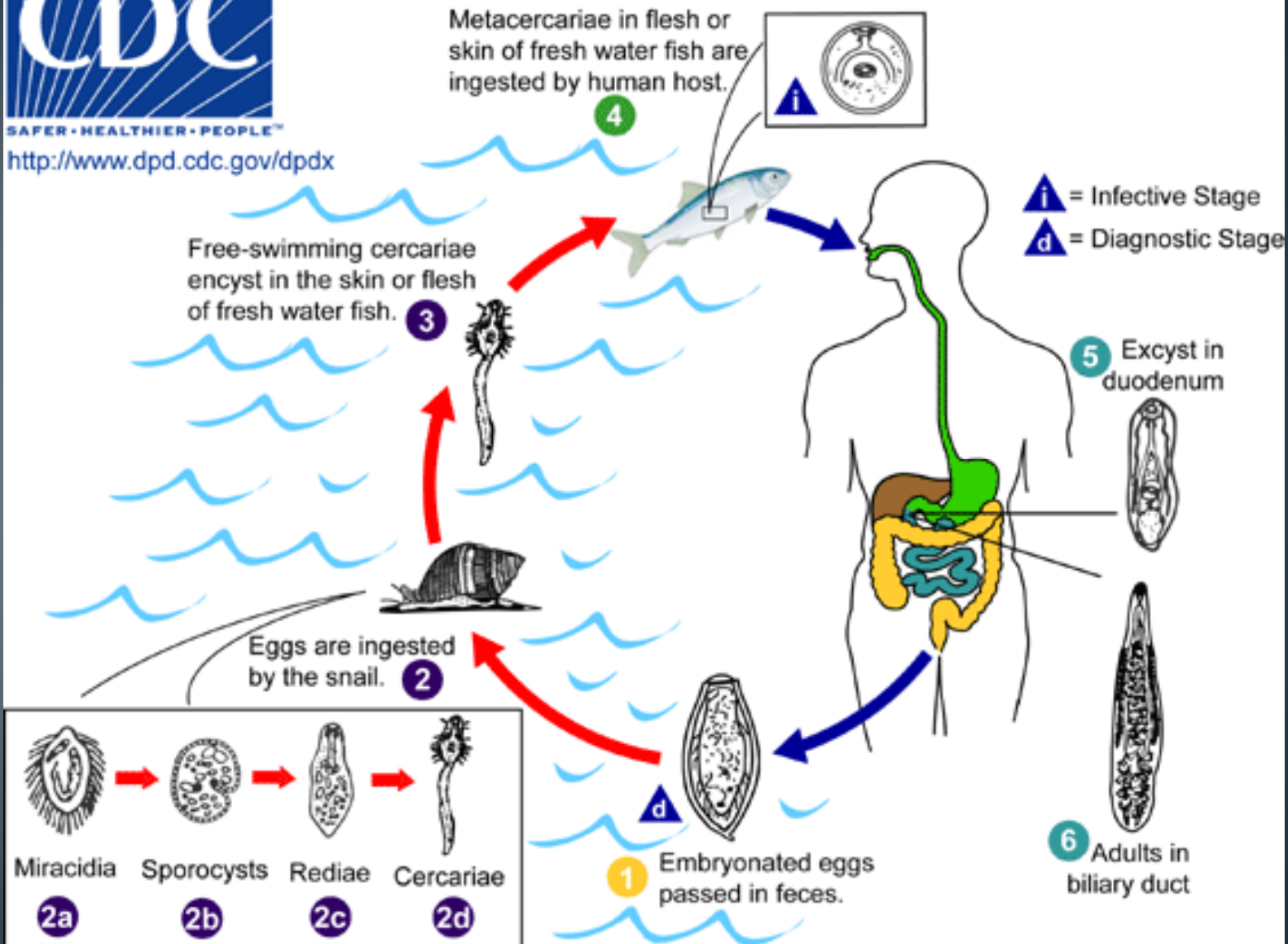
- Chinese Liver Fluke (*Clonorchis sinensis*)
- Sheep Liver Fluke (*Fasciola hepatica*)
- Blood Flukes (*Shistosoma* spp.)
- Lung Flukes
- Intestinal Flukes



CDC

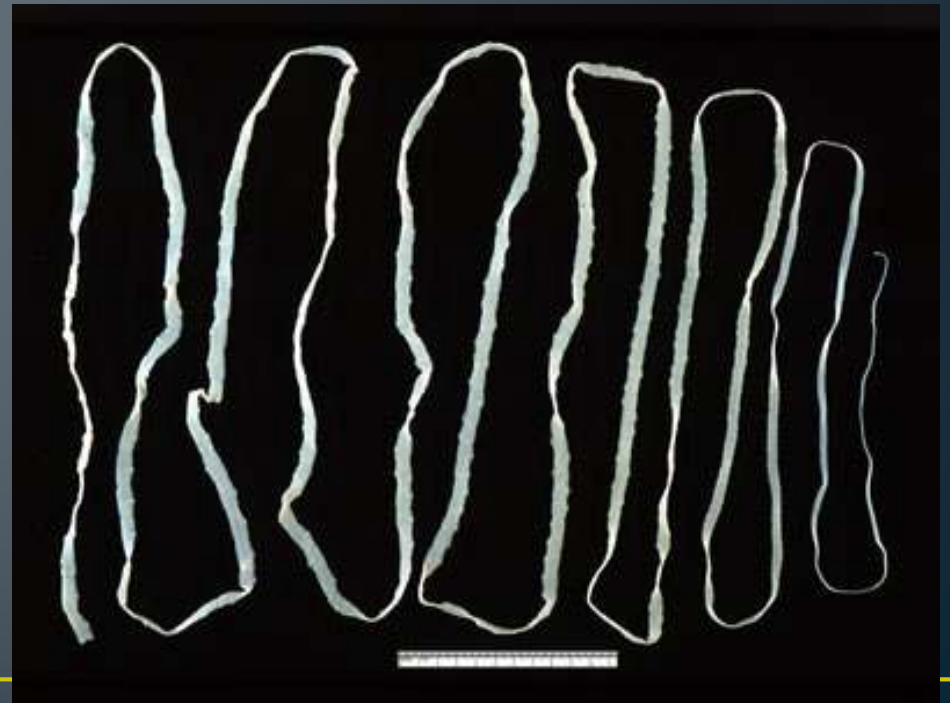
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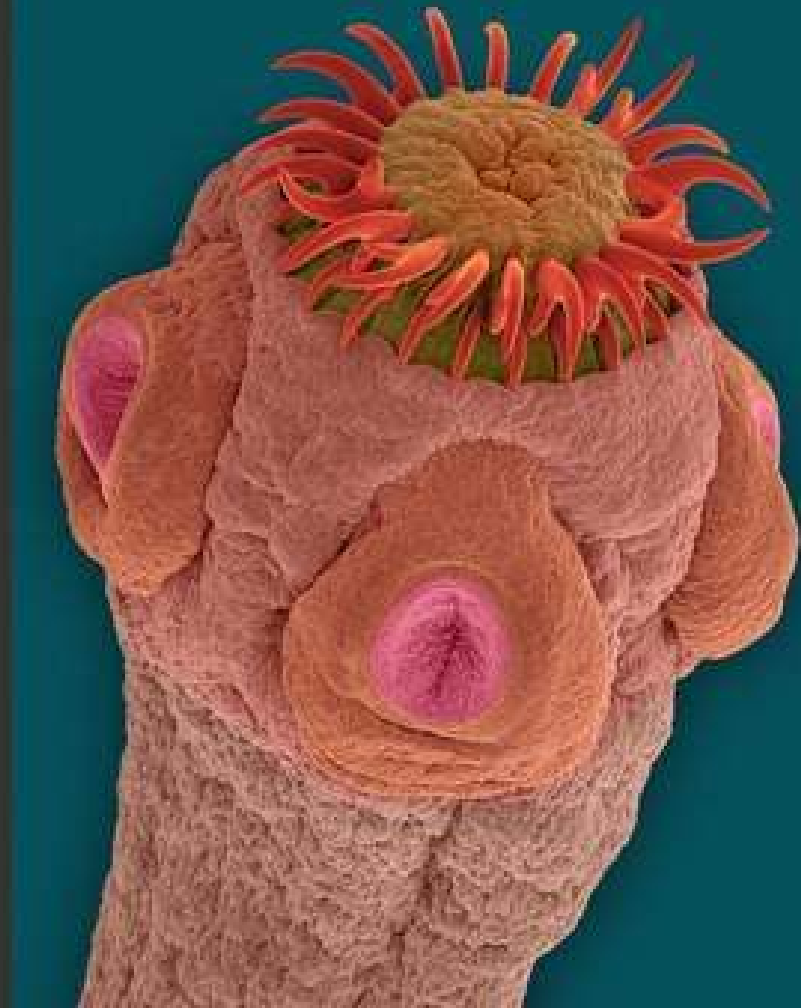
Class Cestoda

- Tapeworms
- Intestinal parasites
- Long, flattened bodies



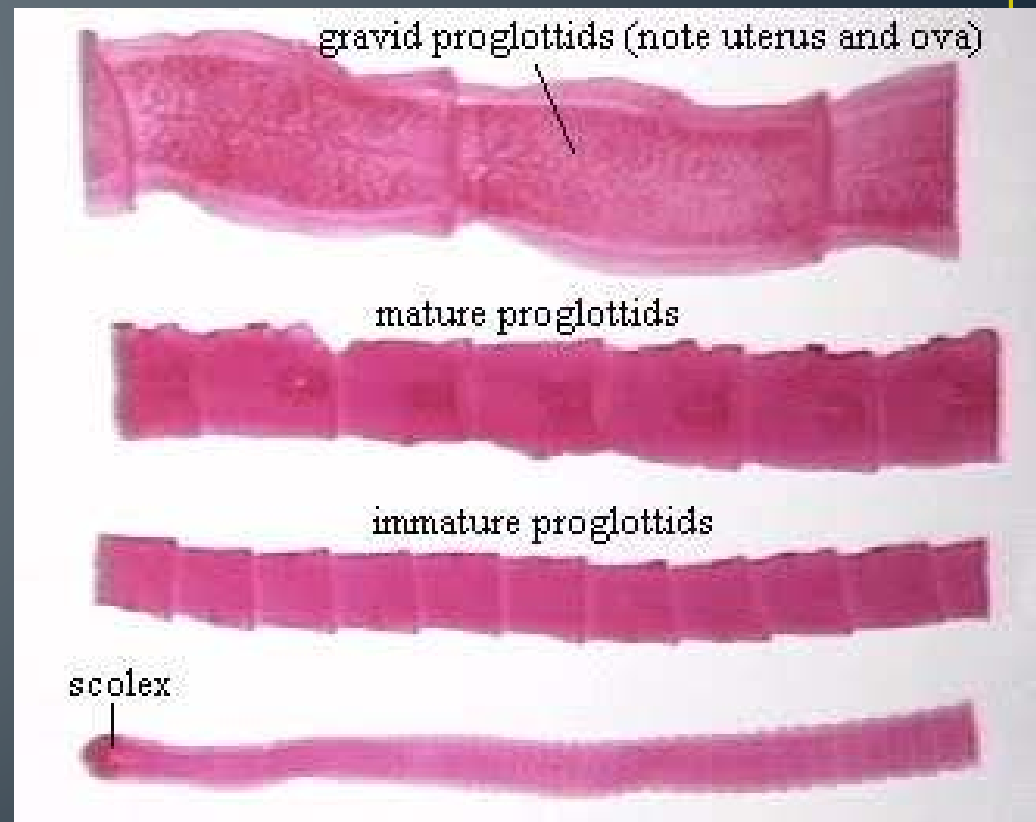
Class Cestoda

- Uses sucker(scolex) to attach to intestinal wall
 - No mouth
 - No digestive system



Body Form

- Body units called proglottids.
- Each produces eggs and breaks off when mature. Over 50,000 eggs



Important tapeworm species

- 3500 species
- Most vertebrate species have a corresponding tapeworm species
- Beef Tapeworm
- Pork Tapeworm
- Broad Fish Tapeworm

