Earthworm Dissection

What are the structures and body systems of an earthworm?

We study earthworms to learn the structures and functions of segmented worms, also called annelids. Segmentation supports diversified functions of body parts and tissues. Studying the anatomy and body systems of annelids helps us understand the bodies of higher-level organisms.

Earthworms are classified in the phylum *Annelida*. (Kingdom: Animalia; Phylum; Annelida; Class: Oligochaeta; Order: Opisthopora; Family: Lumbricidae; Genus: *Lumbricus*; Species: *Lumbricus terrestris*) The Annelida also include leeches and bristle worms. Segmented worms have bilateral symmetry and have a coelom, which is a fluid-filled body cavity surrounded by mesoderm. Earthworms have two body openings, a moth and an anus. The basic body plan of segmented worms consists of a digestive tract within a tube. Earthworms are hermaphrodites, which means that an individual animal produces both sperm and eggs. During mating, two earthworms exchange sperm. Each earthworm forms a capsule for the eggs and sperm in which the eggs are fertilized. The capsule is left behind in the soil where the young earthworm emerge from the eggs in two to three weeks. Earthworms are herbivores. They obtain food by eating through the soil and extract nutrients from it as food passes through the digestive tract. As an earthworm burrows, it loosens, aerates, and fertilizes the soil. Earthworm burrows provide passageways from pant roots and improve drainage of the soil.

Procedure:

1. Click the **Lab manual** to read about the earthworm anatomy.
2. Click the **External anatomy** button to view a diagram of the external features of an earthworm.
3. **Drag** and drop the Labels to the matching structures of the illustration.
4. When all structures are labeled, the **Check** button is enabled. Click the **Check** button to receive feedback on whether the labels are matched with the correct structures. Correct the highlighted incorrect labels. Write the labels on the worksheet when they are all correct.
5. Click the **Internal** anatomy button to view a diagram of the internal features of the earthworm and repeat steps 3 and 4.
6. Answer the questions.

Data Collection: Identify each part of the earthworm anatomy on the attached worksheet.

Questions:

1. What part of the digestive system would you see in a cross-section anterior to the gizzard?
2. What structure in the earthworm has a similar function as the human heart?
   1. EXPLAIN your answer.
3. What do two earthworms exchange during mating?
   1. EXPLAIN your answer.
4. Describe the difference between a closed an open circulatory system.
5. Do earthworms have a front and back end?
   1. EXPLAIN your answer.
6. What characteristics distinguish an annelid from other worms?
7. What is the setae?
8. Where is an earthworms’ mouth located?
9. What does an earthworm use setae for?
10. Which part of the earthworm body produces a mucus sheath around the earthworms during mating?
11. Where are the oviducts located?
12. What are dorsal pores?
13. What are the excretory structures that eliminate metabolic wastes called?
14. What body systems does an earthworm have? (there are 6)
15. What is the purpose of a gizzard?
16. What kind of brain does an earthworm have?
17. What does the earthworm’s brain consist of?
18. What are nephridia?
19. Where are the testes located?
20. Describe the shape and location of the ovaries.
21. Where are the eggs stored?