

Chapter 29

Echinoderms and Invertebrate Chordates

Reinforcement and Study Guide

Section 29.1 Echinoderms

In your textbook, read about echinoderms' internal skeleton, radial symmetry, and the water vascular system.

Answer the following questions.

1. Describe the “spiny skin” that is a characteristic of echinoderms.

2. In what way is being radially symmetrical an advantage for adult echinoderms?

For each item in Column A, write the letter of the matching item in Column B.

Column A	Column B
_____ 3. Has a flattened, immovable endoskeleton made up of fused plates	a. brittle star
_____ 4. Has thin, flexible rays made up of small, overlapping, calcified plates	b. sea star
_____ 5. Has a flexible endoskeleton divided into rather long, tapering rays	c. sand dollar
_____ 6. Has tiny, calcified plates embedded in fleshy skin	d. sea lily
_____ 7. Has feathery, branching rays made up of tiny, calcified plates	e. sea cucumber

Complete the following sentences.

8. Tube feet are part of an echinoderm's _____, _____, which is involved not only in locomotion, but also in _____, _____, _____, and food collecting.
9. In a sea star, water enters and exits the water vascular system through a structure called the _____, a sievelike, disc-shaped opening on the _____ side of the body.

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In your textbook, read about sea star structure, echinoderm larvae, nutrition, nervous systems, and origins.

Label this drawing of a sea star and of a cross section of one of its rays. Use these choices:

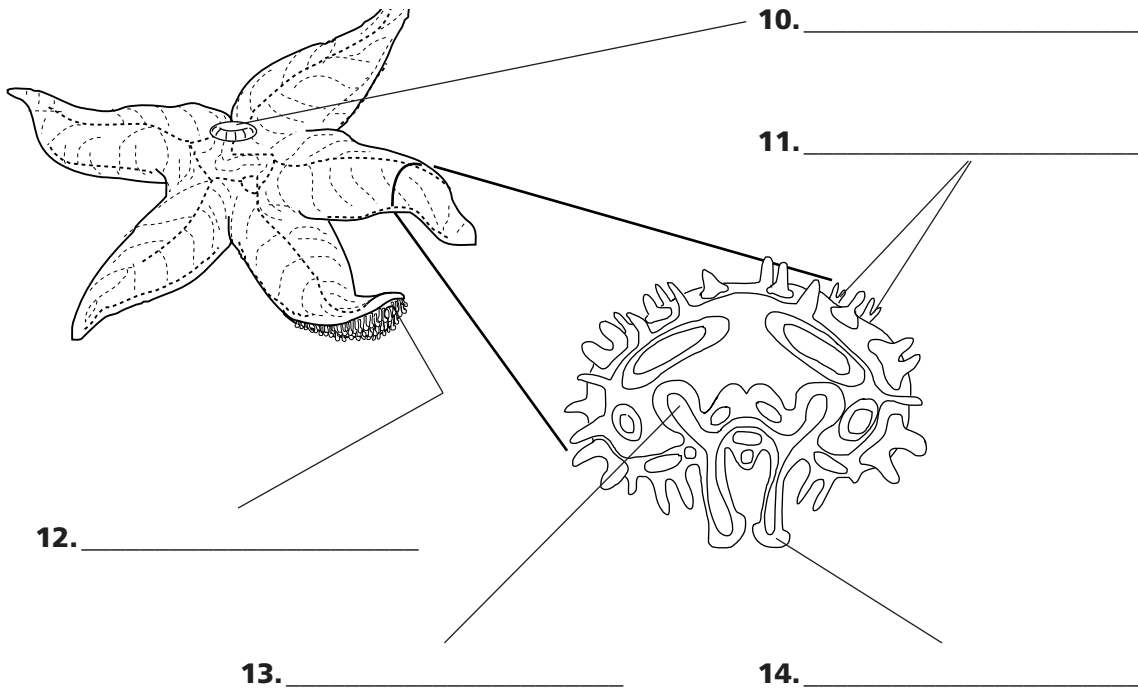
ampulla

eyespot

madreporite

pedicellariae

tube foot



Identify each of the following as describing either larva or an adult echinoderm.

_____ 15. free-swimming

_____ 16. bilaterally symmetrical

_____ 17. radially symmetrical

_____ 18. moves with tube feet

Determine if each of the following statements is **true** or **false**.

_____ 19. If a sea urchin population underwent a population explosion, you might expect to see a rapid decline in the amount of algal life in the area.

_____ 20. Sea stars and brittle stars both eat suspended organic particles.

_____ 21. Most echinoderms have highly developed sense organs.

_____ 22. The fact that echinoderms have bilaterally symmetrical larvae and deuterostome development is strong evidence that they are most closely related to chordates.

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In your textbook, read about the diversity of echinoderms.

Answer the following questions.

- 23.** List the five classes of living echinoderms and the types of animals in each class.

- 24.** How is the ability to regenerate lost body parts adaptive for most echinoderms?

Complete the table by checking the column(s) that best fit(s) each description.

Description	Asteroidea	Ophiuroidea	Echinoidea	Holothuroidea	Crinoidea
25. Have multiple rays					
26. May rupture and release internal organs when threatened					
27. Some members of the class are sessile					
28. Burrow into rock or sand					
29. Use mucus-coated tentacles for feeding					
30. Some members of the class can actively swim from place to place					
31. Use rays, not tube feet, for locomotion					
32. The most inflexible type of echinoderm					
33. Use long, feathery arms to trap food particles drifting past					
34. Eat bivalves and other small animals					