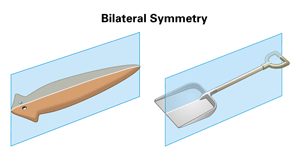
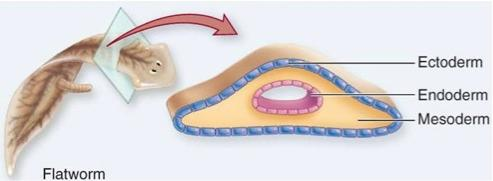
**Phylum Platyhelminthes: The Flatworms** Name: Date:

**The Flatworms - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

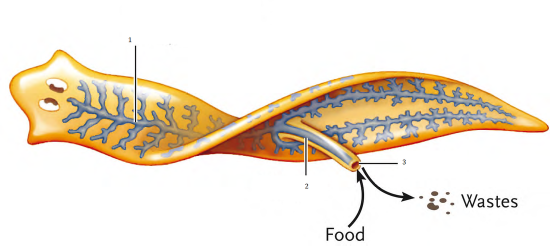
* Soft, flattened worms that have tissues and internal organ systems
* ****They are the simplest animal to have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Symmetry**

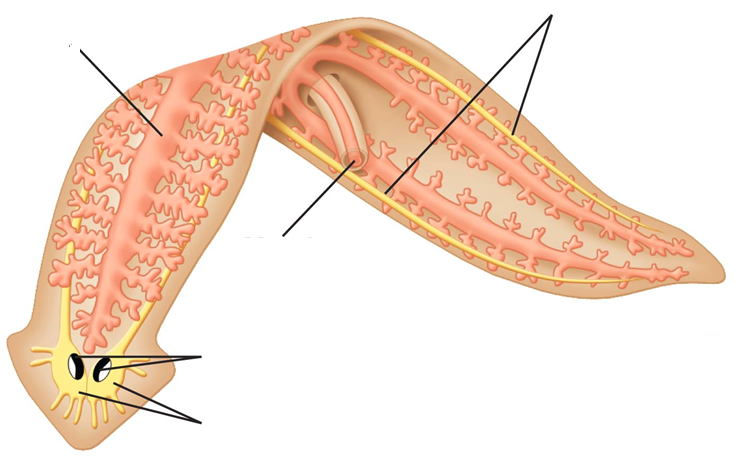
* Platyhelminthes have bilateral symmetry
* This means they have two well formed sides that can be identified as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* With bilateral symmetry we start to see the development of cephalization
* ****Most Platyhelminthes exhibit enough cephalization to have what we know as a ‘\_\_\_\_\_\_\_\_\_\_\_\_’

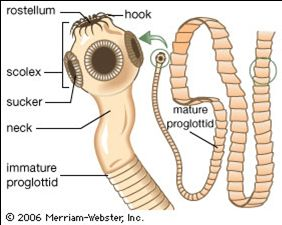
**Germ Layers**

* Platyhelminthes are known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Flatworms are known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, meaning ‘\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_'
* No coelom forms from the mesoderm layer

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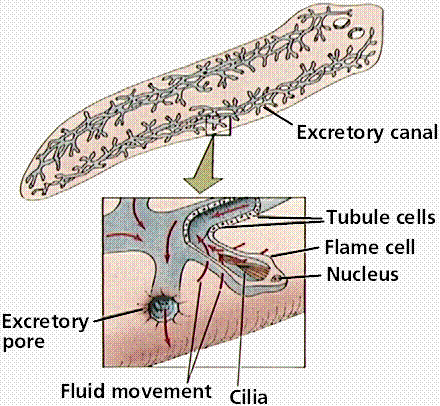
**Feeding**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ flatworms have organ systems for digestion, excretion, response, and reproduction
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are typically simpler in structure than their free-living relatives
  + Eg. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Free-living flatworms can be carnivorous that feed on tiny aquatic animals or scavenge on dead animals
* Like Cnidarians, flatworms have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, a mouth, through which both food and wastes pass through.
* There is a muscular tube, called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The pharynx extends out of the mouth and then pumps food into the digestive cavity
* Digested food then diffuses from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_into body tissues.

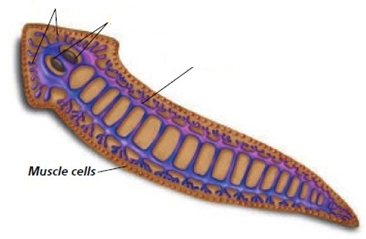
**Parasitic Feeding**

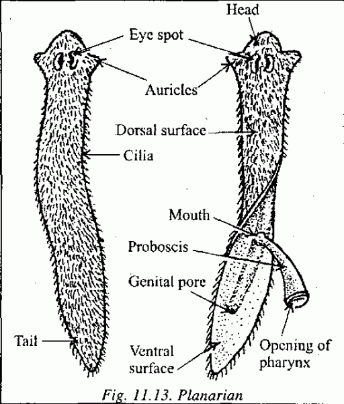
* Parasitic worms feed on blood, tissue fluids, or pieces of cells within the host’s body
* Therefore, they do not have a complex digestive system.
  + Eg. Tapeworms – have no digestive tract at all and absorb pre-digested nutrients from the host through their body wall.

**Respiration, Circulation and Excretion**

* Because flatworms bodies are so flat and thing, many of them do not need a circulatory system to transport nutrients around their bodies
* Flatworms rely on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to their internal tissues
* ****Flatworms have no gills or other respiratory organs, no heart, blood vessels or blood.
* Some flatworms have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that function in excretion
* Flame cells are specialized cells that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_such as ammonia and excess water from the body
* Many flame cells are joined together to form a network of tubes that empties into the outside environment through tiny pores in the animal’s skin

**Response**

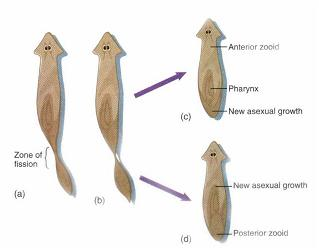
* Flatworms have more complete structures for detecting and responding to external stimuli than those of cnidarians and sponges
* In free-living flatworms, a head encloses several \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Two long nerve cords run from the ganglia along both sides of the body, creating a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* ****Along with the nerve ladder, flatworms can have an eyespot, or a group of cells called \_\_\_\_\_\_\_\_\_\_\_\_\_ that can \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in their environment
* They also have cells that can detect external stimuli like chemicals in the water and direction of water flow
* These cells are usually scattered throughout the body
* Parasitic flatworms typically lack these features

**Movement**

* Free-living flatworms typically move in two ways
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on their epidermal cells help them glide through water and over bottoms of streams and ponds
  + Muscle cells controlled by the nervous system allow them to twist and turn

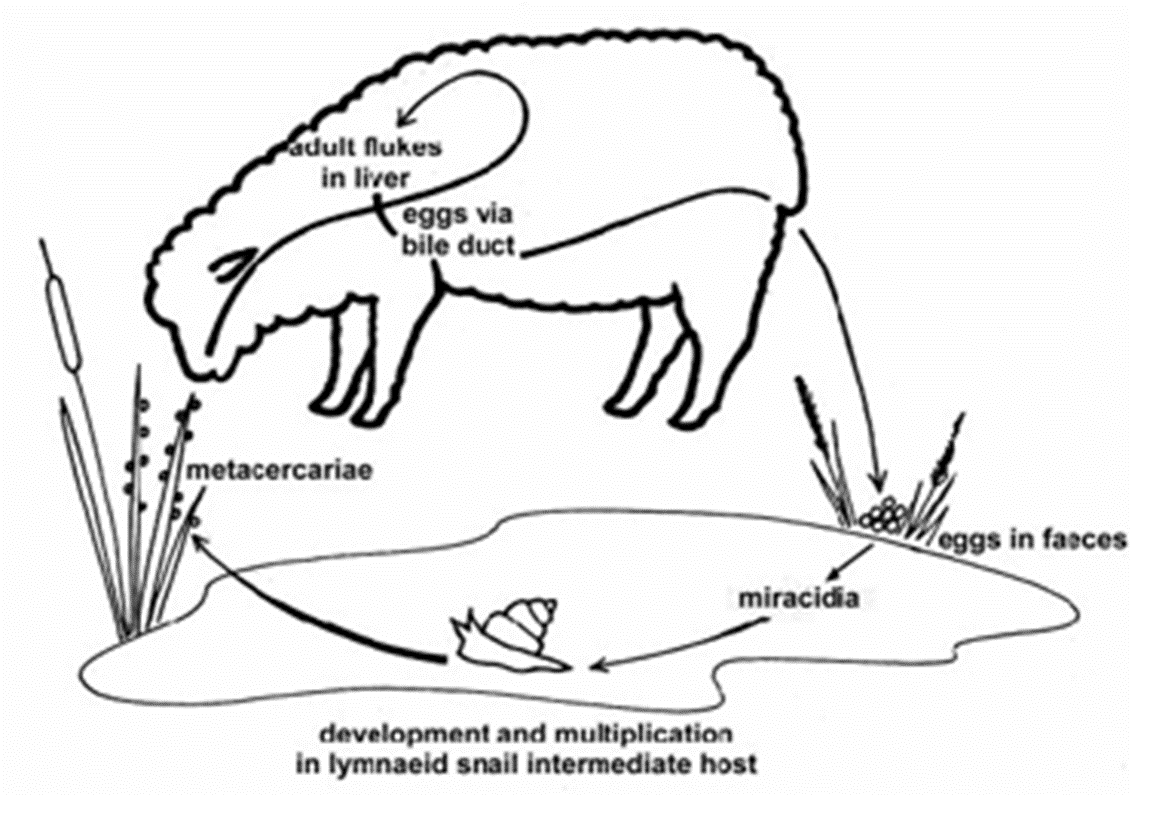
**Reproduction**

* ****Most flatworms are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* They reproduce both sexually and asexually
* Asexually – \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and grow into a new organism
* Sexually – they join up with another flatworm and deliver sperm to one another
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Parasitic flatworms have a complex sexual reproduction cycle

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**Groups of Platyhelminthes**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Includes the *Planaria,* a fresh water flatworm
  + Named due to the turbulence in the water their cilia cause when they swim
  + Also includes many marine varieties
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
  + Includes the parasitic flukes
  + Include liver, blood, lung, heart, and intestinal flukes
  + Many have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ like this liver fluke (i.e. sheep, cow, fish *etc*)
  + *Fasciola hepatica* (Liver Fluke)

****Liver fluke life cycle

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
  + Classical \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + highly evolved to its habitat such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Human tapeworms can grow up to 20 m long!

