Animal Body Plans

Trends in Animal Evolution

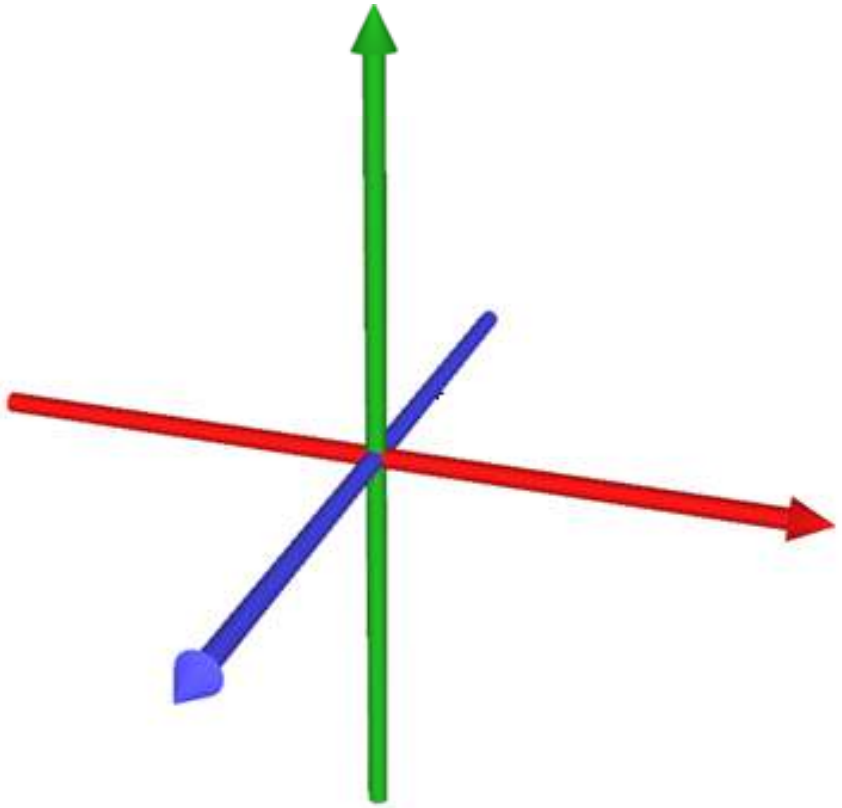
Symmetry

- All animals show some type of symmetry.

- What is symmetry?

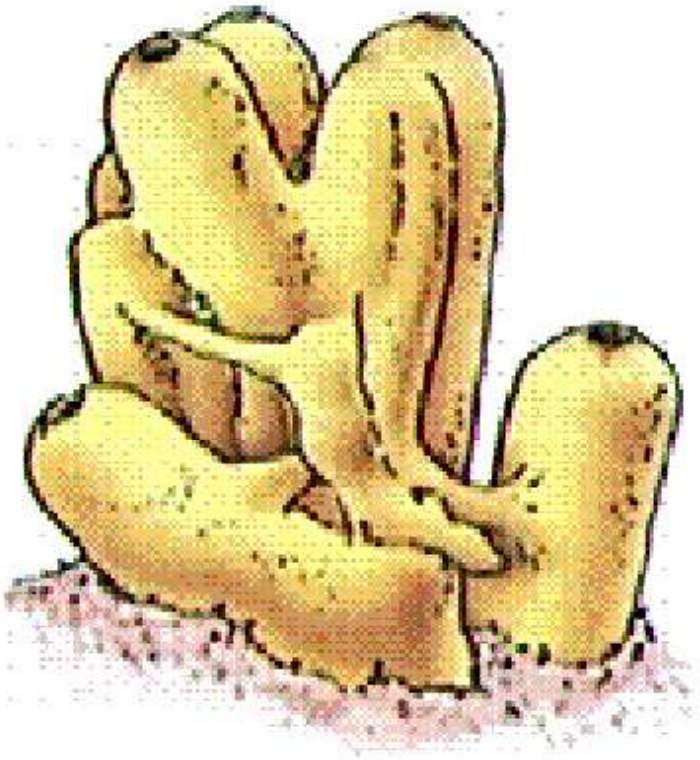
Symmetry

- How an animal's body is arranged around an axis



Asymmetrical

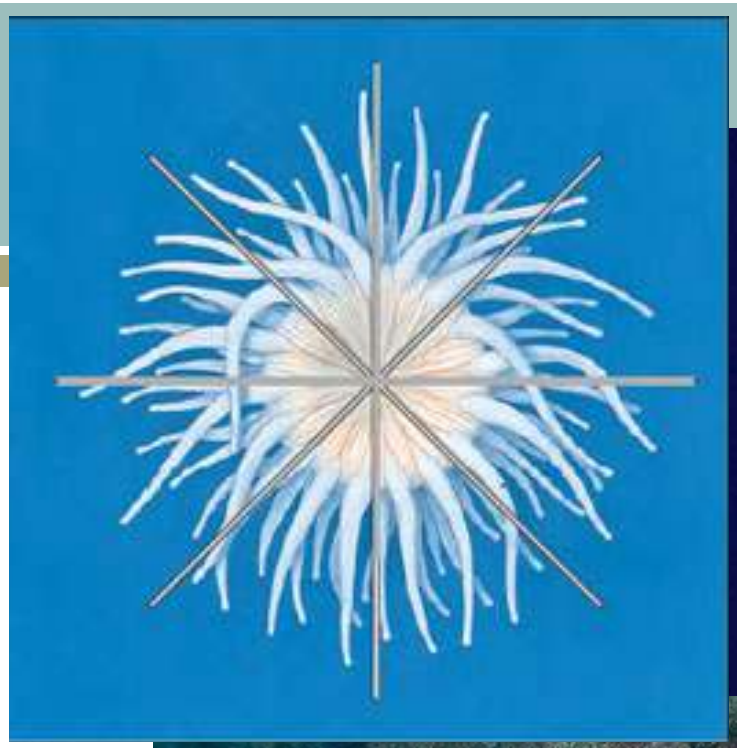
- No symmetry or central axis
- Typically found in animals without tissues
- Examples?

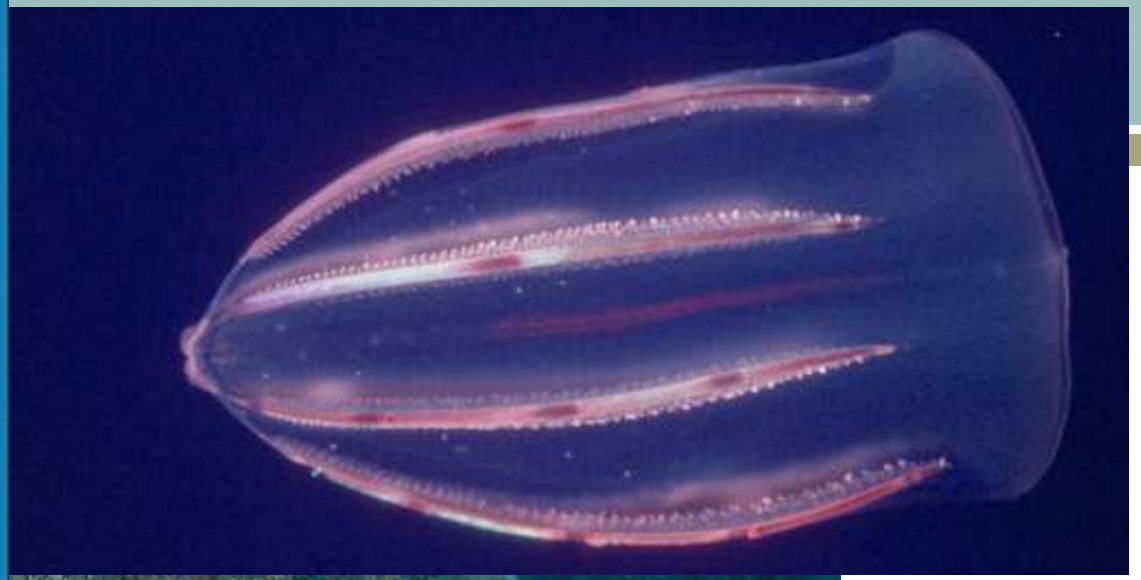


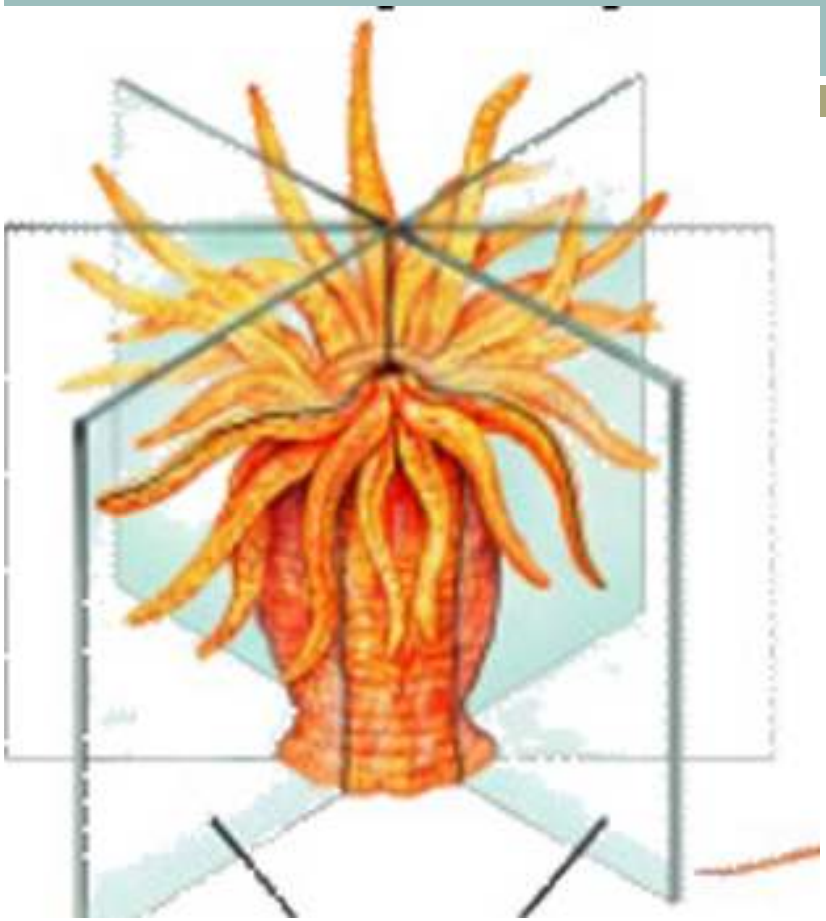
Radial Symmetry

- Any 2 planes that run through the central axis will divide the animal into mirror images

- Examples?

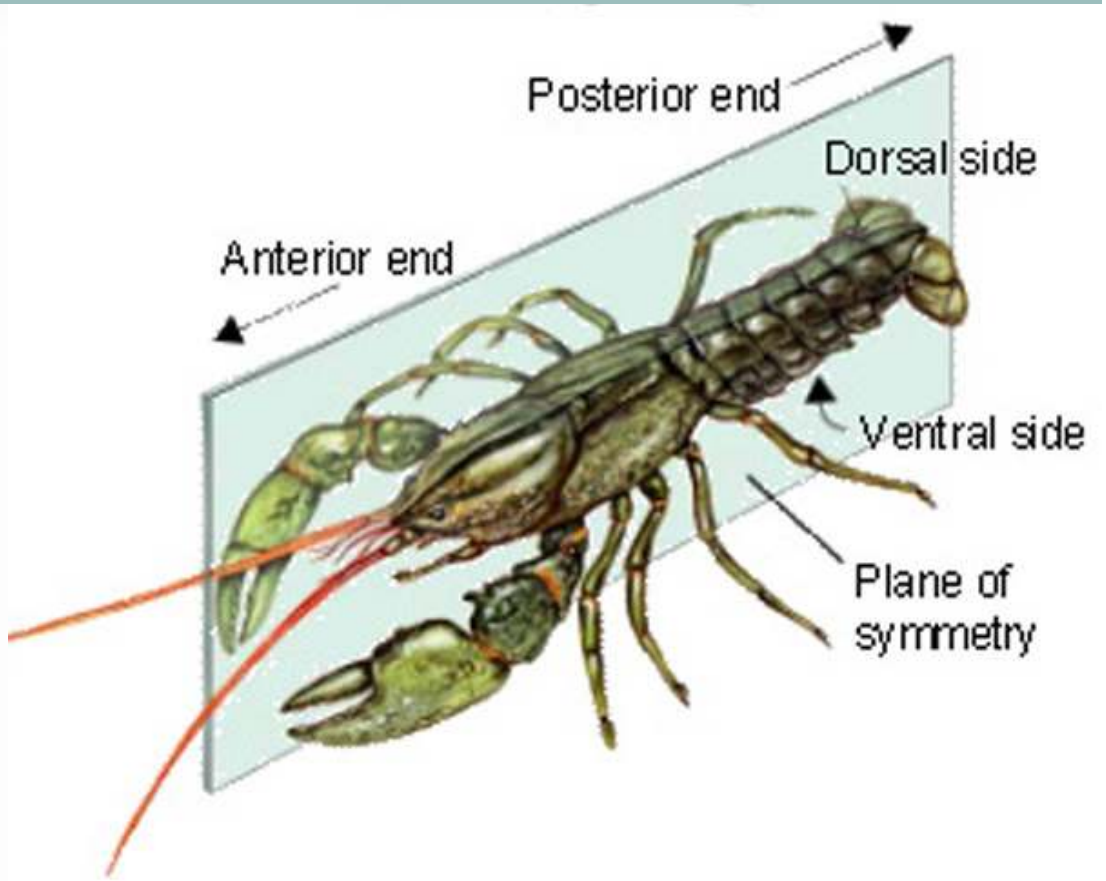






Bilateral Symmetry

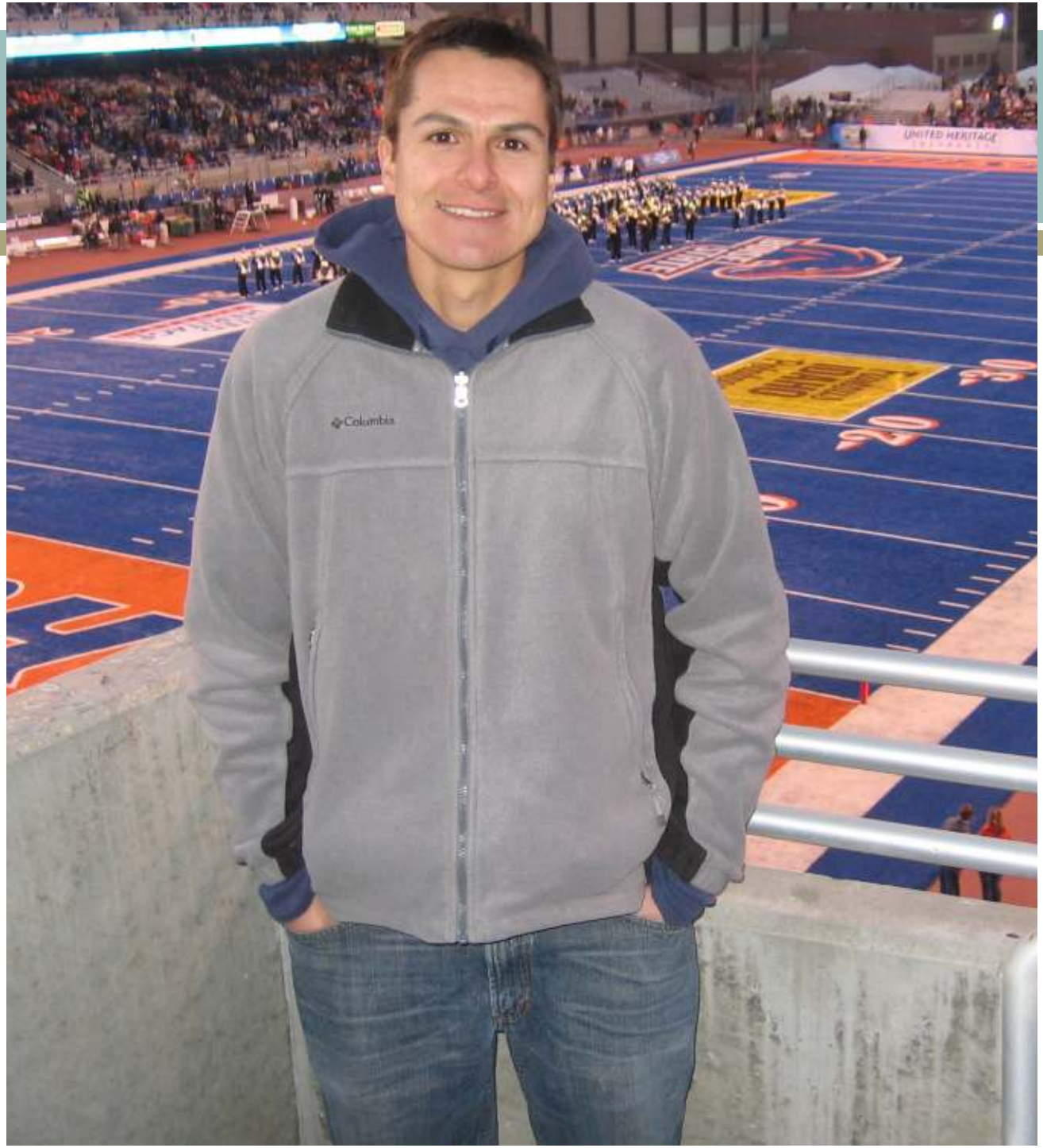
- A single plane that passes along the central axis divides the animal into left and right mirror images
- Examples?
-


Posterior end
Dorsal side
Anterior end
Ventral side
Plane of
symmetry

Advantages?

- Radial Symmetry

- Bilateral Symmetry


Columbia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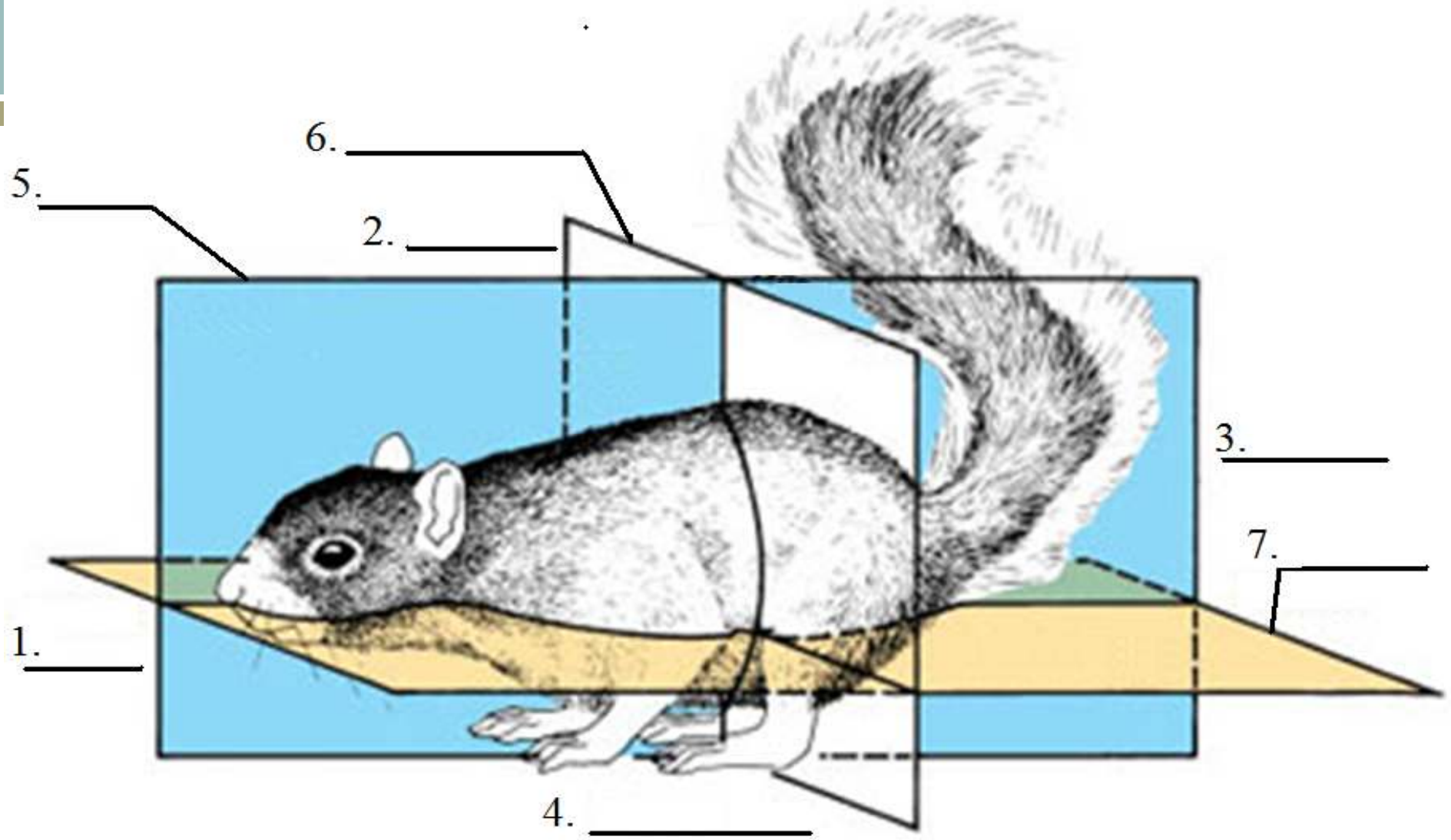
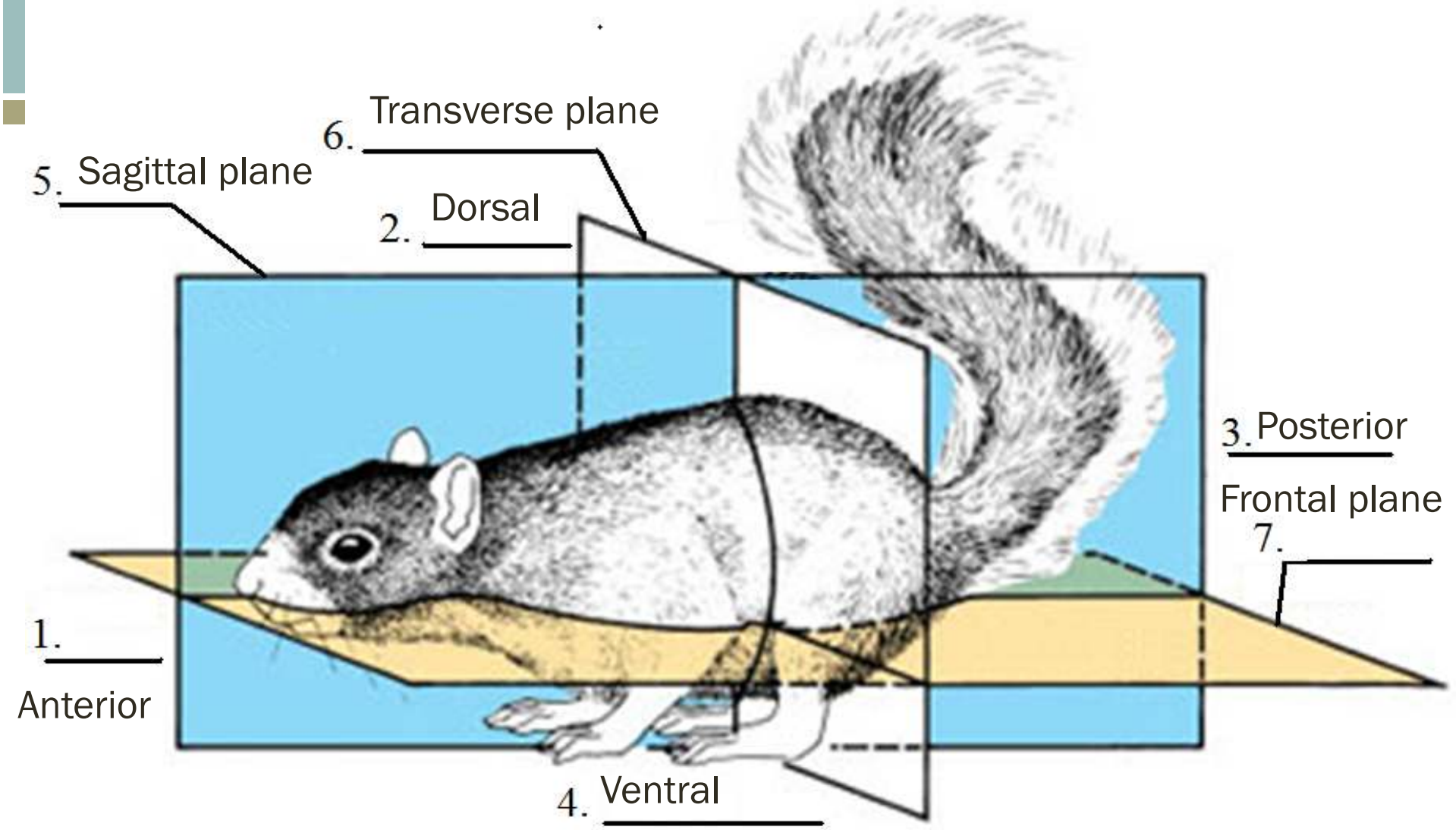
Some good vocab

- Dorsal
- Anterior
- Posterior
- Ventral
- Transverse plane
- Frontal plane
- Sagittal plane


6.
5.
2.
3.
7.
1.
4.


6. Transverse plane
5. Sagittal plane
2. Dorsal
3. Posterior
Frontal plane
7.
1.
Anterior
4. Ventral

Practice Pics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Things that come with Bilateral Symmetry

- Cephalization
- Segmentation

Cephalization

- Having a distinct head region
- Which end of the body?
- Examples?
- Advantages?


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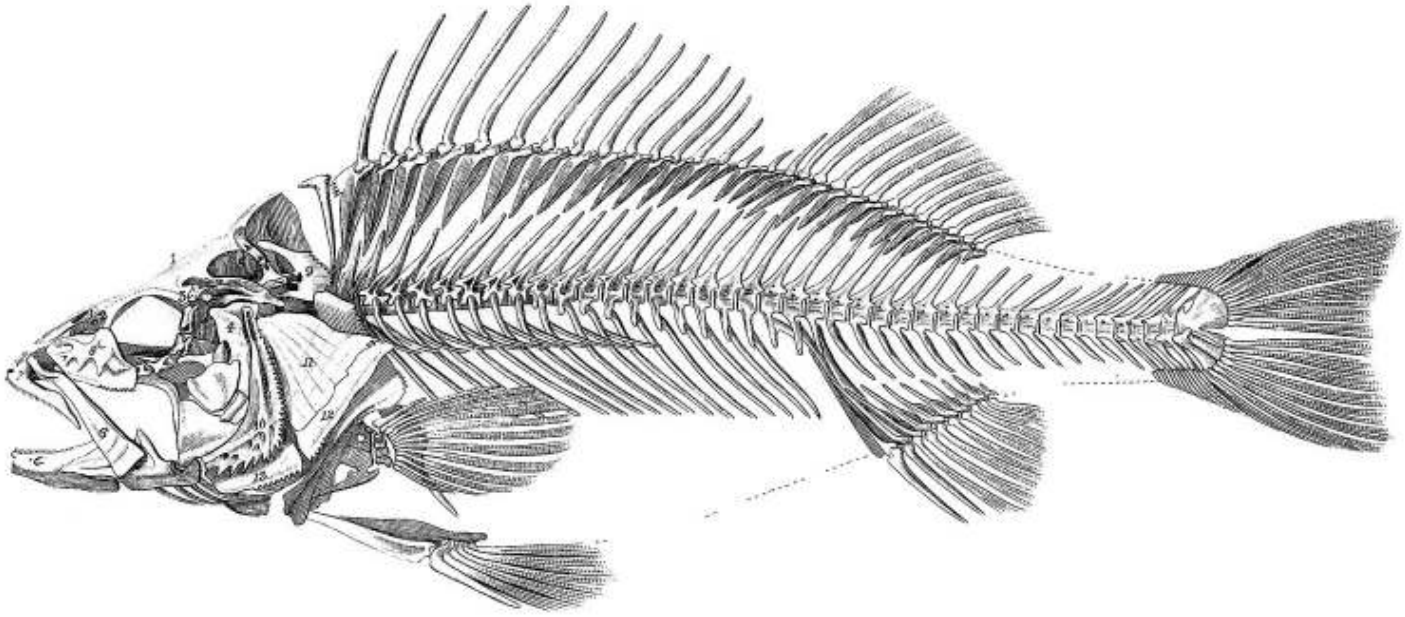
Segmentation

- Repetition of similar body segments along the central axis
- Examples?
- Advantages?

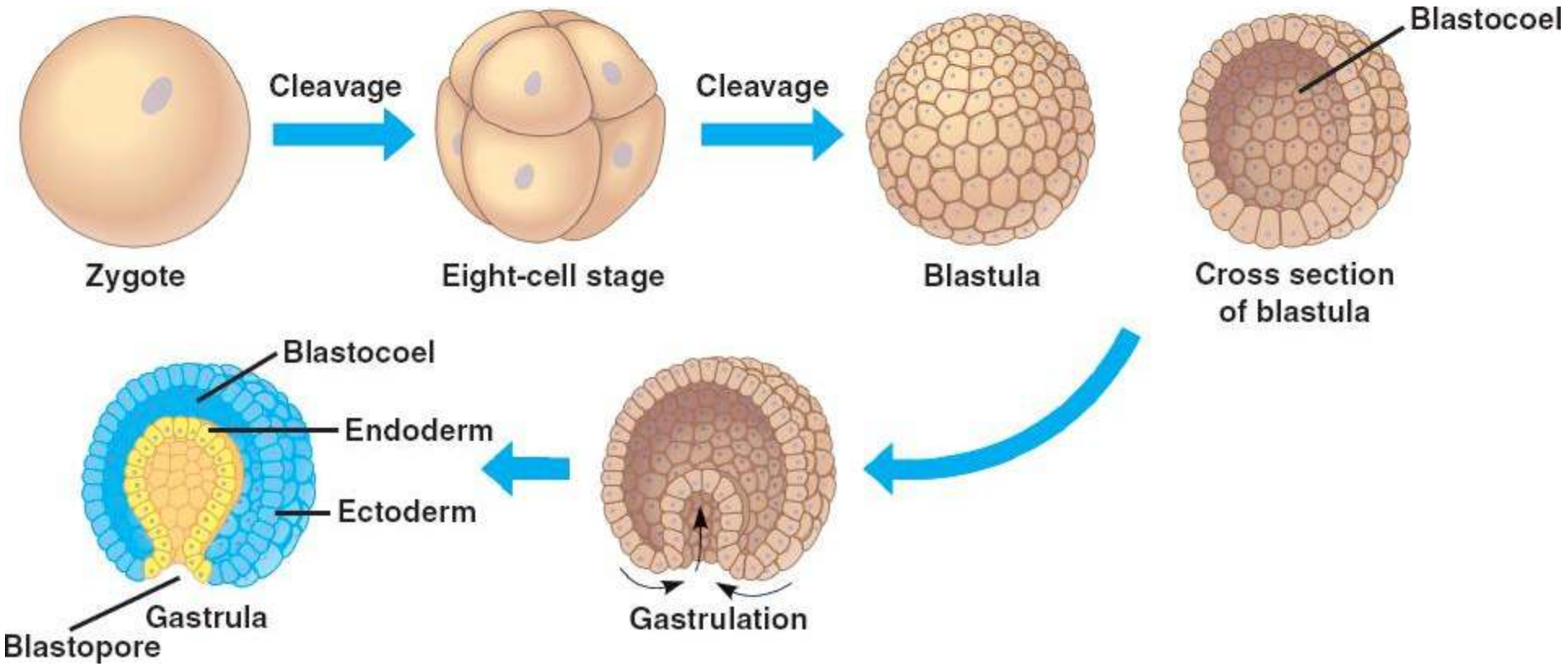


Other traits of complex organisms

- Embryonic Development
- Body Symmetry

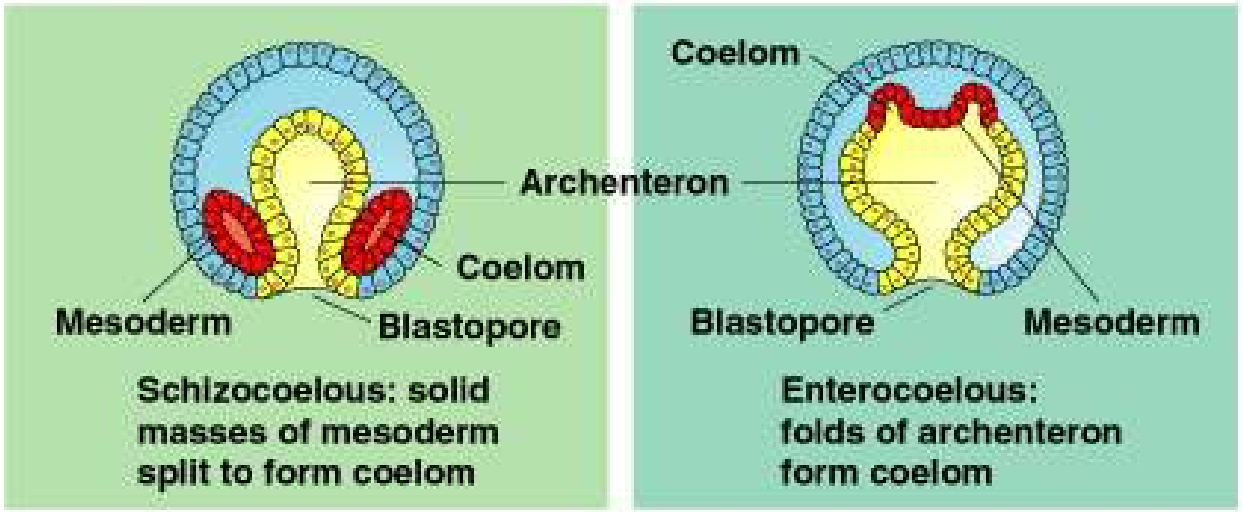
Embryonic Development

- Sexual reproduction produces a zygote
- Zygote divides – forms a blastula



Embryonic Development

- Blastulas have 3 layers of cells
  - Endoderm: Forms linings of digestive and respiratory tracts
  - Mesoderm: Muscles and many organs
  - Ectoderm: Skin and sensory organs

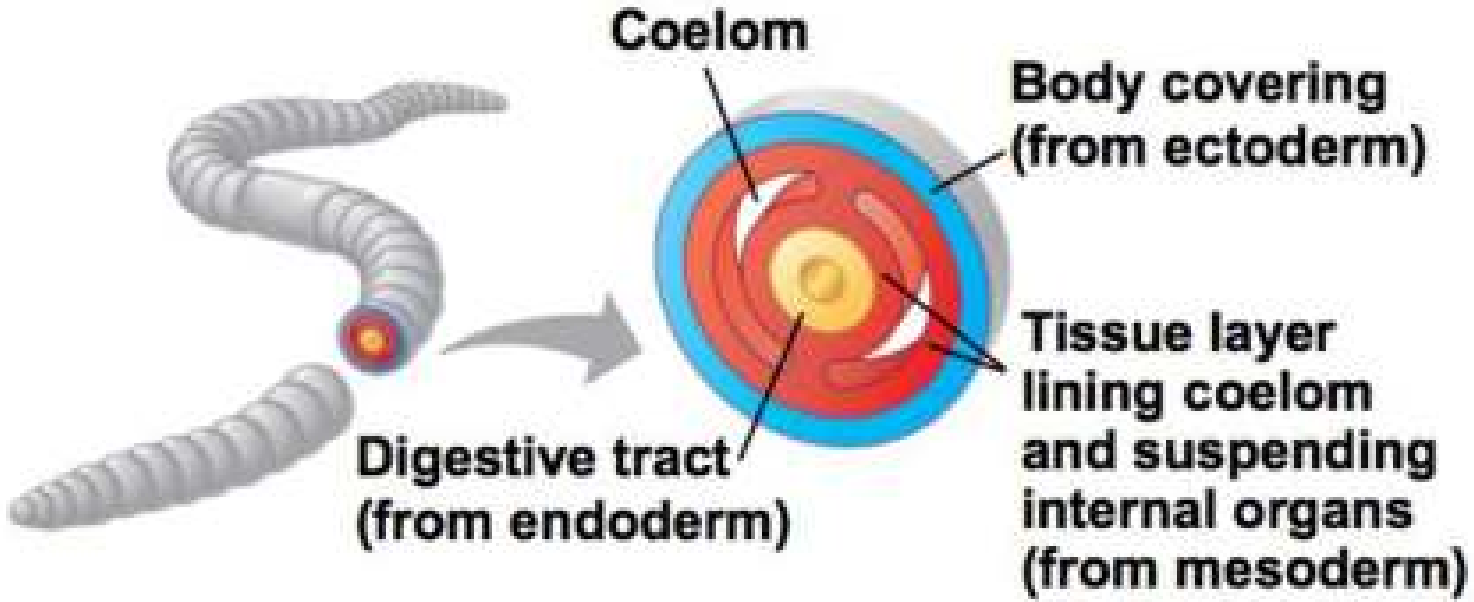


Body Cavities

- A fluid filled cavity between the digestive tract and the body wall
- Creates space for organ protection and growth, fluid and region specialization

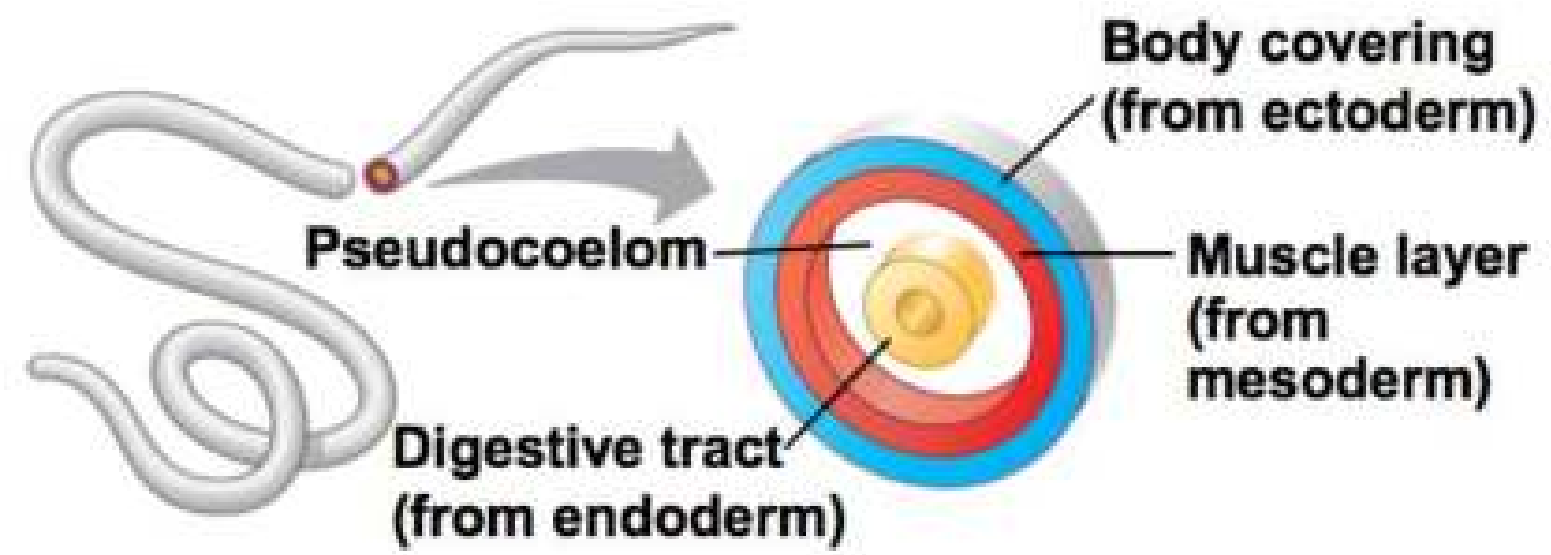
Body Cavities

- 3 types of body cavities
  - Coelom (Coelomate): true body cavity formed completely from mesoderm



Body Cavities

- 3 types of body cavities
  - Pseudocoelom (pseudocoelomate): body cavity formed between mesoderm and endoderm



Body Cavities

- 3 types of body cavities
  - Acoelomate: no body cavity