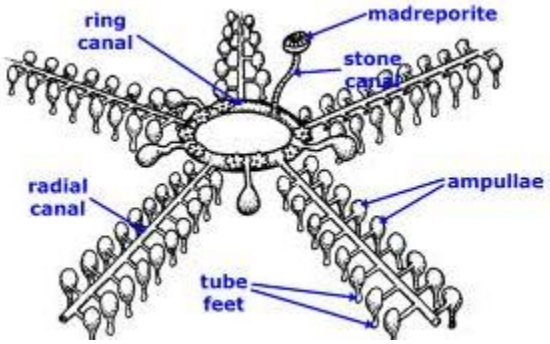
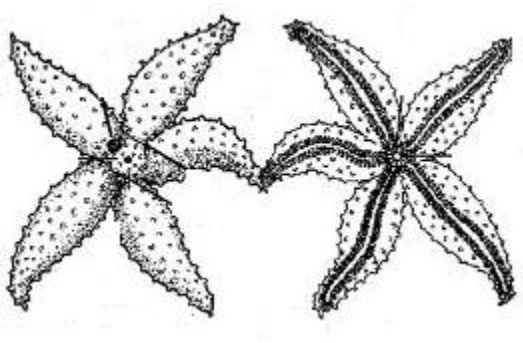
Phylum Echinodermata: Investigating the Sea star

Sea stars (a.k.a. starfish), are found in abundance in coastal waters and along seashores. Sea stars vary greatly in size and colour. These organisms are important because they demonstrate many features of echinoderms in general. Use the Miller and Levine textbook as a reference



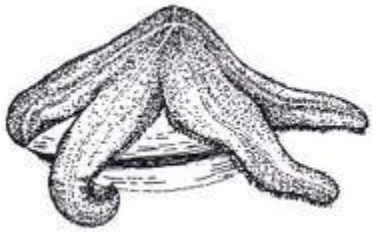


1. How are sea stars related to members of our own phylum (Chordata)?

2. Describe the functions of the madreporite (sieve plate) the ring canal, radial canal, and the tube feet in the water vascular system of a sea star.

3. How do the tube feet act like living suction cups?

4. Why does a sea star have hundreds of tube feet rather than just a few?



5. How can a sea star get to a clam that is inside a shell?

6. Explain how a sea star feeds on a bivalve once its shell is opened?

7. What are the functions of the tube feet?

8. What are skin gills? What are they used for?

9. Sea stars have scattered sensory cells that enable them to detect potential sources of food. In addition, they can determine whether it is light or dark. Explain how this is possible.

10. Explain how the following echinoderms move:
    a. Sea stars

    b. Feather star

    c. Sea cucumber

11. What happens during the reproductive season when a sea star detects gametes of its own species?

12. Where does fertilization take place?

13. Describe what happens to sea star larvae after fertilization?

14. Why do sea stars produce millions of eggs?

15. Discuss how sea stars can repair themselves?