

Ch 29

CHAPTER REVIEW

CONTENT REVIEW

Multiple Choice

Choose the letter of the answer that best completes each statement.

1. Which of the following statements about a protostome is true?
 - a. It is an acoelomate.
 - b. It has radial cleavage.
 - c. Its blastopore becomes its mouth.
 - d. Its mesoderm arises from pouches of endoderm.
2. Roundworms, which have body cavities that are partially lined with mesoderm, are
 - a. deuterostomes.
 - b. coelomates.
 - c. acoelomates.
 - d. pseudocoelomates.
3. An animal that lives in an extremely dry climate probably
 - a. has a very efficient excretory system.
 - b. tends to gain water through osmosis.
 - c. has a hydrostatic skeleton.
 - d. excretes ammonia.
4. The nitrogenous waste that is least soluble in water is
 - a. urine.
 - b. ammonia.
 - c. uric acid.
 - d. urea.
5. Which animal has the greatest amount of cephalization?
 - a. starfish
 - b. flatworm
 - c. jellyfish
 - d. octopus
6. Sea urchins produce huge numbers of sperm cells or egg cells. These animals probably
 - a. are hermaphrodites.
 - b. have internal fertilization.
 - c. have external fertilization.
 - d. care for their young.
7. An animal with a tube-within-a-tube body plan always has a
 - a. coelom.
 - b. digestive tract with two openings.
 - c. hydrostatic skeleton.
 - d. highly specialized digestive tract.
8. Which animal has the most complex circulatory system?
 - a. clam
 - b. sea anemone
 - c. flatworm
 - d. squid

True or False

Determine whether each statement is true or false. If it is true, write "true." If it is false, change the underlined word or words to make the statement true.

1. A body cavity that is completely lined with mesoderm is called a blastopore.
2. Most deuterostomes have spiral cleavage.
3. Acoelomate animals are protostomes.
4. Budding is a form of sexual reproduction.
5. Malpighian tubules remove urea.
6. Insects have open circulatory systems.
7. The middle layer of cells in an animal embryo is called the ectoderm.
8. Nephridia are used in respiration.

Word Relationships

Replace the underlined definition with the correct vocabulary word.

1. The animal kingdom's diagram that shows the evolutionary relationships between groups of organisms indicates that animals evolved from protists.
2. The waste product produced by the excretory system contains concentrated nitrogenous wastes.
3. Sponges have the type of digestion in which food is broken down inside food vacuoles within cells rather than in a digestive cavity.

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CONCEPT MASTERY

Use your understanding of the concepts developed in the chapter to answer each of the following in a brief paragraph.

1. Discuss the evolution of the body cavity in animals. Give specific examples of animals with each kind of body plan.
2. Explain why lungs tend to have a highly folded inner surface and gills are often feathery in appearance. (*Hint: What features are common to all respiratory surfaces?*)
3. What sorts of inferences can you make if you are told that an animal is a deuterostome?
4. How do crayfish show the evolutionary trends of cephalization, centralization, and specialization? (*Hint: Refer to Figure 28-23 on page 621.*)
5. Explain why sponges are able to eat only microscopic particles of food.
6. Why can internal fertilization be considered an adaptation to living on land?
7. Compare early development in protostomes and deuterostomes.

CRITICAL AND CREATIVE THINKING

Discuss each of the following in a brief paragraph.

1. **Summarizing information** Construct a table that compares the nine invertebrate phyla you have studied in this unit with regard to the seven essential life functions. Be sure to include at least two examples of each phylum and any other information that will help you see the relationships between invertebrates.
2. **Relating concepts** At one time, cnidarians and echinoderms were placed in the same classification group because they both have radial symmetry. Explain why echinoderms are now thought to be more closely related to chordates.
3. **Making generalizations** Ctenophores are marine animals that have radial symmetry, a digestive tract with a single opening, and long, branching tentacles that have special sticky cells used to capture prey. The thin, transparent body wall consists of three layers: epidermis, mesoglea, and gastroderm. Although the mesoglea contains muscle cells, ctenophores typically move by using combs of fused cilia. Ctenophores range in size from about that of a pea to that of a golf ball.
 - a. Where would you expect ctenophores to fit on the phylogenetic tree? Explain.
 - b. How would you expect a ctenophore to carry out the functions of respiration, internal transport, and excretion? Explain.
4. **Developing a hypothesis** Formulate a hypothesis to explain why slugs are slimy. How might you test your hypothesis?
5. **Evaluating theories** Deuterostomes are thought to have evolved from protostomes. Give two reasons explaining why this is a reasonable theory. What information would you need to make a more informed evaluation of this theory?
6. **Using the writing process** Pretend that you are the invertebrate of your choice. Prepare a résumé that will inform a potential employer of your specialized skills.