Lesson 28 Arthropod Characteristics

Key Words

arthropods: animals with segmented bodies that have hard outer coverings and jointed legs

exoskeleton: hard outer covering of an arthropod that protects and supports the animal

molt: to shed an old exoskeleton

KEY IDEAS

Arthropods make up the largest group of animals. All arthropods share the following traits: segmented bodies, jointed legs, and hard outer coverings.

Arthropods (AHR-throh-pahdz) are animals with segmented bodies, jointed legs, and hard outer coverings. They make up the largest group of animals. There are more species of arthropods than all other types of animals combined. Arthropods include huge lobsters that live at the bottom of the ocean and mites that are tiny enough to be parasites of wasps. Each species of arthropods differs from the others as it has adapted to its own environment. As a result, arthropods have many adaptations of a basic body plan.

✓ 1. What is an arthropod? _____

_____

Body Form. The body of an arthropod is divided into segments, or parts. Most arthropods have three main body parts: a head, a thorax, and an abdomen. The head contains the mouth and sense organs. Jointed legs are attached to the thorax, or middle part. The last part, the abdomen, contains the reproductive and digestive systems. Other anthropods have only two segments: a head and thorax that are fused together, and an abdomen.

Like all invertebrates, arthropods have no bones. Instead, they have a hard outer covering called an **exoskeleton** (ehks-oh-SKEHL-uh-tuhn). The exoskeleton protects and supports the soft inner parts of the animal in many ways. The exoskeleton protects arthropods from drying out and allows them to live in dry areas as well as in water. The exoskeleton also protects the arthropod from injury.

An exoskeleton has some drawbacks. It is heavy to carry around. Unlike the skeleton inside your body, an exoskeleton cannot grow. When an arthropod grows, it must **molt** (mohlt), or shed its old exoskeleton, and grow a new one. The old skeleton splits open, and the animal wriggles out. Because it has no protection, the animal usually hides while its new exoskeleton grows.

2. What are three functions of an exoskeleton?

_____

_____

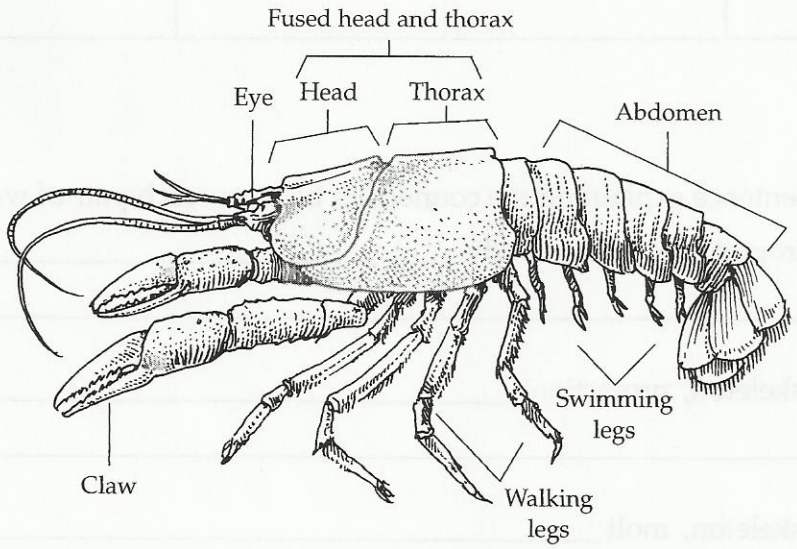
All arthropods have pairs of jointed legs. The joints, or places where the legs bend, allow the legs to move. The legs may be used for walking, swimming, hopping, or grabbing food. The number and type of legs depends on the type of arthropod.

Reproduction. Arthropods reproduce sexually. Separate male and female adults produce sperm and eggs that join to form fertilized eggs. Some arthropods reproduce in the water.

Feeding. Arthropods eat almost anything, including plants, other animals, wood, and paper. They have strong jaws used for chewing and specialized appendages such as claws used for capturing food.

A Typical Arthropod? Because there are so many different species of arthropods, there is no typical arthropod. Fig. 28-1 shows the structure of a crayfish, an arthropod that lives in water. This animal has four pairs of walking legs attached to a fused head and thorax. A much larger pair of legs are adapted as claws that are used to grab food. Smaller legs that are used for swimming are tucked under segments of the abdomen.

Fig. 28-1 Crayfish



TAKE ANOTHER LOOK

Fig. 28-2 shows how arthropods differ from other invertebrates.

Fig. 28-2

	Sponges and cnidarians	Worms	Mollusks	Arthropods
Body form	Soft bodies made of two layers surrounding central cavity; no organs or organ systems	Soft bodies with three tissue layers; organs and organ systems	Soft bodies often with one or more hard shells; organs and organ systems	Segmented body; jointed legs; exoskeleton; organs and organ system
Reproduction	Reproduce sexually and asexually by fragmentation and budding	Reproduce sexually and asexually by fission; Some adults have both male and female sex organs	Reproduce sexually; separate sexes	Reproduce sexually; separate sexes
Movement	Some do not move from place to place; others do	Most move; some parasites stay attached to host	Some do not move; others do	Except for some stages, move from place to place; some fly
Feeding	Many are filter feeders; some capture prey	Some are parasites, others vary	Many are filter feeders; others capture prey	Many different food sources

Check Your Understanding

Write a sentence explaining the connection between each pair of words.

3. arthropod, segmented body _____

_____

4. exoskeleton, protection _____

_____

5. exoskeleton, molt _____

_____

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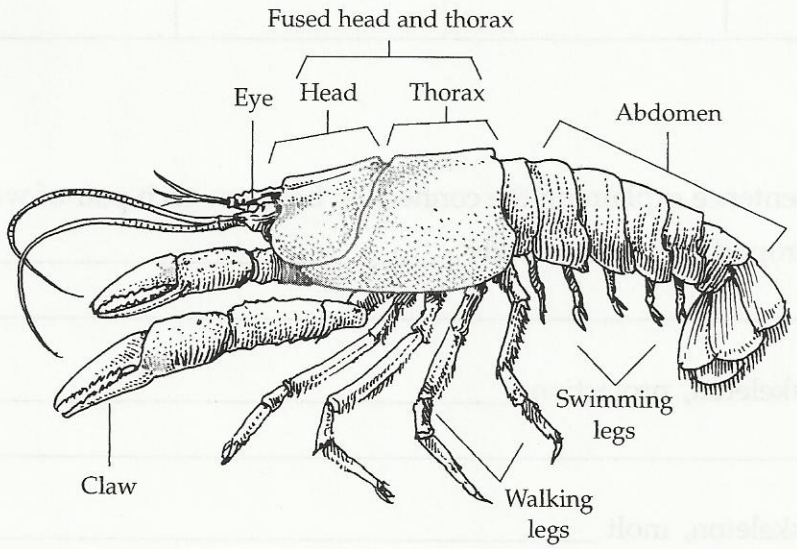

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Fig. 28-2 shows how arthropods differ from other invertebrates.

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Complete the following sentences.

The three main parts of most arthropods are the **(6)**_____,

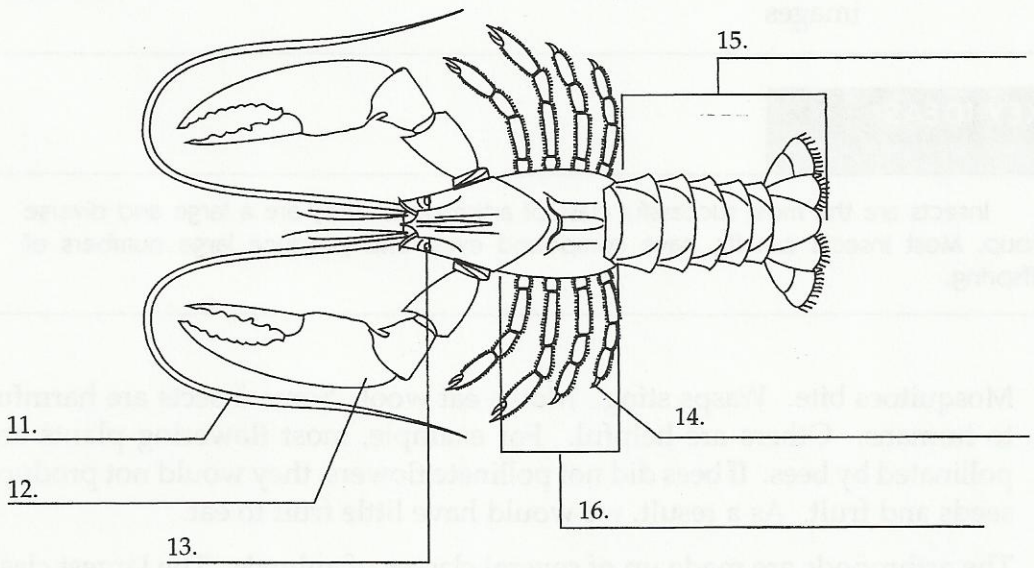
(7)_____, and **(8)**_____. After an arthropod

(9)_____, it often hides. At this time, its body has little or

no **(10)**_____.

Fig. 28-3 shows a different view of the same arthropod that is shown in Fig. 28-1. Label its main parts.

Fig. 28-3



17. Why do arthropods live in so many different places?

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_____

18. What are two disadvantages of an exoskeleton? _____

_____

19. Sometimes many different arthropods live close together but have different adaptations. As a result, they may not eat the same things and do not compete for food. How do you think this might affect arthropods as a group?

_____

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