

Section 30-1 **Evolution of the Invertebrates** (pages 653-657)

SECTION REVIEW

In this section you learned that the evolutionary relationships among different groups of organisms can be shown in the form of a diagram known as a phylogenetic tree. Recall that scientists determine evolutionary relationships by examining fossils and comparing the embryos, body structures, and chemical compounds of living organisms.

There are several major branches on the phylogenetic tree of the animals. The division of animals into protostomes and deuterostomes is based on events in early development. The division of animals into acoelomates, pseudocoelomates, and coelomates is based on the structure of the body cavity.

Identifying Word Parts: Building Vocabulary Skills

Many scientific terms are made up of word parts that are derived from Latin or Greek words. Each of the following word parts forms one or more of the key terms in this section. In the space provided, write the meaning of each word part. Then give an example of a term from Section 30-1 that contains that word part.

- 1. pseudo: _____
- 2. a-: _____
- 3. proto: _____
- 4. deuter-: _____
- 5. coelom: _____
- 6. -stome: _____
- 7. phylo-: _____
- 8. -geny: _____
- 9. -derm: _____
- 10. meso-: _____

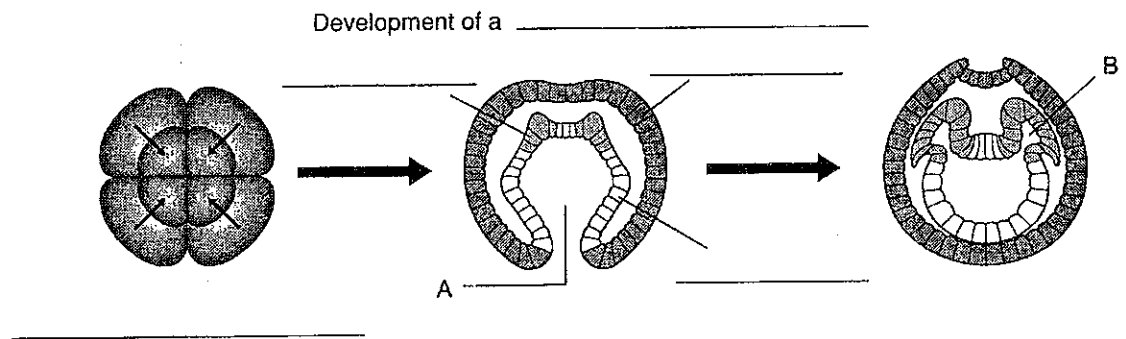
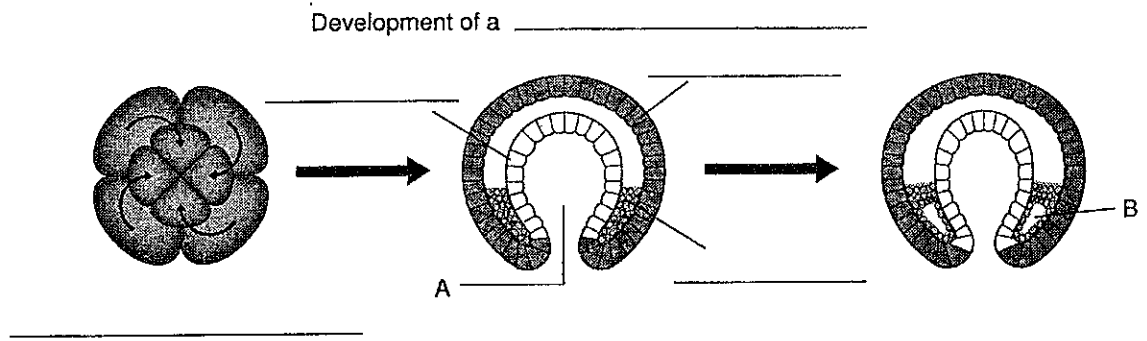
Acoelomates, Pseudocoelomates, and Coelomates: Using the Main Ideas

- 1. How do acoelomates, pseudocoelomates, and coelomates differ from one another?

2. In the space provided, draw a diagram that shows how acoelomates, pseudocoelomates, and coelomates differ in basic body structure. Label your diagram.

Protostomes and Deuterostomes: Interpreting Diagrams

Fill in the blanks in the accompanying diagram. Then answer the questions on the following page.



1. What is structure A? _____

2. What does structure A become in a protostome? _____

3. What does structure A become in a deuterostome? _____

4. What is structure B? _____

5. How does early development differ in protostomes and deuterostomes?

 **Concept Mapping**

The construction of and theory behind concept mapping are discussed on pages vii–ix in the front of this Study Guide. Read those pages carefully. Then consider the concepts presented in Section 30–1 and how you would organize them into a concept map. Now look at the concept map for Chapter 30 on page 293. Notice that the concept map has been started for you. Add the key facts and concepts you feel are important for Section 30–1. When you have finished the chapter, you will have a completed concept map.

**Section
30-2**

Form and Function in Invertebrates

(pages 658-668)

SECTION REVIEW

As you began studying this section you learned an important concept: Evolution is random and undirected. Organisms are not better or worse, or more perfect or less perfect, than one another. They are simply different.

In this section you compared the body systems that carry out the essential life functions in invertebrates. Some systems are simple; others are quite complex. None are "better" in any absolute sense than others. They can all be considered successful because they

accomplish the functions they have evolved to perform. As you examine the functions of movement, feeding, internal transport, respiration, excretion, response, reproduction, and development, you discovered that the ways in which invertebrates carry out these functions vary greatly. You also learned that it is useful to think of the digestive, excretory, and nervous systems in invertebrates as showing an evolutionary trend toward increasing complexity and specialization.

Recognizing Prefixes: Building Vocabulary Skills

Many of the key terms in this section contain prefixes that appear frequently in words pertaining to biology. For each term or group of terms listed below, define the underlined prefix(es). Then define the term(s).

1. Hydrostatic skeleton: _____

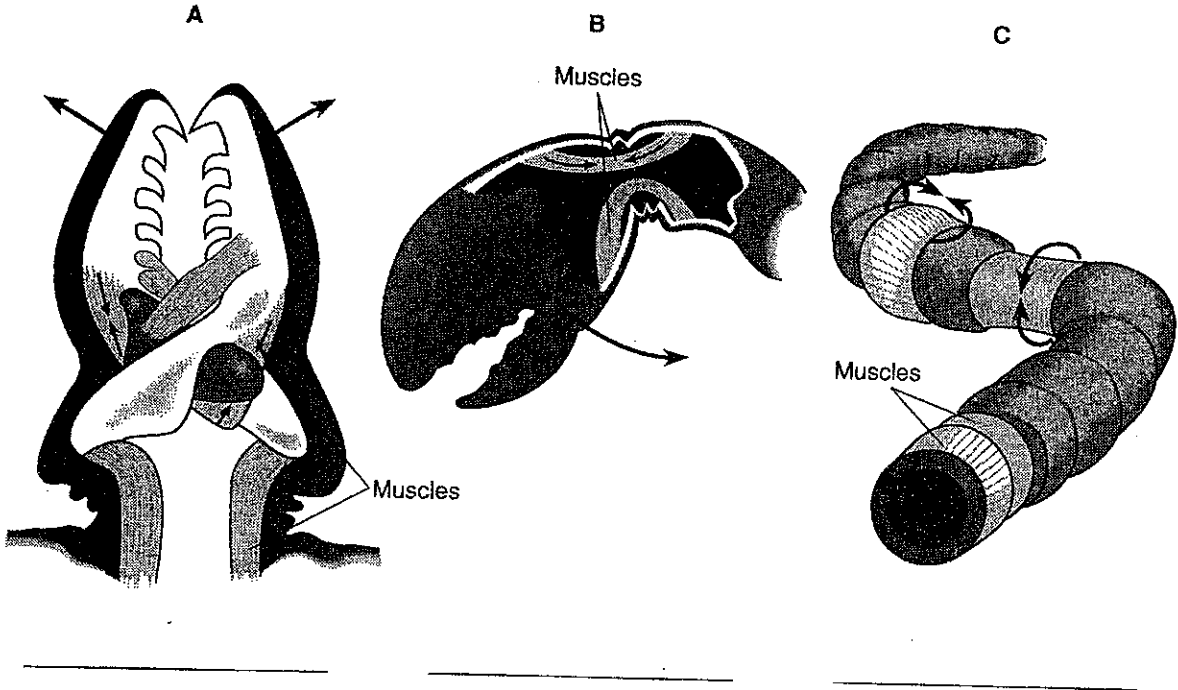
2. Endoskeleton: _____

3. Intracellular digestion; internal fertilization: _____

4. Extracellular digestion; external fertilization: _____

Skeletal Systems: Exploring the Main Ideas

In the space provided, identify each type of skeleton shown in the accompanying diagram. Then answer the questions that follow.



1. What are the two kinds of invertebrates that have the type of skeleton shown in diagram A?

In diagram B?

In diagram C?

2. What is the relationship between the muscles and the supporting structures in diagram A?

In diagram B?

In diagram C?

Relating Concepts: Understanding the Main Ideas

1. Compare open and closed circulatory systems. _____

Name two invertebrates that have an open circulatory system. _____

Name two invertebrates that have a closed circulatory system.

2. Fill in the accompanying diagram by listing and briefly describing four types of respiratory structures found in invertebrates. For each type of structure, name an organism that possesses it.

Structure	Description	Example

3. Name and briefly describe four types of excretory structures that are found in invertebrates. _____

4. How do the numbers of gametes and offspring produced by an invertebrate relate to its methods of fertilization and parental care? _____

 **Concept Mapping**

The construction of and theory behind concept mapping are discussed on pages vii–ix in the front of this Study Guide. Read those pages carefully. Then consider the concepts presented in Section 30–2 and how you would organize them into a concept map. Now look at the concept map for Chapter 30 on page 293. Notice that the concept map has been started for you. Add the key facts and concepts you feel are important for Section 30–2. When you have finished the chapter, you will have a completed concept map.