Name: Due Date: TA:

Life Sciences 11

LG 18

Phylum Arthropoda

Phylum Arthropoda introduces us to the largest and most diverse group of animals on Earth, a phylum so successful that its members can be found in nearly every habitat imaginable. From the depths of the oceans to the tops of mountains, and from tropical rainforests to your own backyard, arthropods have adapted to survive and thrive in an incredible range of environments. Though they are invertebrates, their evolutionary innovations have made them some of the most complex and resilient organisms on the planet.

Arthropods include familiar organisms such as insects, spiders, crustaceans, and centipedes. Despite their diversity, all arthropods share key characteristics, including a segmented body, a hard exoskeleton made of chitin, and jointed appendages. These features provide protection, support, and flexibility, allowing for efficient movement and interaction with their environment. Molting, the process of shedding their exoskeleton to grow, is another defining trait that highlights both the advantages and challenges of this body plan.

This phylum is divided into several major groups, each with unique adaptations. Insects, the most diverse group, dominate terrestrial ecosystems and play critical roles as pollinators, decomposers, and food sources. Arachnids, such as spiders and scorpions, are often predators with specialized structures for capturing prey. Crustaceans, including crabs and shrimp, are primarily aquatic and exhibit a wide range of feeding and locomotion strategies. Myriapods, like centipedes and millipedes, showcase how segmentation can be adapted for different modes of life on land.

Studying arthropods helps us understand key evolutionary developments such as exoskeletons, jointed limbs, and the specialization of body segments into distinct regions. Their success highlights how structural adaptations can lead to incredible diversity and ecological importance. Arthropods are essential to ecosystems worldwide, influencing everything from food webs to nutrient cycling, and even human agriculture and health. They remind us that sometimes the smallest creatures can have the biggest impact. Why don't insects get bored in school? Because they always find the subject "bee"-yond interesting.

LG 18 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.

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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%2028.pdf

1. Read pages 606-616

a) Take notes on the above reading.
b) Answer questions 1-3 on page 616

2. Read pages 617-620

a) Take notes on the above reading.
b) Answer questions 1-2 on page 620

3. Read pages 620-621

a) Take notes on the above reading.
b) Answer questions 1-2 on page 621

4. Read pages 622-627

a) Take notes on the above reading.
b) Answer questions 1-5 on page 627

5. Read pages 628-631

a) Take notes on the above reading.
b) Answer questions 1-2 on page 631

6. Complete questions 1-8 (multiple choice) on page 634

7. Watch the Professor Dave Explains video on invertebrates before completing this guide. Title: Introduction to Phylum Arthropoda: 1.3 Million Species and Counting

https://www.youtube.com/watch?v=Ob3rPYttSTY

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