

Arthropods

Before You Read

Before you read the chapter, respond to these statements. **Accept all reasonable responses.**

1. Write an **A** if you agree with the statement.
2. Write a **D** if you disagree with the statement.

Before You Read	Arthropods	After You Read
	• A lobster’s hard covering cannot grow as the animal grows.	A
	• A spider begins digesting its food while the food is outside its body.	A
	• When you try to swat a fly, it often escapes because it can sense changes in airflow.	A
	• A newly hatched butterfly looks like an adult butterfly only smaller.	D

Science Journal

Speculate about what would happen if cockroaches and other insects were to disappear.

Accept all reasonable responses. Because of their importance in food webs, the impact of extinguishing insect species might be disastrous.

Arthropods

Section 1 Arthropod Characteristics

Main Idea _____ **Details** _____

Skim Section 1 of the chapter. Write two questions that come to mind from reading the headings and the illustration captions.

1. **Accept all reasonable responses.** _____
2. _____

Review Vocabulary

ganglion

Use your book or dictionary to define ganglion.

a group of nerve cell bodies that coordinates messages

New Vocabulary

Write the correct term in the left column for each definition below.

cephalothorax	body structure consisting of fused thorax and head regions
spiracle	opening from the tracheae or book lungs to the outside of an arthropod's body
tracheal tube	tube that branches into smaller and smaller tubules to carry oxygen throughout the body
abdomen	body region of fused segments at the posterior end that contains digestive structures, reproductive organs, and additional legs
Malpighian tubule	in most arthropods, structure that removes cellular wastes from the blood and empties into the gut
book lung	saclike pocket with highly folded walls for respiration
molting	in arthropods, process of shedding an exoskeleton
thorax	middle body region, consisting of three fused main segments to which, in many arthropods, legs and wings are attached
appendage	structure that grows and extends from an animal's body
mandible	mouthpart in arthropods that can be adapted for biting and chewing
pheromone	chemical secreted by many animal species that influences the behavior of other animals of the same species

Academic Vocabulary

transport

Define transport to show its scientific meaning.

to transfer from one place to another

Section 1 Arthropod Characteristics (continued)

Main Idea _____

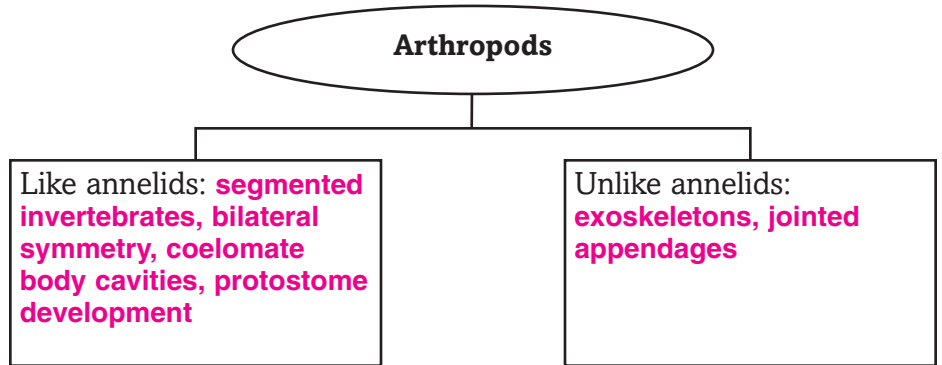
Details _____

Arthropod Features

I found this information on page _____.

SE, pp. 762–764
RE, pp. 309–310

Compare *arthropods to annelids by listing characteristics below.*



Identify *the structures attached to or contained in the main body regions of arthropods.*



What regions are fused in a cephalothorax? head and thorax

Analyze *the advantages and disadvantages of an exoskeleton.*

Advantages	Disadvantages
framework for support, protects soft body tissues, slows water loss in terrestrial animals, provides place for muscle attachment	adds weight, limits body size, made of nonliving material so must be shed to allow room to grow

Evaluate *the role of the body functions below in the molting process.*

Fluid secreted by skin glands: softens and eventually cracks the old exoskeleton

Increased blood circulation: puffs up the animal to make the new hardening exoskeleton larger for growing room

Section 1 Arthropod Characteristics (continued)

Main Idea

Details

Body Structure of Arthropods

I found this information on page _____.

SE, pp. 765–769
RE, pp. 310–312

Model *three types of arthropod respiratory structures. Identify the habitat—aquatic or terrestrial—of the arthropods with that type of respiratory system. Label the spiracles.*

<p>No spiracles should appear in the diagram of gills.</p> <p>Structure: _____</p> <p>Gills</p> <p>Habitat: Aquatic</p>	<p>Spiracles should appear and be labeled in the diagram of tracheal tubes.</p> <p>Structure: _____</p> <p>Tracheal tubes</p> <p>Habitat: Terrestrial</p>	<p>Spiracles should appear and be labeled in the diagram of book lungs.</p> <p>Structure: _____</p> <p>Book lungs</p> <p>Habitat: Terrestrial</p>
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Rephrase *one key fact about arthropods for each function below.*

Excretion: **Malpighian tubules remove cellular wastes from the blood and help terrestrial arthropods preserve water balance.**

Chemical communication: **Pheromones signal behaviors such as mating and feeding, and ants use them to create scent trails.**

Movement: **Muscles attach to inner surface of exoskeleton and strength of contraction depends on nerve impulse rate.**

SUMMARIZE

Identify three structures that arthropods use to respond to their environments. Explain how each structure is helpful to the arthropods.

Accept all reasonable responses. Compound eyes enable arthropods to analyze landscape changes as they fly. Tympanums or the forelegs of crickets allow for quick responses to sound waves. Limbs attached to the inside of exoskeletons facilitate rapid movement.