

Name \_\_\_\_\_

# EARTHWORM ANATOMY

## External Anatomy

Examine your earthworm and determine the dorsal and ventral sides. Locate the two openings on the ventral surface of the earthworm

The openings toward the anterior of the worm are the **sperm ducts**  
The openings near the clitellum are the **genital setae**.

Locate the dark line that runs down the dorsal side of the worm, this is the **dorsal blood vessel**. The **ventral blood vessel** can be seen on the underside of the worm, though it is usually not as dark.

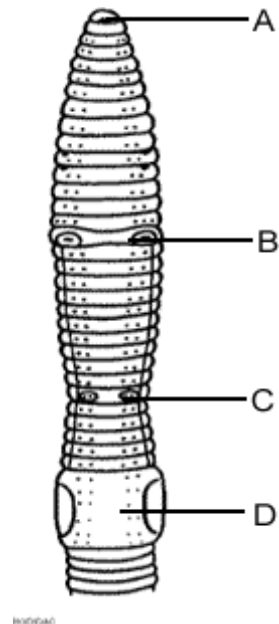
Locate the worm's **mouth** and **anus**.

Note the swelling of the earthworm near its anterior side - this is the **clitellum**.

► Label the earthworm pictured.

A \_\_\_\_\_ B \_\_\_\_\_  
C \_\_\_\_\_ D \_\_\_\_\_

LABEL THE  
EARTHWORM.



## Internal Anatomy

1. Place the specimen in the dissecting pan **DORSAL** side up
2. Locate the clitellum and insert the tip of the scissors about 3 cm posterior.
3. Cut carefully all the way up to the head. Try to keep the scissors pointed up, and only cut through the skin.
4. Spread the skin of the worm out, use a teasing needle to gently tear the **septa** (little thread like structures that hold the skin to organs below it)
5. Place pins in the skin to hold it apart - set them at an angle so they aren't in the way of your view.

## Reproductive System

The first structures you probably see are the **seminal vesicles**. They are cream colored and located toward the anterior of the worm. These are used for producing sperm. **Use tweezers to remove these white structures from over the top of the digestive system that lies underneath it.** Check the box when this is complete.



## Circulatory system

The **dorsal blood vessel** appears as a dark brownish-red vessel running along the intestine. The **heart (or aortic arches)** can be found over the esophagus (just posterior to the pharynx). Carefully tease away the tissues to expose the arches of the heart.

How many aortic arches can you count? \_\_\_\_\_

The **ventral blood vessel** is opposite the dorsal blood vessel, and cannot be seen at this time because the digestive system covers it.

► Sketch the circulatory system, focusing on the position of the aortic arches, dorsal blood vessel, and ventral blood vessel.

## Digestive System

The digestive system starts at the mouth. You will trace the organs all the way to the anus and identify each on the worm.

Find the mouth opening, the first part after the mouth is the **pharynx**, you will see stringy things attached to either side of the pharynx (pharyngeal muscles). The **esophagus** leads from the pharynx but you probably won't be able to see it, since it lies underneath the heart. You will find two structures close to the clitellum. First in the order is the **crop**, followed by the **gizzard**. The gizzard leads to the **intestine**, which is as long as the worm and ends at the **anus**.

► Use your scissors to cut open the crop and the gizzard. Which one has the harder exterior? \_\_\_\_\_

► Place in the correct order (number)

\_\_\_\_\_ Anus  
\_\_\_\_\_ Crop  
\_\_\_\_\_ Mouth  
\_\_\_\_\_ Gizzard  
\_\_\_\_\_ Esophagus  
\_\_\_\_\_ Intestine  
\_\_\_\_\_ Pharynx

## Nervous System

Locate the brain in the far anterior region of the worm. It is very very tiny and whitish colored. If you can't find it, it is probably because it was destroyed when you cut the worm. You CAN locate the ventral nerve cord by removing the intestines and searching for the white string-like structure that runs the length of the worm.

Remove the intestine and locate the ventral nerve cord. Check the box when this is complete.

☐

## Lab Analysis (answer True or False)

1. \_\_\_\_ The brain attaches to the ventral nerve cord.
2. \_\_\_\_ The dorsal side of the worm is lighter than the ventral side..
3. \_\_\_\_ The clitellum is located toward the anterior end of the worm.
4. \_\_\_\_ The esophagus lies beneath the pharynx
5. \_\_\_\_ Earthworms are hermaphrodites.
6. \_\_\_\_ The ventral nerve cord and the ventral blood vessel are connected.
7. \_\_\_\_ The pale string-like structure running the length of the ventral side of the worm is the blood vessel.
8. \_\_\_\_ An earthworm has fourteen aortic arches.
9. \_\_\_\_ The dorsal blood vessel can be seen from the worm's exterior.
10. \_\_\_\_ Seminal vesicles are part of the worm's digestive system.

► Label the image.

