

# Life Sciences 11

## LG 17

### *Phylum: Annelida & Mollusca*

Mollusks and Annelids introduce us to two major groups of invertebrates that may seem simple at first glance, but are actually incredibly advanced, adaptable, and important to life on Earth. Though they lack backbones, these organisms have evolved specialized tissues, organ systems, and body structures that allow them to thrive in oceans, freshwater, and even on land. From earthworms enriching soil beneath our feet to octopuses solving puzzles in the depths of the ocean, mollusks and annelids demonstrate that complexity does not require a spine.

**Phylum Mollusca** includes organisms such as snails, clams, slugs, squids, and octopuses. Despite their diversity, mollusks share common structural features, including a soft body, a muscular foot, a mantle, and (in many species) a shell. Some mollusks move slowly along forest floors, while others propel themselves through water using jet propulsion. Certain cephalopods even display advanced behaviors, camouflage abilities, and problem-solving skills that rival some vertebrates. Mollusks show us how one basic body plan can diversify into an extraordinary range of forms and lifestyles.

**Phylum Annelida**, the segmented worms, includes earthworms, leeches, and marine polychaetes. Unlike simpler worms, annelids have segmented bodies, which provide greater flexibility and more efficient movement. Many also possess a true coelom and well-developed organ systems, including a closed circulatory system, allowing for more efficient transport of nutrients and oxygen. Earthworms play a crucial ecological role by aerating soil and recycling nutrients, making them essential partners in agriculture and ecosystem health.

Together, mollusks and annelids highlight key evolutionary innovations such as segmentation, specialization of tissues, and increasingly complex organ systems. Studying these phyla helps us understand how animal body plans became more efficient and adaptable over time. They remind us that even organisms that appear slow, slimy, or simple are products of millions of years of evolutionary refinement, and that some of the most important work in an ecosystem is done quietly, beneath the surface. Why did the worm break up with the snail? Because it felt like the relationship wasn't moving forward fast enough.

**LG 17 Hints:** *Read the assigned sections carefully and take detailed notes as you go. A portion of (LG) mark will be based on the notes you submit.*

*Reading and taking organized notes helps you to process information, so focus on identifying the most important ideas rather than copying everything word-for-word. Aim to summarize key concepts in your own words. A helpful strategy is to use clear headings and subheadings to organize your notes. This can make the material easier to review later. Ultimately, choose a note-taking style that works best for you, but make sure your notes are clear, organized, and show thoughtful engagement with the reading.*

**Instructions: Use your Biology 11 Life Sciences textbook to complete the sections below.**

You can also use the following link:

<https://www.thssscience.com/resources/Biology%20Miller%20Levine%20Chapter%2027.pdf>

**1. Read pages 584-593**

- a) Take notes on the above reading.
- b) Answer questions 1-4 on page 593

**2. Mollusks – Guided Questions**

a) **Define Mollusk:**

In your own words, explain what a mollusk is. Include key characteristics that set mollusks apart from other invertebrates. (Page 586)

b) **Body Structure:**

Describe the four basic body parts found in almost all mollusks. For each part, explain its function and why it is important to the organism's survival. (Page 586)

c) **Circulatory Systems:**

Explain the difference between an **open** and a **closed circulatory system**. Which type do different mollusks have, and how does it support their lifestyle? (Page 588)

d) **Excretory Structures – Nephridia:**

What are *nephridia*, and what role do they play in mollusks? Do annelids also have nephridia? Explain how this feature helps both groups survive. (Page 588)

**3. Watch the Learn Bright video on invertebrates before completing this guide.**

**Title: What Are Mollusks? | Learn all about these land and sea dwellers**

<https://www.youtube.com/watch?v=RExg1KgWmpA>

- a) List 2 interesting facts you learned from the above video

**4. Read pages 594-600**

- a) Take notes on the above reading
- b) Answer questions 1-3 on page 600

**5. Annelids – Guided Questions****a) Define and Describe:**

In your own words, explain what an annelid is. Include key characteristics that distinguish annelids from other types of worms. (Page 594)

**b) Structure and Function:**

What are *septa*? Describe their structure and explain why they are important to the body organization and movement of annelids. (Page 594)

**c) Life Processes in Annelids:**

Summarize how annelids carry out the following seven essential life functions. Be sure to include specific anatomical structures where appropriate (Pages 594–598):

- Feeding
- Respiration
- Internal transport (circulation)
- Excretion
- Response to stimuli
- Movement
- Reproduction

**d) Dissection Preparation – Diagrams:**

Since we will be conducting an earthworm dissection, carefully **draw and label**:

Figure 27-14 (Page 595)

Figure 27-16 (Page 596)

⚠ These must be hand-drawn diagrams. Do **not** print or copy a Google image. Scientific drawings are an essential skill in biology and are required for all dissections. Focus on accuracy, proportion, and clear labeling.

**6. Watch the Shape of Life video on invertebrates before completing this guide.**

**Title: Annelids: Powerful and Capable Worms**

<https://www.youtube.com/watch?v=9Q9gh1k99rY&t=590s>

- b) List 2 interesting facts you learned from the above video

**7. Watch the Earth.com video on invertebrates before completing this guide.**

**Title: What are annelids?**

<https://www.youtube.com/watch?v=28g59pnBh10>

- a) List 2 interesting facts you learned from the above video