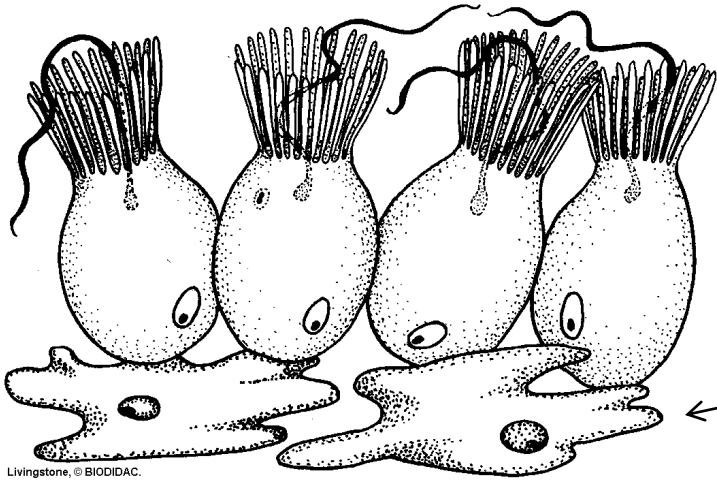


Invertebrate

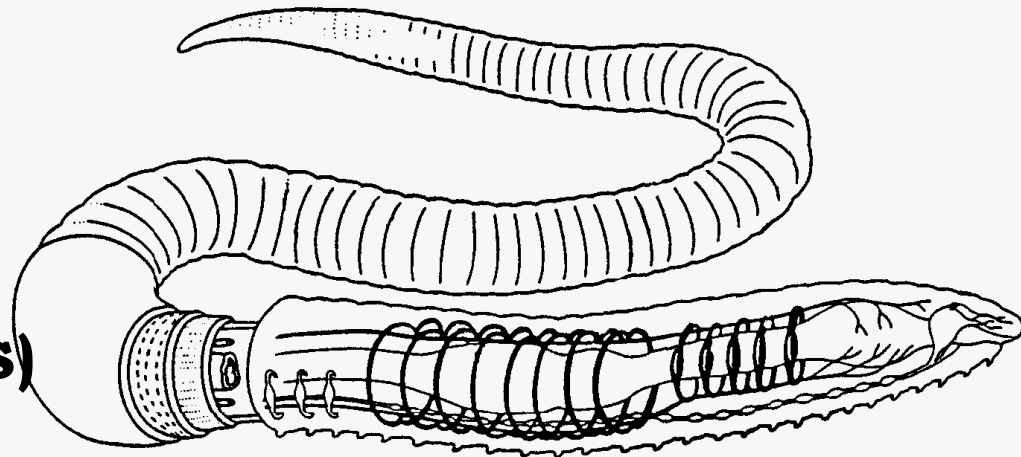
Form & Function

Feeding and Digestion



**Intracellular...
inside cells
(archaeocytes of
the sponge)**

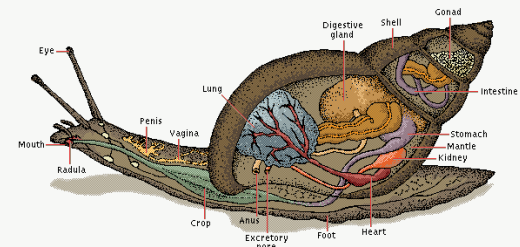
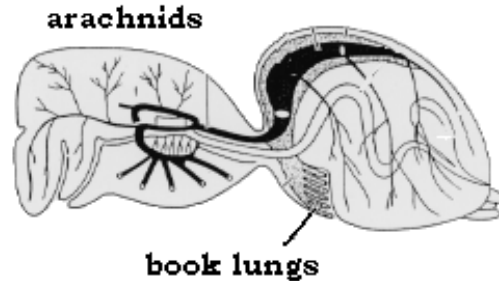
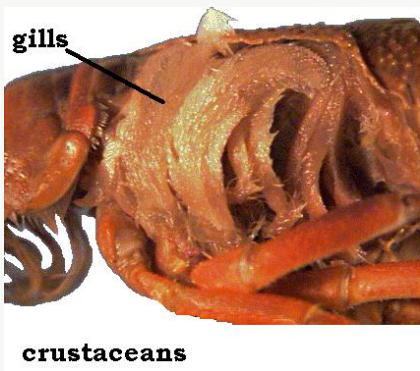
**Extracellular...
through a system
(annelids to chordates)**



Respiration



**Diffusion through moist skin
-aquatic and terrestrial-**



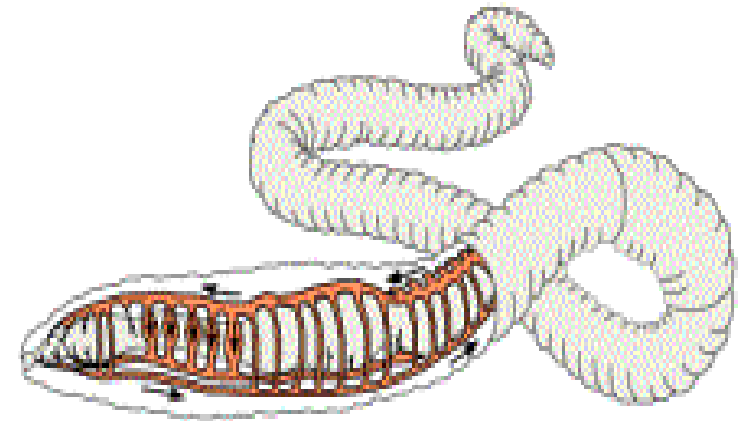
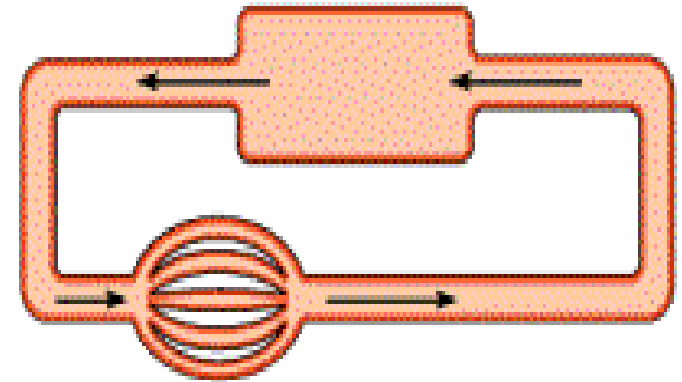
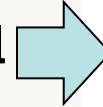
Circulation

Sponge & Cnidarians - none

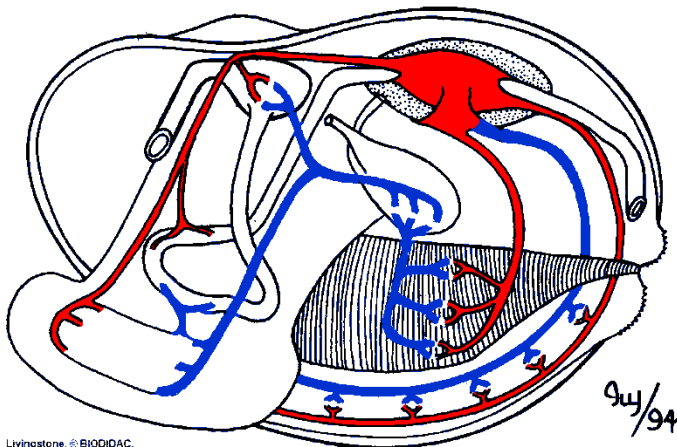
Flat & Roundworms - diffusion

One or more hearts

Annelids & some mollusks - closed

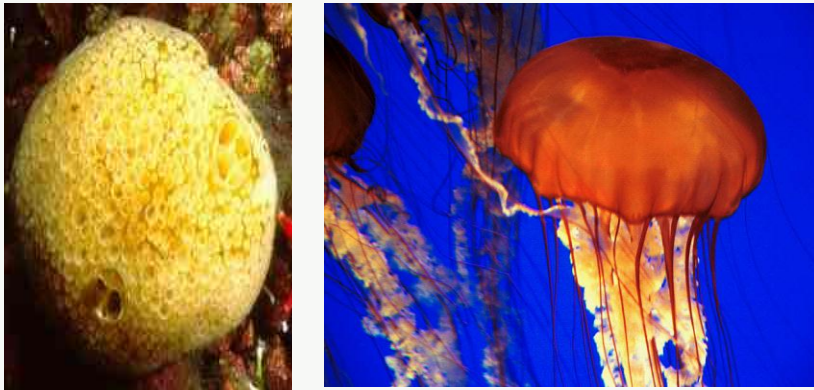


Some mollusks & Arthropods - open

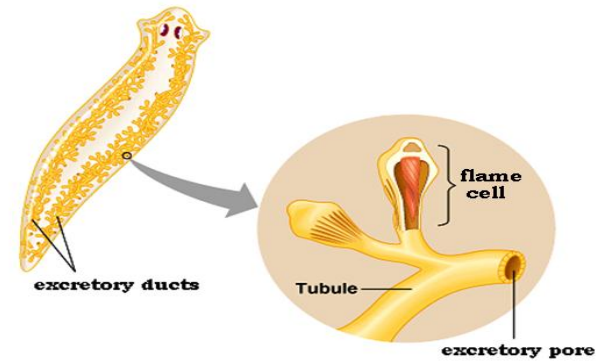


Excretion

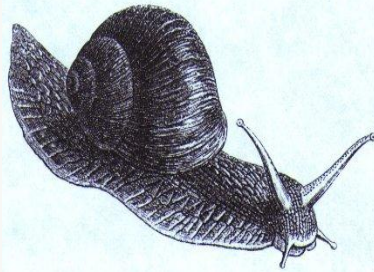
Aquatic – ammonia diffusion



Freshwater balance – flame cells



Terrestrial – conserve water by making urine/thick paste

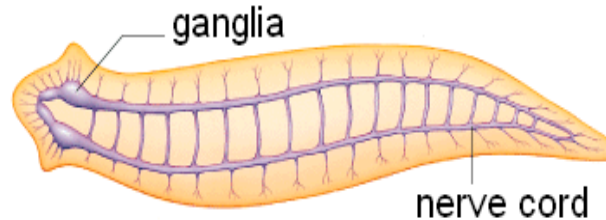
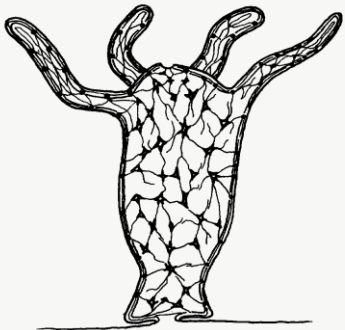


through nephridia

through Malpighian tubules

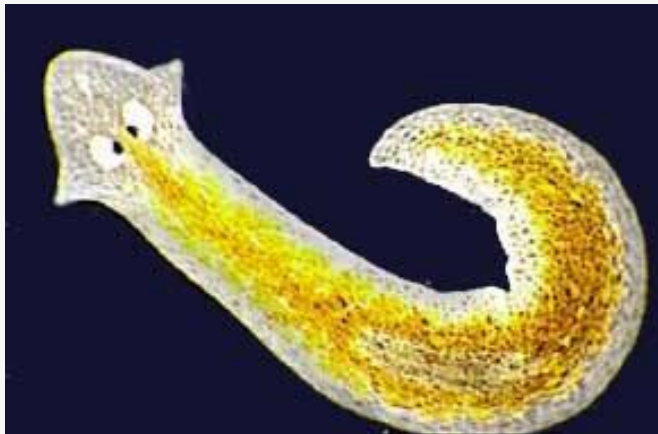
Response

Centralization & Cephalization

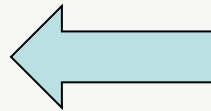


Nerve net ----- ganglia ----- brain

Specialization



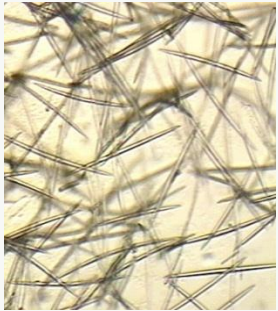
eyespot
(light detection)



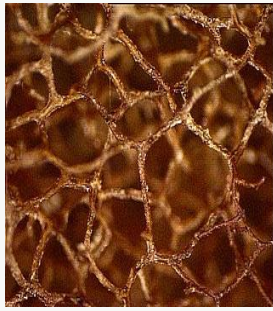
compound eyes
(color/motion/image)



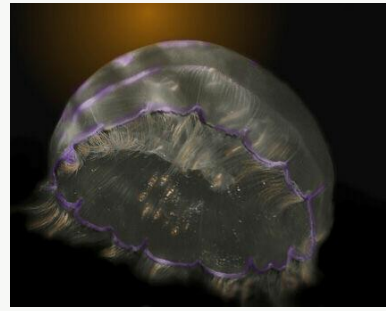
Support



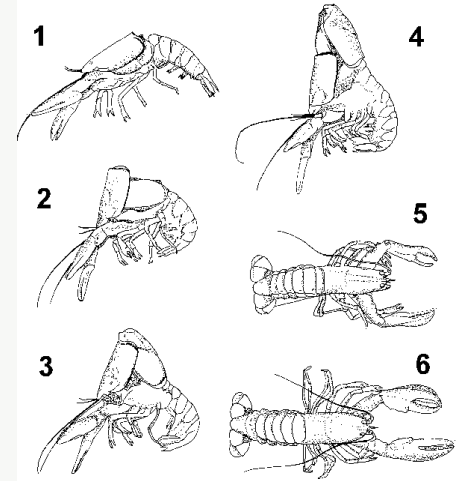
hard spicules



soft spongin

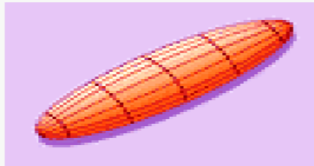


hydrostatic pressure

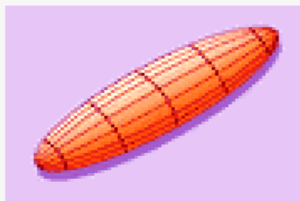


exoskeleton

circular
muscles

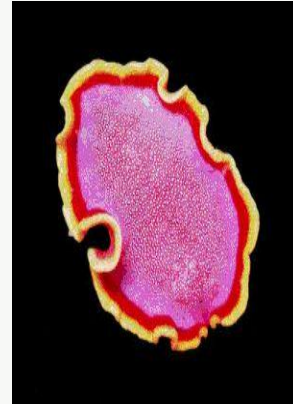


hydrostatic skeleton - worms



endoskeleton

Movement



**muscles contract and relax
(most invertebrates)**

None “sessile”



Reproduction

Sexual

- most common
- creates diversity

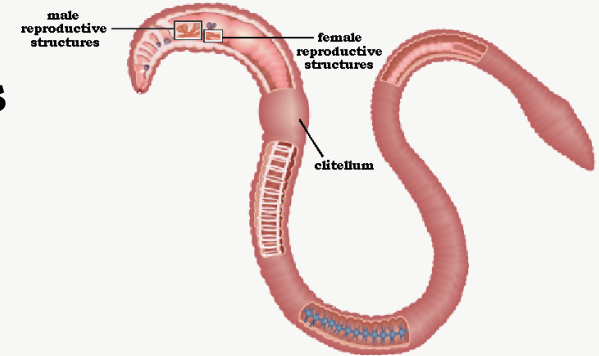


Asexual

- environment dependent
- rapid

primarily separate sexes

some hermaphroditic
(snails/worms)



internal fertilization

- terrestrial arthropods
- most worms
- sponges



external fertilization

- most aquatic invertebrates