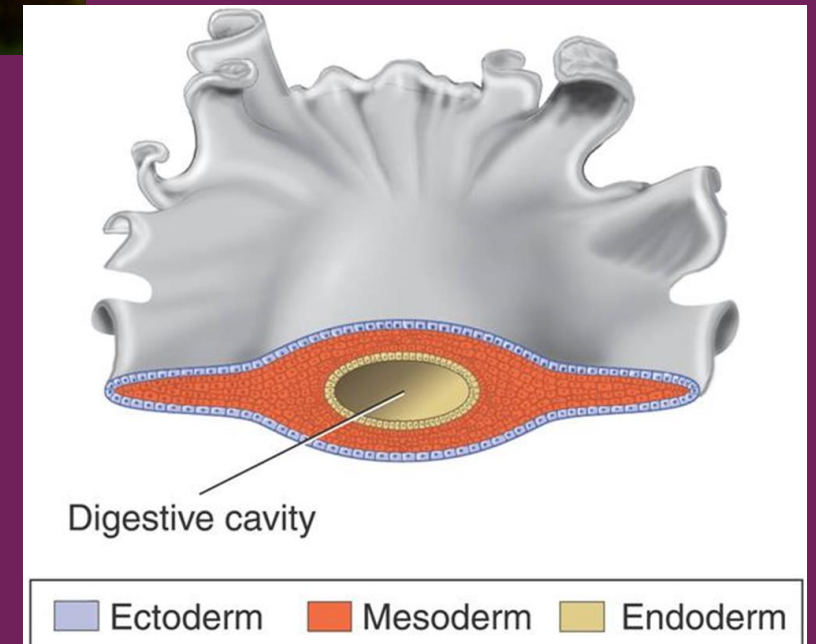# WHAT IS A FLATWORM?

- Only a few mm thick

- Soft

- Flattened worms

- Tissues

- Internal organ systems

- Simplest animals to have
  - 3 germ layers
  - Bilateral symmetry
 - Cephalization

- Aceolomates

- Free living or parasitic

Digestive cavity

Ectoderm   Mesoderm   Endoderm

FORM AND FUNCTION

- Thin structure
  - Materials can pass easily in and out of the body

FEEDING

- Single mouth opening
  - Incomplete digestion
  - Food/wastes enter and exit in the same place
- Pharynx
  - Muscular tube that extends out of the mouth
  - Pumps food into the digestive cavity
  - Food is digested by cells in gut
   - Diffuses into all other tissues
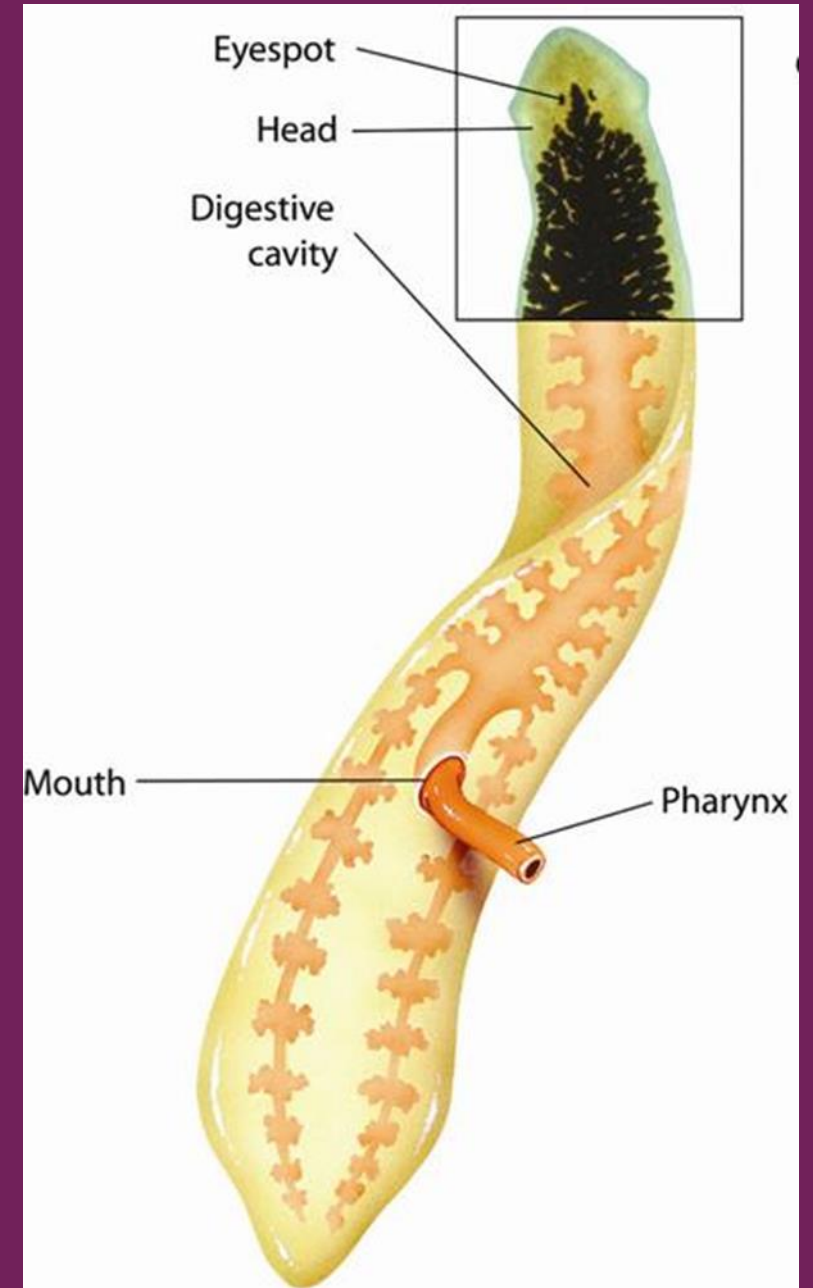
FREE LIVING VS PARASITIC FLATWORMS

- Free living
  - Carnivores (tiny aquatic animals)
  - Scavengers (recently dead animals)

- Parasitic
  - Feed on blood, tissues or cells in host
  - Can obtain nutrients from already digested foods (by host)
  - Do not need/have complex digestive systems
  - Simpler than free living flatworms
    - Ex: Tapeworm
      - No digestive tract
      - Lives in host's intestine and absorbs digested nutrients from host


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RESPIRATION, CIRCULATION AND EXCRETION

- All flatworms rely on diffusion for respiration, excretion, and circulation.

- No circulatory or respiratory systems

- Excretion
  - Flame cells
    - Specialized cells that remove excess water from body
    - Filter and remove metabolic wastes (urea/ammonia)
    - Form a network of tubes that empty outside of the body thorough tiny pores
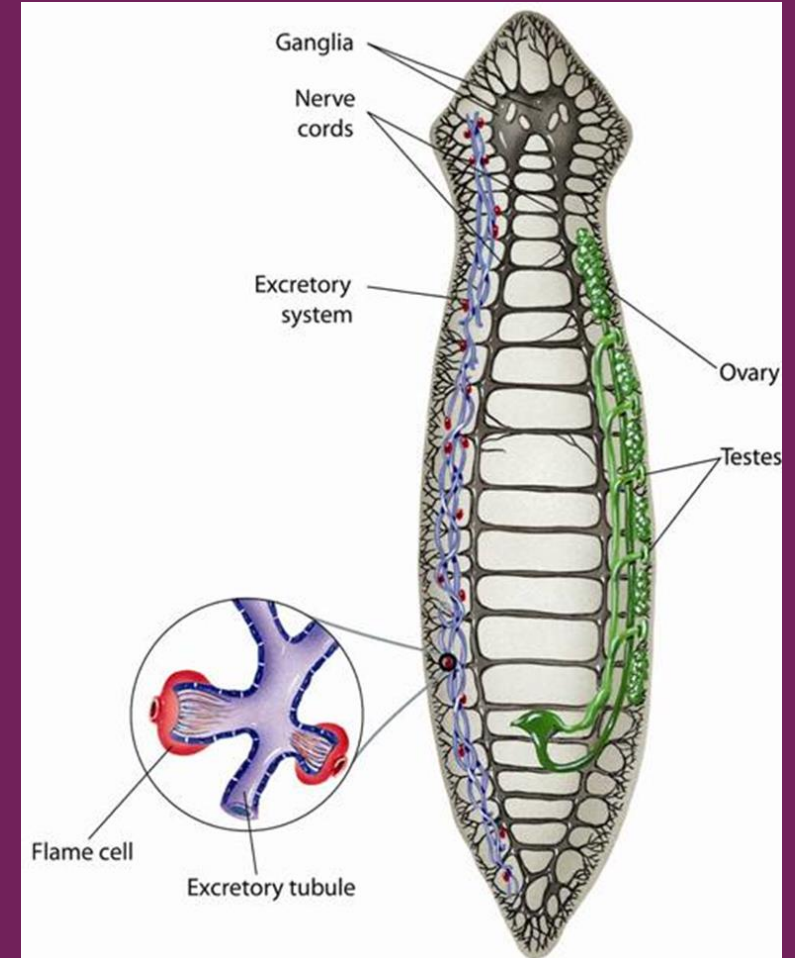
RESPONSE

- More complex than Sponges/Cnidarians

- Allows flatworms to locate food, respond to stimuli and hide in dark areas during the day
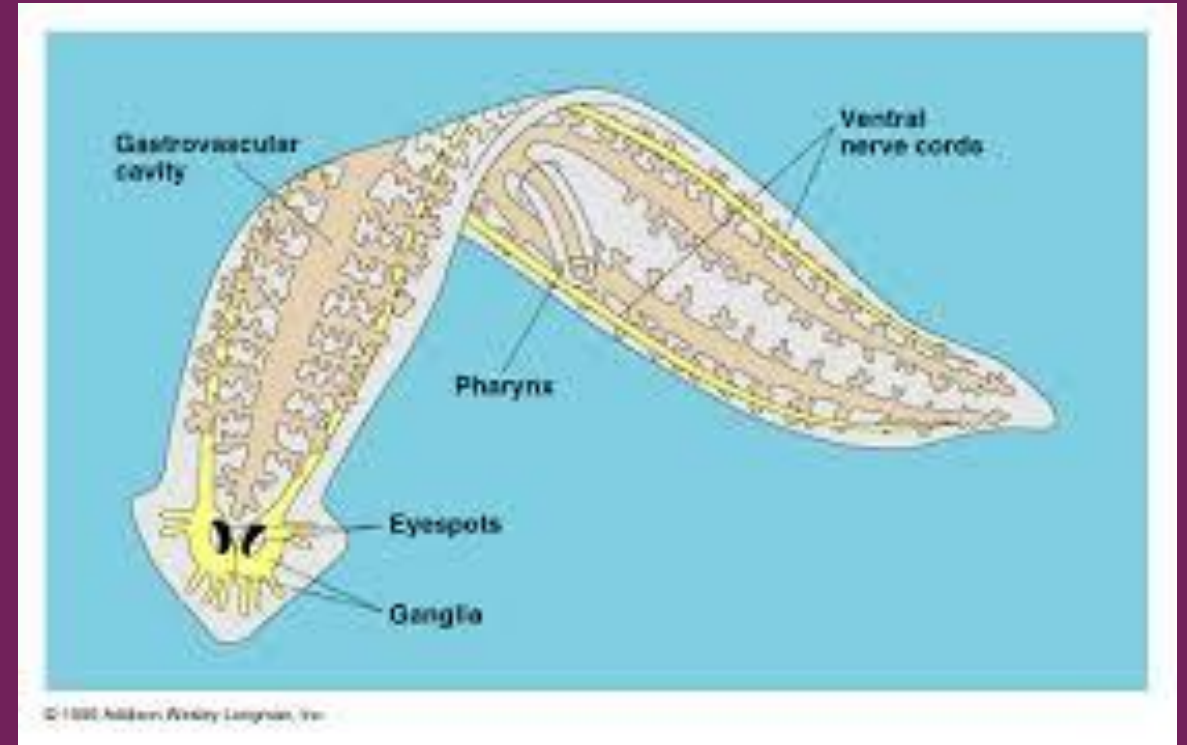
RESPONSE

- Free living
  - Head encloses ganglia
    - Group of nerve cells
      - Not complex enough to be considered a brain
  - Two long nerve cords run from the ganglia along both sides of the body
    - Between are shorter nerve cords like rungs on a ladder
  - Eyespot (2)
    - Anterior end
    - Group of cells that detect changes in light
  - Have specialized cells that detect external stimuli

RESPONSE CONTINUED

- Parasitic
  - Less complex as there is less interaction with the outside environment