

## Earthworm LAB REPORT Template

### Earthworm Dissection Lab

#### Purpose

To observe and learn, through dissection, about the external and internal structures of a common segmented worm – the earthworm

#### Background Information

The scientific name for the common earthworm is *Lumbricus terrestris*. They belong to the group of animals called Annelida (segmented worms). They are typically only 7-8 inches long and are made up of ring-like segments called annuli/septa. Each segment carries bristle-like hairs called setae, which are small bristles that help the earthworm move and burrow. Called “night crawlers”, earthworms usually only feed above ground at night; they burrow during the day but like to keep close to the surface even though they are able to burrow as deep as 2 meters. As they burrow, they eat soil and extract organic material and nutrients from decomposing organic matter like leaves and roots.

The **anterior** portion of the earthworm before the **clitellum** (glandular, non-segmented portion of earthworm) holds the ganglion (primitive “brain”), mouth (pharynx), esophagus, hearts, crop, gizzard, dorsal blood vessel, reproductive organs, and part of the intestine. Earthworms are **hermaphroditic**, meaning they contain both male and female reproductive organs. Earthworms still mate with each other for cross-fertilization. The **posterior** portion of the earthworm after the clitellum holds the rest of the intestines, nerves, anus and blood vessels. Earthworms are food for birds, rats, and toads and are used in residential composting and as fishing bait.

#### Materials:

Dissection tray	Probe/pointer	Pins
Dissection mat	Gloves	Scissors
Goggles	Lab Apron	Earthworm specimen

#### Safety

You must wear goggles and aprons at all times while the earthworms are out. Any lab members actually performing the earthworm dissection or touching the worm must wear gloves at all times. Scissors and probes are sharp, and must be handled carefully to avoid injury. Handle all dissection equipment VERY CAREFULLY. Make sure to clean up your lab stations properly after completion of dissection.

If you want to watch an example dissection all the way through, here are two good videos:

<https://www.youtube.com/watch?v=A2BY0hRUA9E>

<https://www.youtube.com/watch?v=u9HHS1uPFSO>

#### Procedures

**\*\*PUT ON YOUR SAFETY GOOGLES, GLOVES, and LAB APRON\*\***

##### Part I – Studying the EXTERNAL anatomy

1. Place your earthworm on a paper towel and pat dry before putting it onto the dissecting tray. Identify the dorsal side (the round top) and the ventral side (the flattened bottom).
2. Try to identify the mouth and anus, the setae on each individual segment (for movement), the clitellum, as well as the reproductive openings/pores.

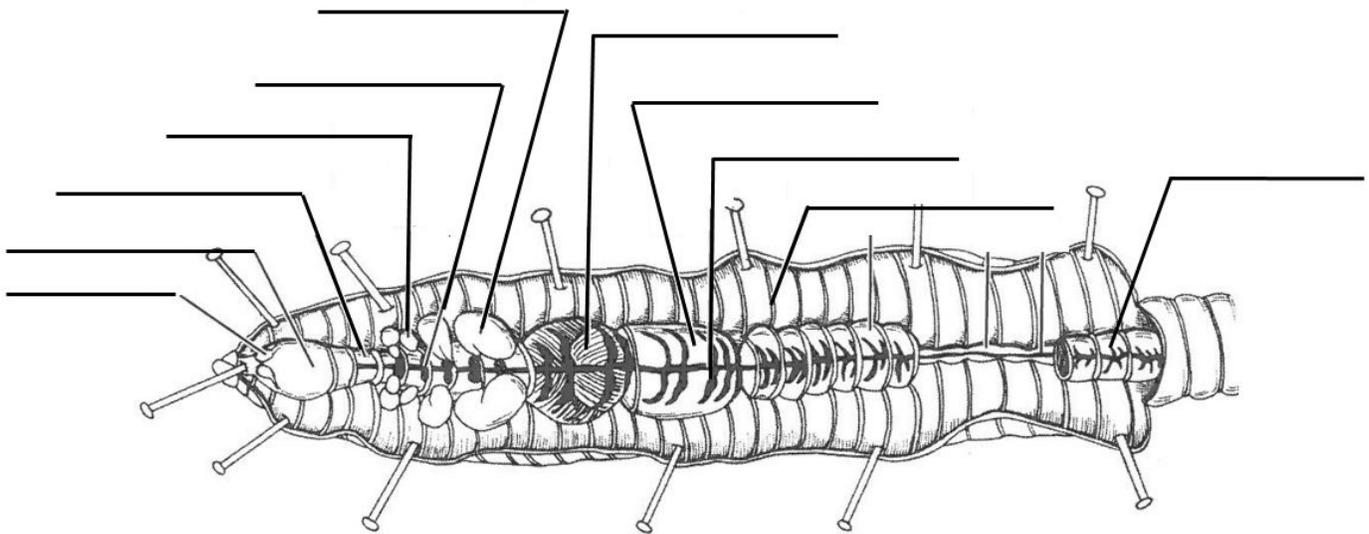
##### Part II – Studying the INTERNAL anatomy

1. Make sure the earthworm’s dorsal side is up and pin it down at its FIRST segment. STRETCH out your worm and pin down the worm a couple of segments BEHIND the clitellum. This will make it easier to cut open.

### Earthworm LAB REPORT Template

2. Cut a SMALL slit in the dorsal surface BEHIND the clitellum (near the posterior pin) and use the fine scissors to extend the slit toward the end of the worm. DO NOT CUT TOO DEEP. Using your forceps and pointer, you should now be able to spread the incision open little by little and lay the skin flat. Use the pins to hold the worm open and expose the internal anatomy. Angle the pins so that they are pointing inward so you have more space to work.
3. At this point, you should be able to see the intestines of the worm. Cut open the intestines GENTLY and look to see what is inside.
4. Cut a SMALL slit in the dorsal surface ABOVE the clitellum and use the fine scissors to extend the slit toward the mouth of the worm. BE VERY CAREFUL because if you cut too deeply or roughly, you will damage the internal organs and you will not get another worm.
5. Using your forceps and pointer, you should now be able to spread the incision open little by little and lay the skin flat until you get to segment #1. Again, use the pins to hold the worm open and expose the internal anatomy. Make sure to angle the pins for easier viewing purposes.
6. Looking at the anterior end of the worm, identify and label the following diagram with the following words:

Crop	Nerve Cord	Esophagus	Gizzard
Septum	Pharynx	Seminal receptacle	Seminal vesicle
Intestine	Ganglion	Hearts/Aortic Arches	



For the picture above, also color code the organ systems (USING A **CRAYON** or **COLORED PENCIL**—no markers/sharpeners) for the earthworm using the following key:

Circulatory System – Red  
Reproductive System - Blue  
Digestive System - Green  
Nervous System - Yellow

## Earthworm LAB REPORT Template

Rough draft due for peer review and editing on Wednesday 1/24 (25 points)

Final draft due Friday 1/26 (50 points)

### Title

**Purpose (Use your own words and write 2-3 complete sentences.)**

### **Introduction: Background Information about Earthworms**

Include the answers to the following questions **in paragraph form**. To guide you in your writing, check off each bullet point after it has been addressed. You may group similar topics into one paragraph. Make sure sentences and paragraphs flow and have smooth transitions. 2-3 paragraph requirement.

- What major group of worms do earthworms belong to?
- How do earthworms fit into the “circle of life” (i.e. what is their importance in terms of their relationship to plants, fungi, and more complex organisms like humans)?
- What are the three major parts/systems that an earthworm has that the other simple animals and organisms (we have learned previously) do not have?

### **Bulleted List of Materials**

**Safety (2 sentences)**

**Bulleted procedures (Write complete sentences in your own words.)**

### **Discussion/Conclusion:**

Include the answers to the following questions **in paragraph form**. To guide you in your writing, check off each bullet point after it has been addressed. You may group similar topics into one paragraph. Make sure sentences and paragraphs flow and have smooth transitions. 2-3 paragraph requirement.

- Describe the earthworm’s nervous system. Include the earthworm parts/organs involved in this system.
- Describe the earthworm’s circulatory system. Include earthworm parts/organs involved in this system.
- Describe the earthworm’s digestive system. Include earthworm parts involved in this system.
- What are the reproductive structures of the earthworm?
- What is the coelom and what is its function in the worm?

**Works Cited: MLA - Use [easybib.com](http://easybib.com) or [citationmachine.net](http://citationmachine.net)**