Phylum Platyhelminthes - Flatworms

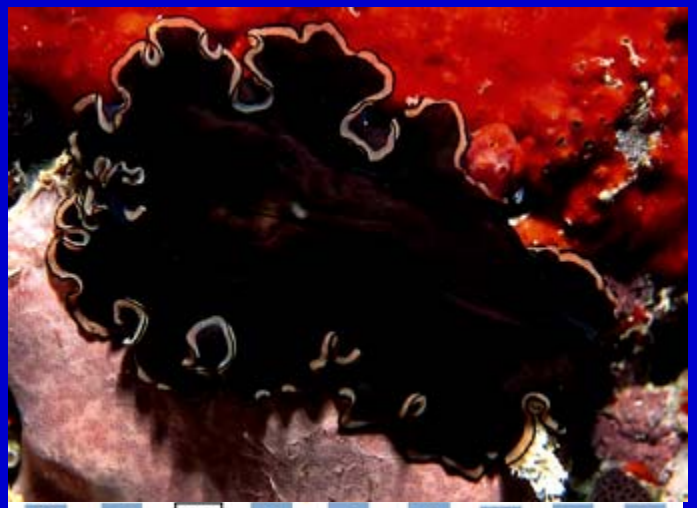
Dorsoventrally flattened bodies
- well defined head

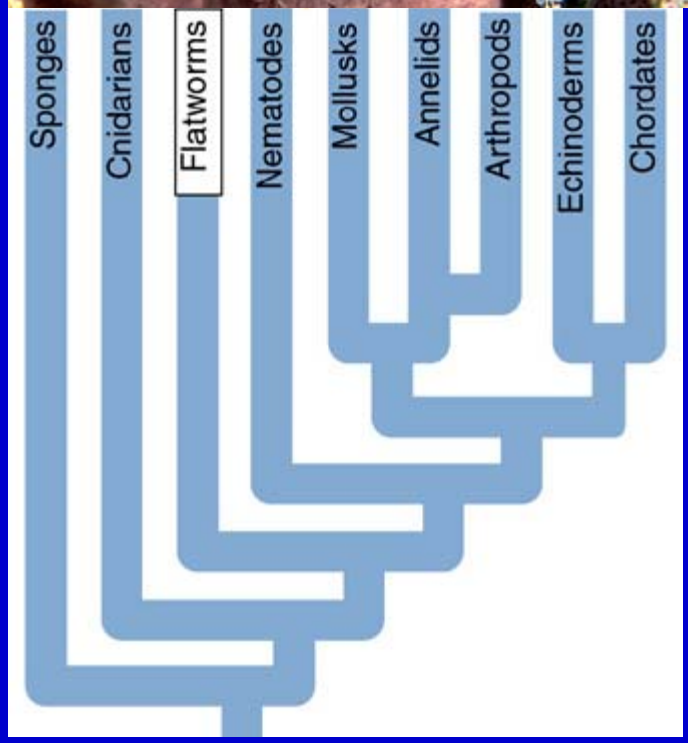
Bodies are solid (acoelomate)
- gut is the only internal cavity

Ribbon-shaped, soft-bodied

Many species are parasitic
- some are free-living carnivores or scavengers

Move via ciliated epithelial cells on lower surface and waves of contractions of body muscles





Organs

digestive system is branched with a single opening

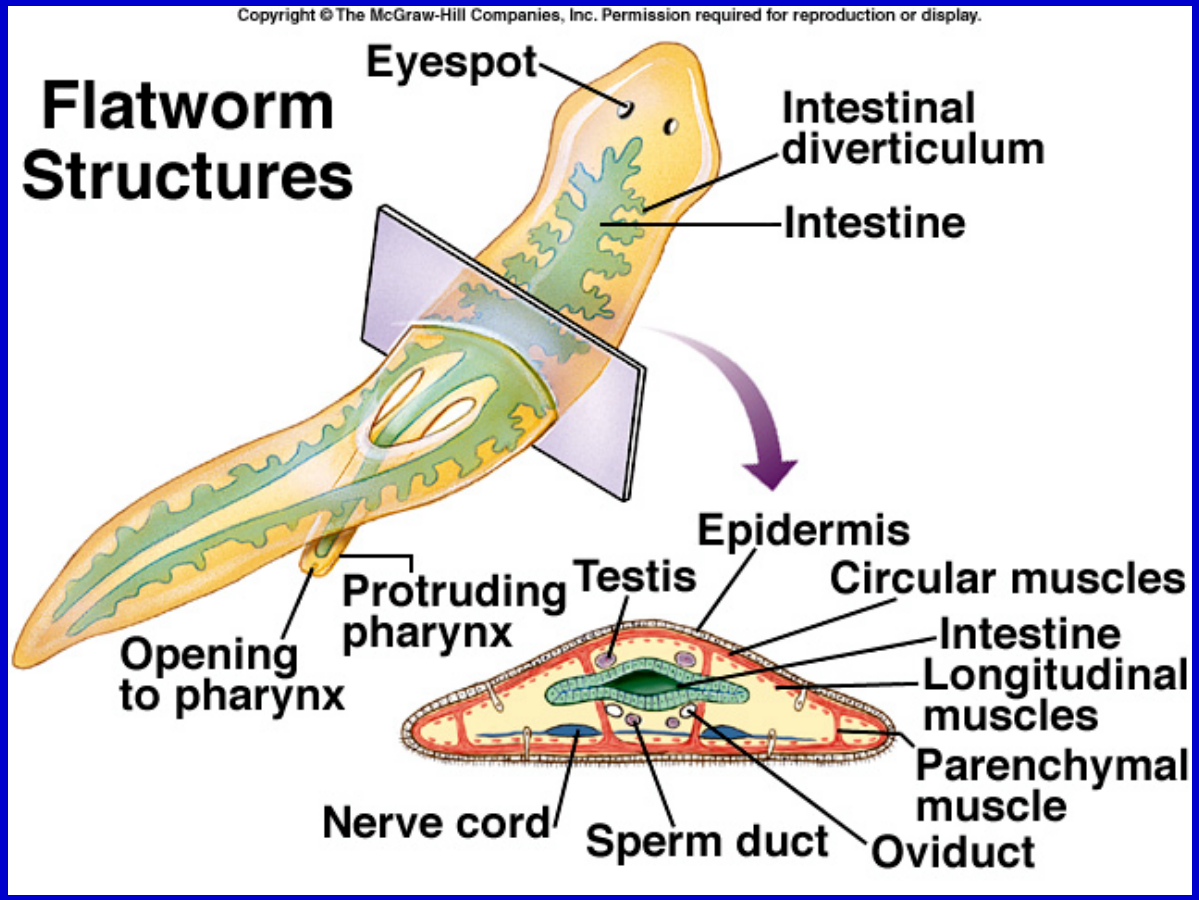
pharynx can be extended/retracted

internal enzymatic digestion, diverticula distribute food

Eye spots - cells in light sensitive cups

Simple nervous system with 2 ventral nerve cords, simple brain

Free living forms possess chemical sensory systems on lobes of head



Reproduction

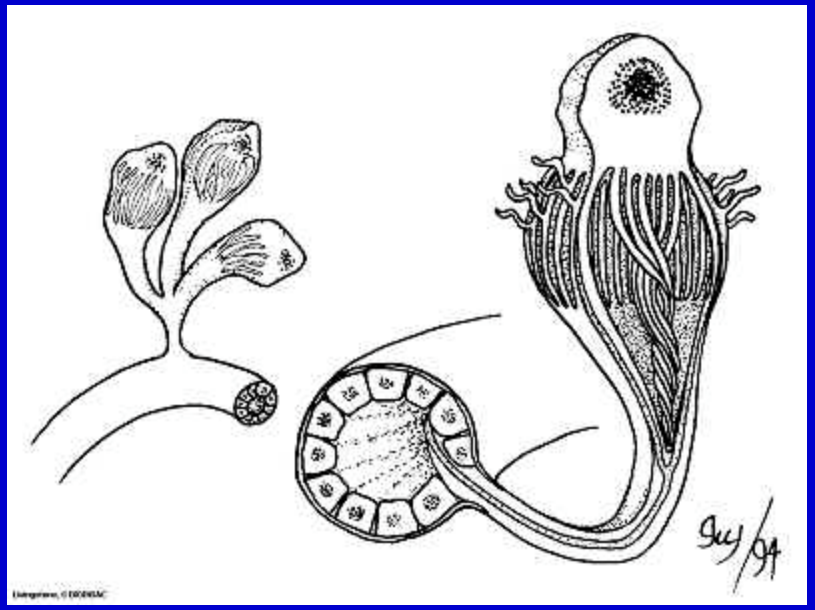
Most are hermaphroditic with internal fertilization and separate ovaries and testes

fertilized eggs deposited in cocoons, hatch into miniature adults

Can reproduce asexually by fragmentation and regeneration

No circulatory system, food and oxygen diffuse to tissues

Excretory system is simple - "flame cells" propel fluids through tubules to outside of body - primarily for ridding body of excess water

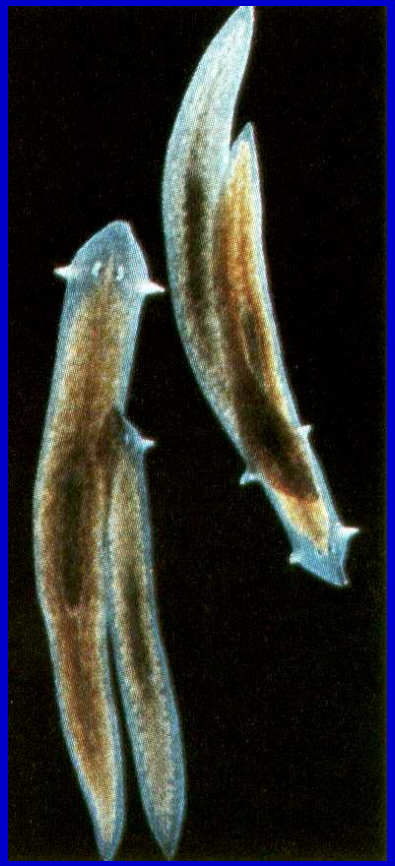


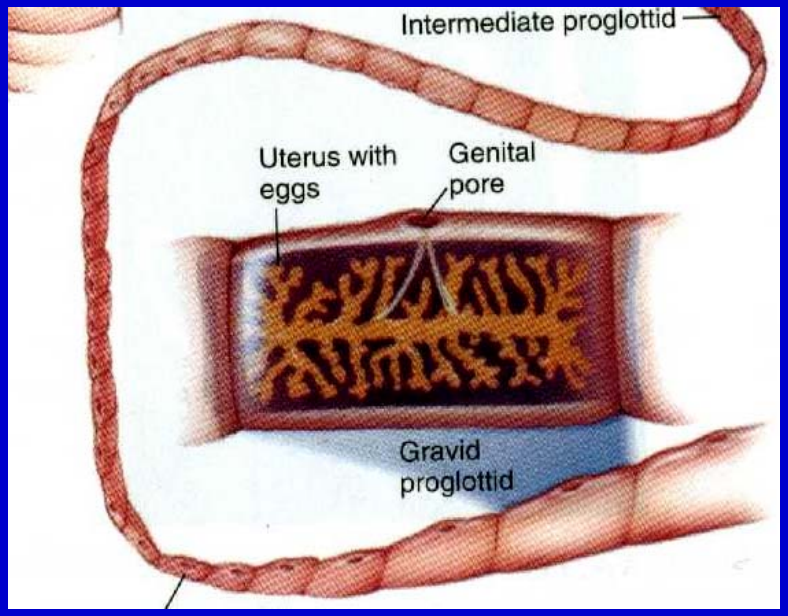
Three classes of flatworms

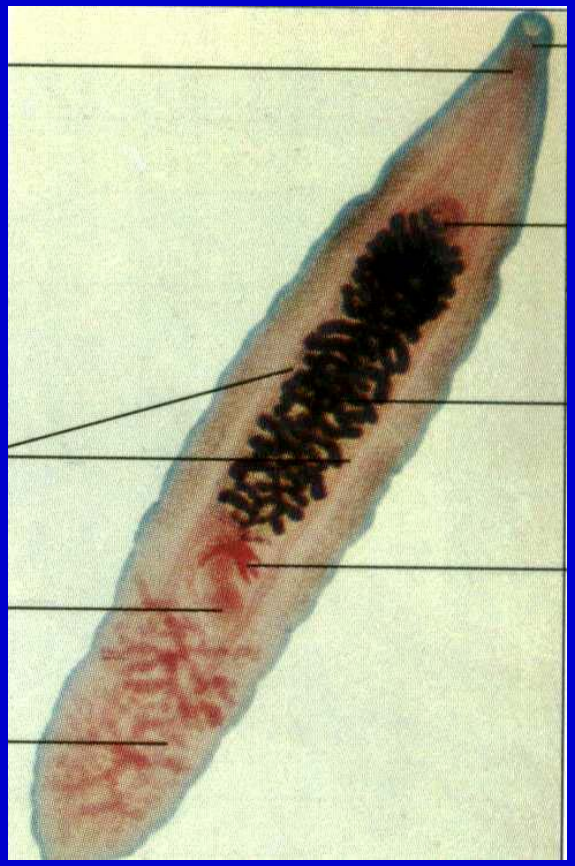
Class Turbellaria - free-living flatworms

Class Trematoda - flukes

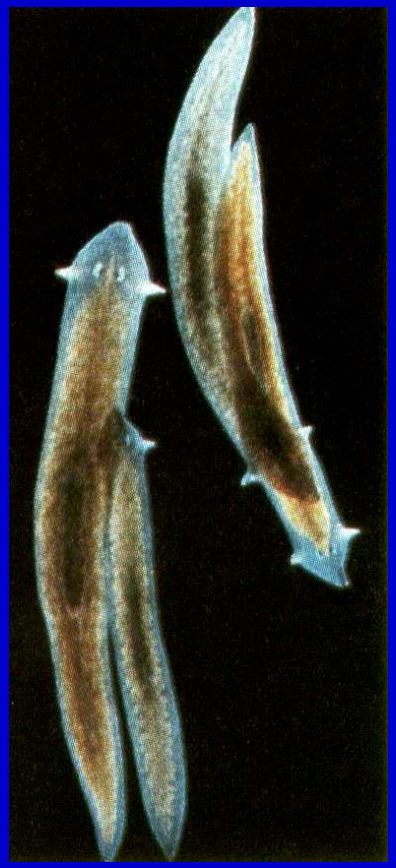
Class Cestoda - tapeworms



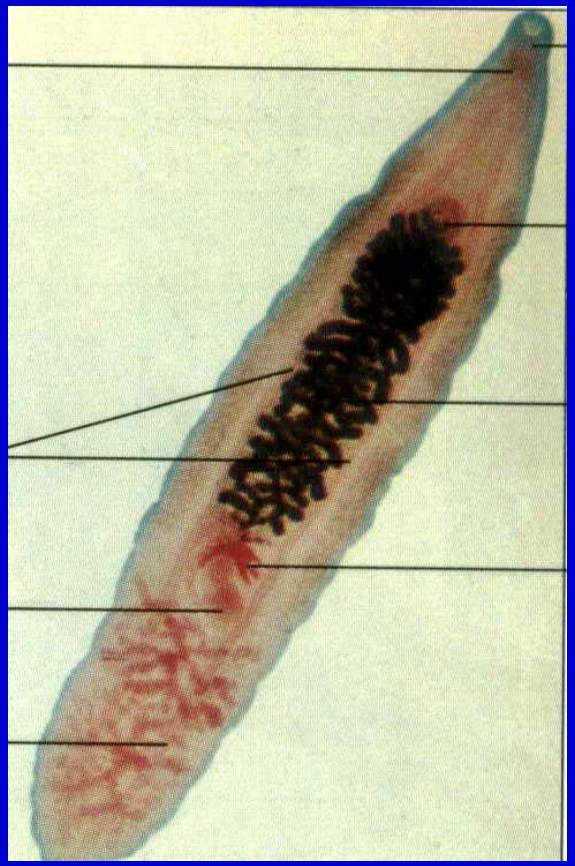




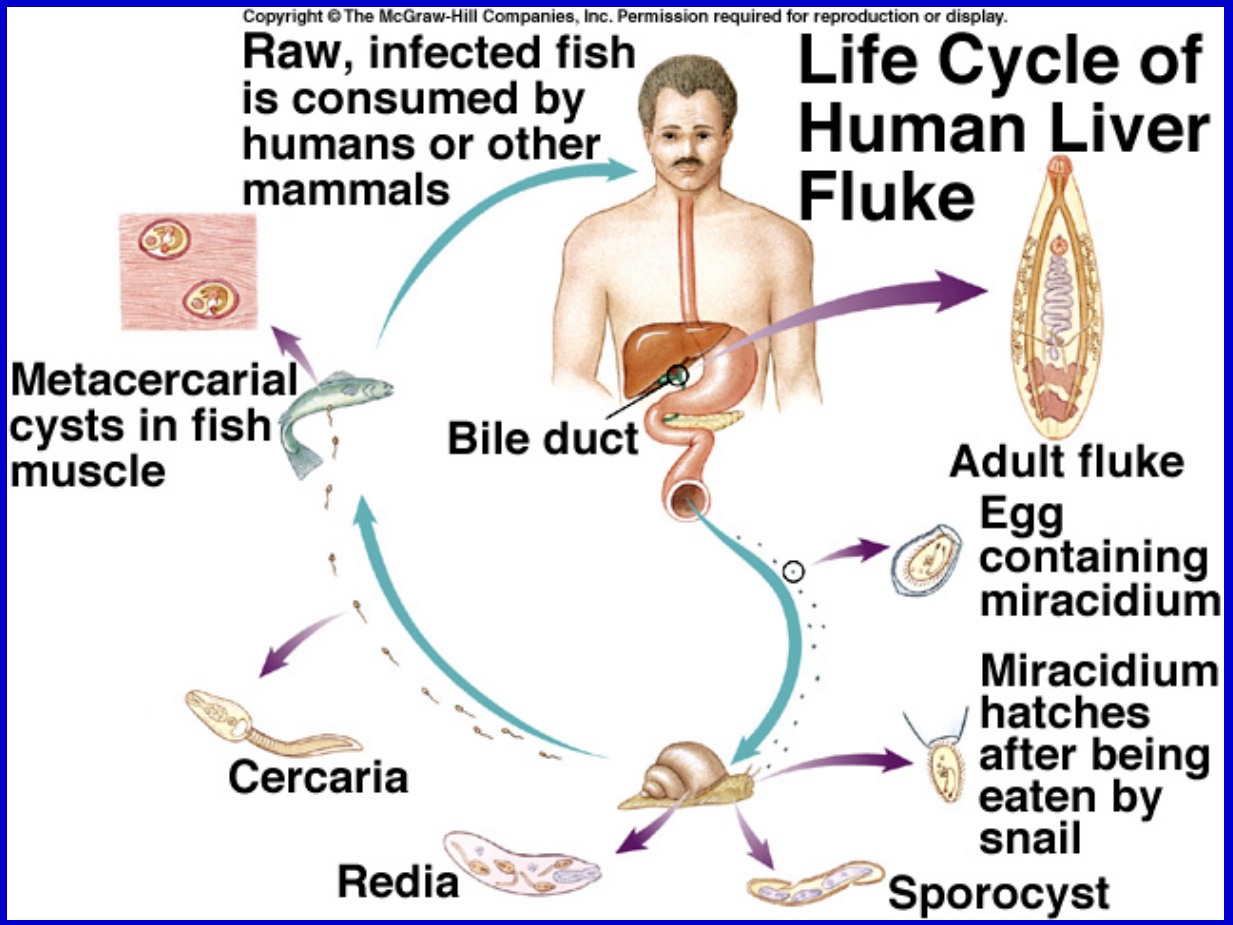
Class Turbellaria - Turbellarians, free-living flatworms
predators on smaller organisms, and scavengers
found in water and moist habitats
Dugesia, the common planarian



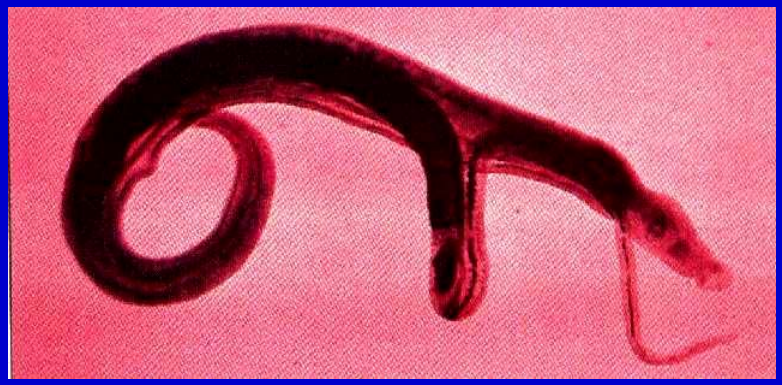
Class Trematoda - Flukes
Parasites on other animals
Name originates from their shape
Lack sensory and locomotive adaptations of free-living forms
feed on host tissue, food taken in through mouth, resistant to host defenses
Complex life cycles

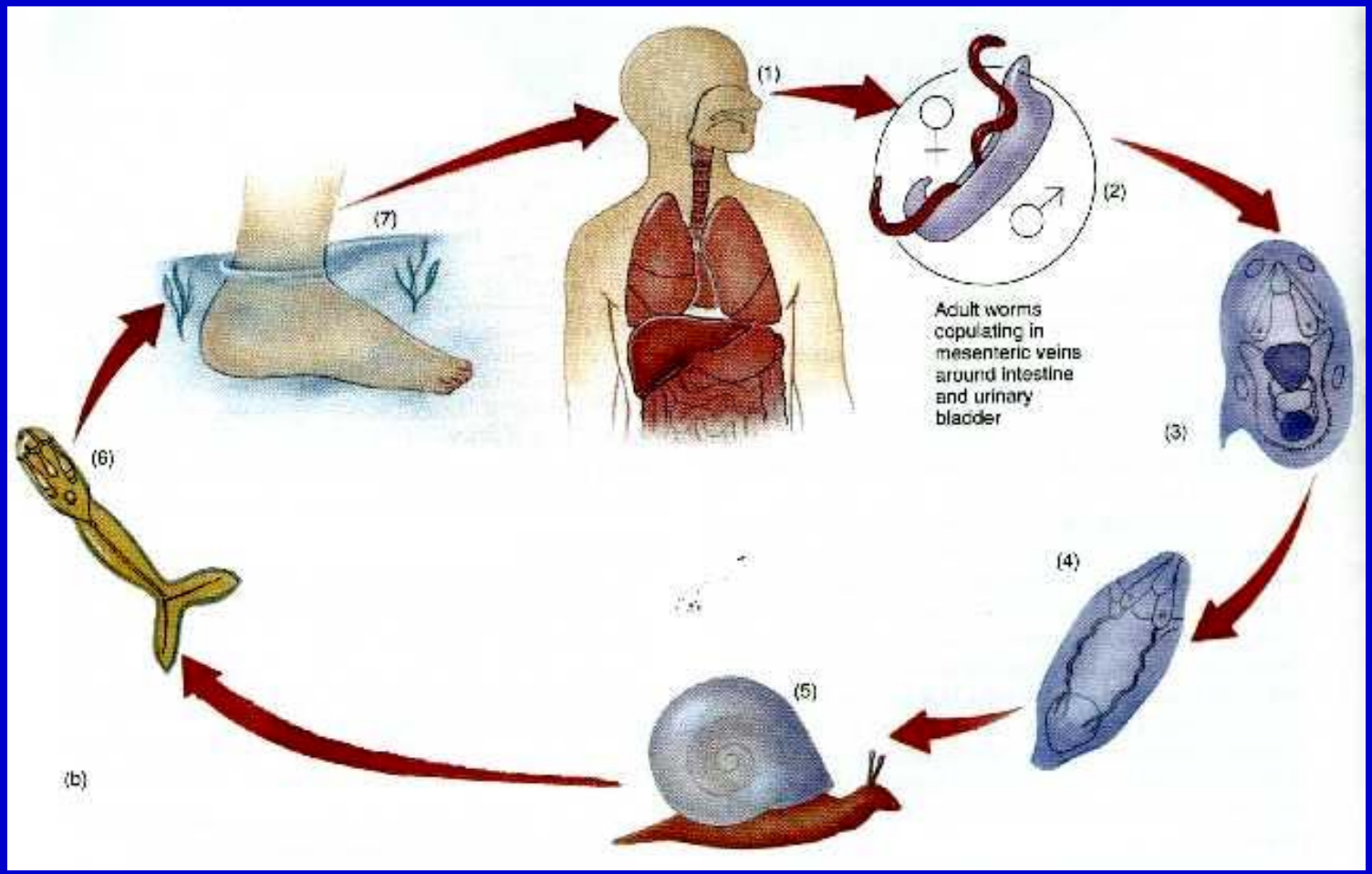


Example: *Clonorchis*, human liver fluke - Adults live in association with liver - Eggs passed in feces - Ingested by snail - transform into swimming larva that leaves snail - Nonciliated redia give rise to cercariae - Bore into fish, encyst in muscle - Humans eat uncooked fish, flukes migrate to liver



Example: Schistosoma blood flukes
Causes disease: schistosomiasis
"bilharzia" is spreading through the tropics





Class Cestoda - Tapeworms

Highly specialized parasites

Adults live in the gut of vertebrates attached to intestinal wall

Body divided into scolex, neck and reproductive proglottids (strobila)

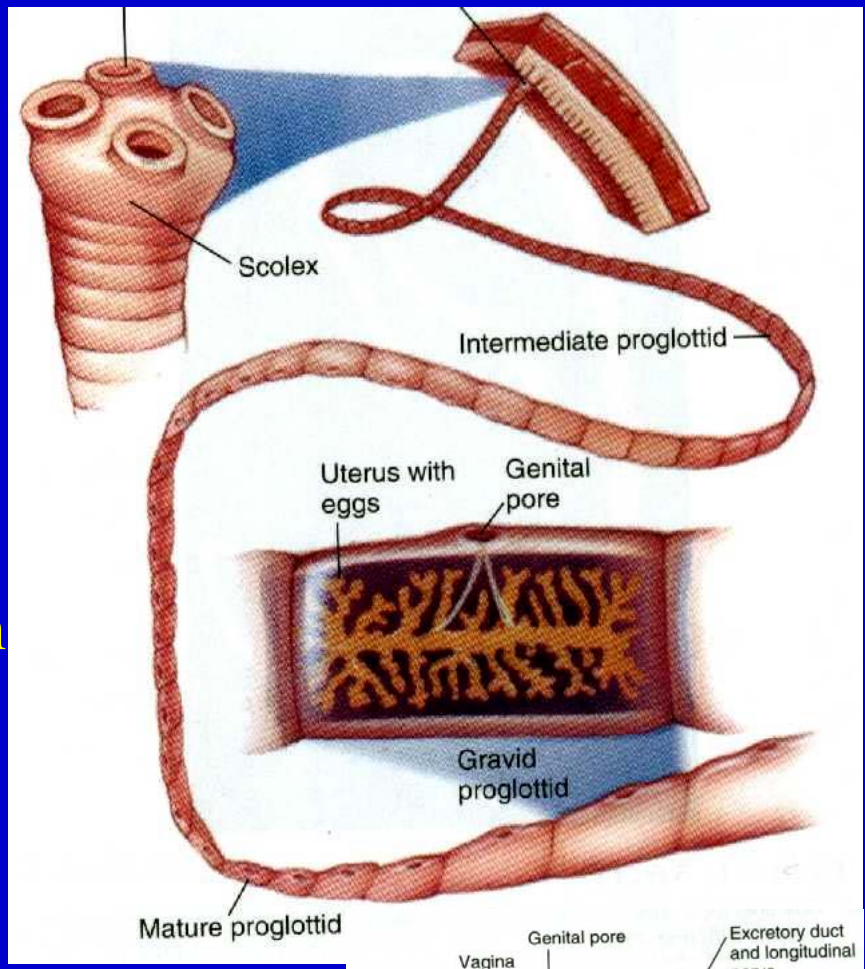
Absorb food through outer body wall

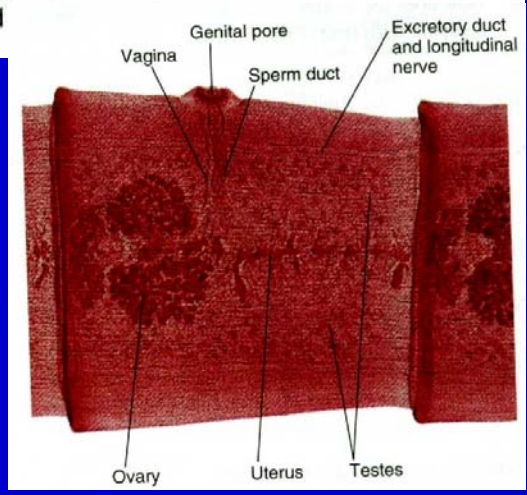
Proglottids formed continuously from region behind scolex at neck

Hermaphroditic with testes and ovaries in each proglottid

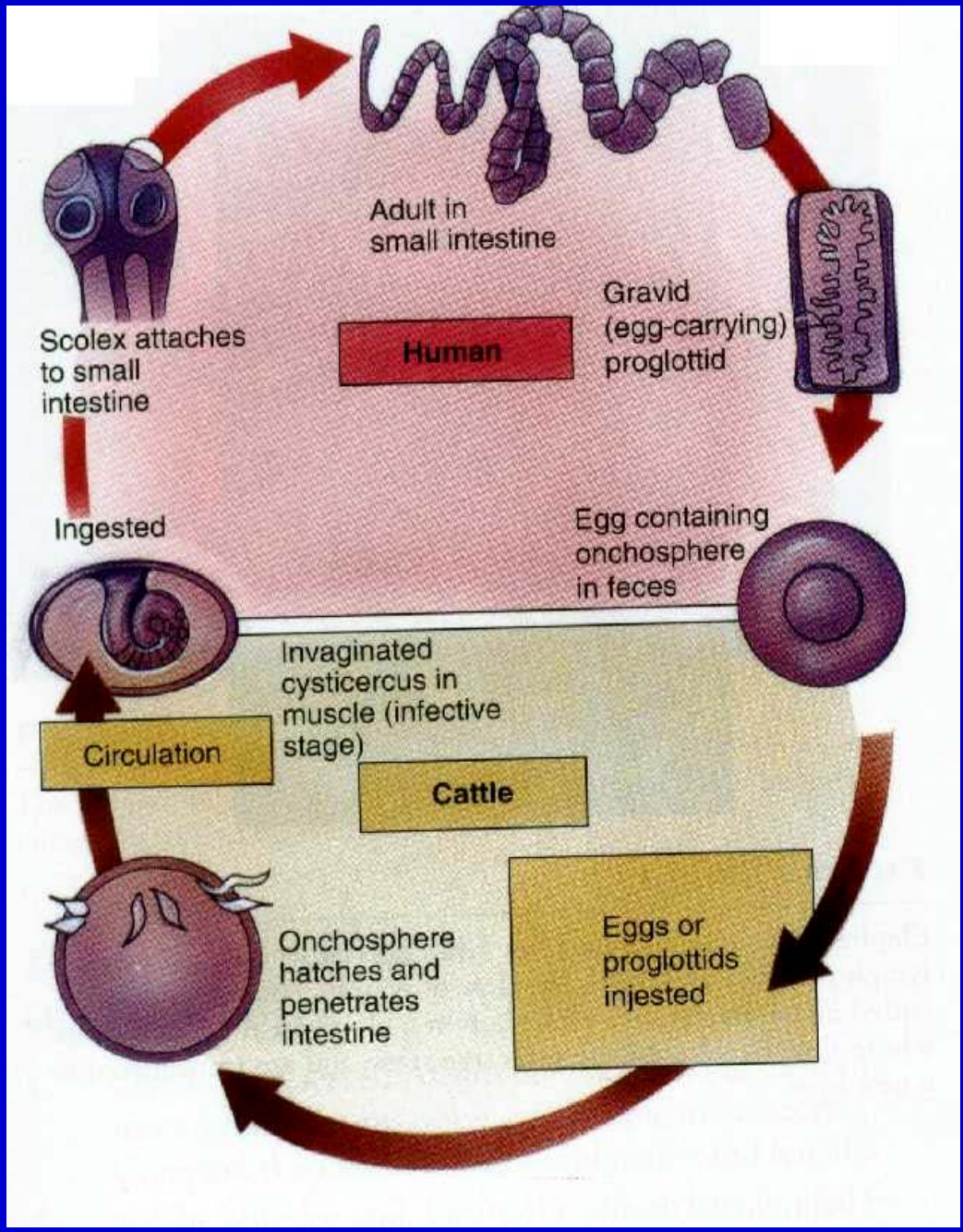
Eggs toward end mature, become fertilized - may be self-fertilized

Embryos and proglottids leave host in feces





Example: *Taenia saginata*, beef tapeworm - a parasite of humans



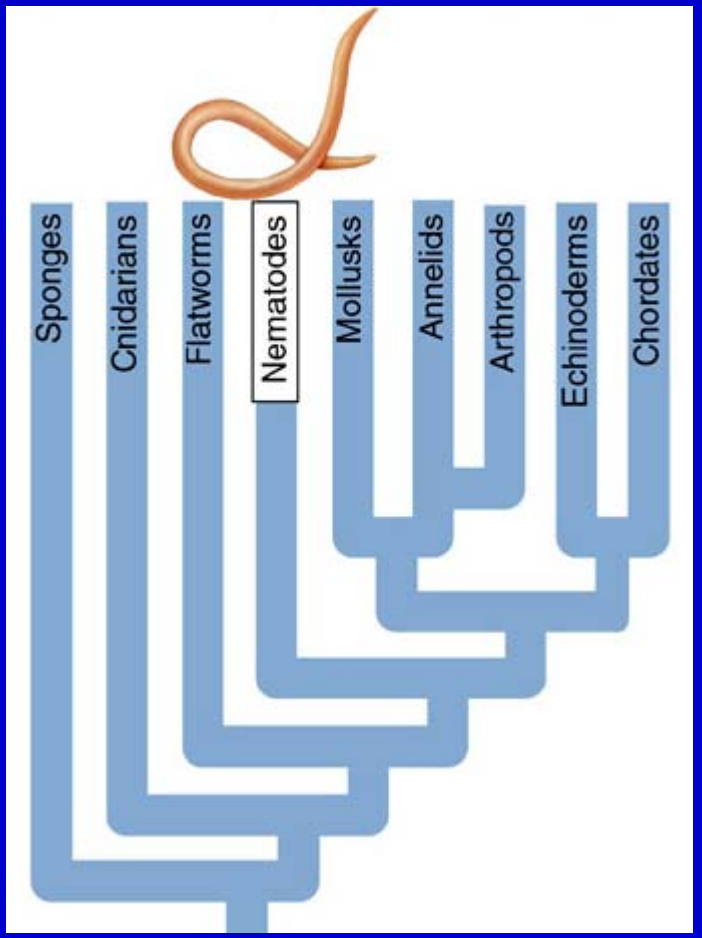
Phylum Nematoda - Roundworms

Include nematodes, eelworms and roundworms

Abundant in marine, freshwater and terrestrial habitats - found everywhere

Most are microscopic in size

predators, parasites, and scavengers



Trichinella - the cause of trichinosis

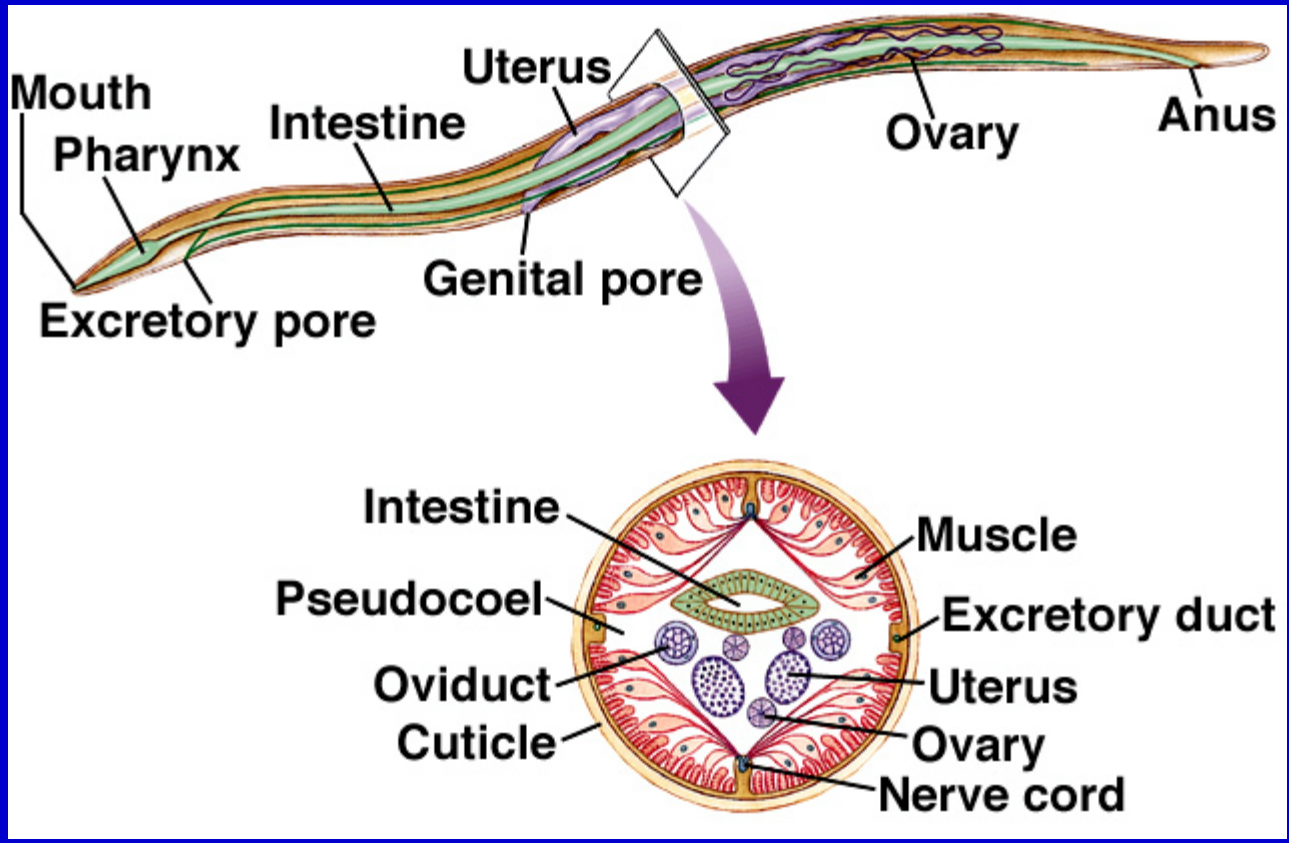
Pseudocoelomate body plan - No mesoderm associated with the gut

Bilaterally symmetrical, cylindrical, unsegmented, covered by thick flexible cuticle that is molted periodically

longitudinal muscles located beneath the epidermis, pull against cuticle and water filled pseudocoel - Results in side-to-side whipping movement - move well through loose soil or tissues

Digestive system with piercing stylets, mouth, pharynx, intestine, and anus

Sexual reproduction usually separate sexes and internal fertilization, fertilized eggs laid



Many nematodes parasitize humans - *Ascaris*, hookworms, pinworms
Example: *Trichinella* - pig intestinal roundworm
Worm lives in small intestine of pig, young encyst in same host
Trichinosis can result if humans eat raw or undercooked pork
Worms may also infect bears