



Marine Biology Lab: Sea Star Dissection



Background: Echinoderms are radially symmetrical animals that only live in the sea. *Echinoderm* means "spiny skin" in Greek. There are over 6,000 species and they usually have five appendages (arms or rays). As larvae, echinoderms are bilaterally symmetrical but, become radially symmetrical as they mature. Sea stars (class *Asteroidea*) are sometimes called starfish, though they are not real fish. The sea star's skin looks spiny if you examine it, with different types of growths on the surface. Some bumps, called dermal branchiae, are used to absorb oxygen. Pedicellaria are pincher-like organs used to clean the surface of the skin of parasites. Under the skin the skeleton is made of calcium plates called ossicles. Each sea star has hundreds of tiny feet on the bottom of each ray. These are tube feet, or *podia*. These tiny feet are filled with sea water. The vascular system of the sea star is also filled with sea water. By moving water from the vascular system into the tiny feet, the sea star can make a foot move by expanding it. This is how sea stars move around. Muscles within the feet are used to retract them. Each ray of a sea star has a light sensitive organ called an eyespot, which can detect light and general direction.

Purpose: To examine the internal and external anatomy of the sea star.

Materials: Dissecting pan, dissecting tools, safety glasses, preserved sea star

Procedure:

Aboral Surface

1. Obtain a preserved starfish and rinse off any preservative with water.
2. Place the starfish in the dissecting pan with its dorsal or aboral (top) surface upward.
3. Locate the central disc in the center of the starfish. Count and record the number of arms or rays your starfish has. _____
4. Locate the small, round hard plate called the madreporite on top of the central disc. Water enters through this into the water vascular system. Color the central disc yellow, the arms orange, and madreporite green on Figure 1.
5. Feel the upper surface of the starfish for spines. These spines protect the starfish and are part of their internal skeleton. Color these blue on Figure 1.
6. Look at the tip of each arm and find the eyespot. Color this red on Figure 1.

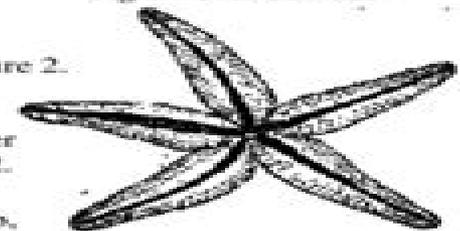
Fig 1 - Aboral Surface



Oral Surface

7. Turn the starfish over to its oral or ventral surface (underside).
8. Locate the mouth in the center of the central disc. Find the ring of oral spines surrounding the mouth. Color the mouth yellow and the oral spines red on Figure 2.
9. Find the groove that extends down the underside of each arm. This is called the ambulacral groove. Color this blue on Figure 2.
10. Feel the numerous, soft tube feet inside each groove. These are part of the water vascular system & aid in movement and feeding. Color these green on Figure 2.

Fig 2 - Oral Surface



Internal Anatomy

11. With the starfish's aboral surface up, cut off the tip of a ray. Cut along lines a, b, and c (as in Figure 3) and then remove this flap of skin.
12. Inside the arm, locate two long digestive glands called the pyloric caeca. These make enzymes to digest food in the stomach. Color these purple in Figure 4.
13. Cut a circular flap of skin from the central disc. (You will have to also cut around the madreporite in order to remove this flap.) Observe the stomach under the central disc. Color this orange on Figure 4.

Fig 3 - Cuts in Arm



Marine Biology Lab Sea Star Dissection Answers

JE Gale



Marine Biology Lab Sea Star Dissection Answers:

The book delves into Marine Biology Lab Sea Star Dissection Answers. Marine Biology Lab Sea Star Dissection Answers is a vital topic that needs to be grasped by everyone, ranging from students and scholars to the general public. This book will furnish comprehensive and in-depth insights into Marine Biology Lab Sea Star Dissection Answers, encompassing both the fundamentals and more intricate discussions.

1. The book is structured into several chapters, namely:
 - Chapter 1: Introduction to Marine Biology Lab Sea Star Dissection Answers
 - Chapter 2: Essential Elements of Marine Biology Lab Sea Star Dissection Answers
 - Chapter 3: Marine Biology Lab Sea Star Dissection Answers in Everyday Life
 - Chapter 4: Marine Biology Lab Sea Star Dissection Answers in Specific Contexts
 - Chapter 5: Conclusion
 2. In chapter 1, the author will provide an overview of Marine Biology Lab Sea Star Dissection Answers. This chapter will explore what Marine Biology Lab Sea Star Dissection Answers is, why Marine Biology Lab Sea Star Dissection Answers is vital, and how to effectively learn about Marine Biology Lab Sea Star Dissection Answers.
 3. In chapter 2, the author will delve into the foundational concepts of Marine Biology Lab Sea Star Dissection Answers. The second chapter will elucidate the essential principles that must be understood to grasp Marine Biology Lab Sea Star Dissection Answers in its entirety.
 4. In chapter 3, the author will examine the practical applications of Marine Biology Lab Sea Star Dissection Answers in daily life. This chapter will showcase real-world examples of how Marine Biology Lab Sea Star Dissection Answers can be effectively utilized in everyday scenarios.
 5. In chapter 4, the author will scrutinize the relevance of Marine Biology Lab Sea Star Dissection Answers in specific contexts. This chapter will explore how Marine Biology Lab Sea Star Dissection Answers is applied in specialized fields, such as education, business, and technology.
 6. In chapter 5, the author will draw a conclusion about Marine Biology Lab Sea Star Dissection Answers. This chapter will summarize the key points that have been discussed throughout the book.
- This book is crafted in an easy-to-understand language and is complemented by engaging illustrations. It is highly recommended for anyone seeking to gain a comprehensive understanding of Marine Biology Lab Sea Star Dissection Answers.

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Table of Contents Marine Biology Lab Sea Star Dissection Answers

1. Understanding the eBook Marine Biology Lab Sea Star Dissection Answers
 - The Rise of Digital Reading Marine Biology Lab Sea Star Dissection Answers
 - Advantages of eBooks Over Traditional Books
2. Identifying Marine Biology Lab Sea Star Dissection Answers
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Marine Biology Lab Sea Star Dissection Answers
 - User-Friendly Interface
4. Exploring eBook Recommendations from Marine Biology Lab Sea Star Dissection Answers
 - Personalized Recommendations
 - Marine Biology Lab Sea Star Dissection Answers User Reviews and Ratings
 - Marine Biology Lab Sea Star Dissection Answers and Bestseller Lists
5. Accessing Marine Biology Lab Sea Star Dissection Answers Free and Paid eBooks
 - Marine Biology Lab Sea Star Dissection Answers Public Domain eBooks
 - Marine Biology Lab Sea Star Dissection Answers eBook Subscription Services
 - Marine Biology Lab Sea Star Dissection Answers Budget-Friendly Options
6. Navigating Marine Biology Lab Sea Star Dissection Answers eBook Formats
 - ePub, PDF, MOBI, and More
 - Marine Biology Lab Sea Star Dissection Answers Compatibility with Devices
 - Marine Biology Lab Sea Star Dissection Answers Enhanced eBook Features
7. Enhancing Your Reading Experience

- Adjustable Fonts and Text Sizes of Marine Biology Lab Sea Star Dissection Answers
 - Highlighting and Note-Taking Marine Biology Lab Sea Star Dissection Answers
 - Interactive Elements Marine Biology Lab Sea Star Dissection Answers
8. Staying Engaged with Marine Biology Lab Sea Star Dissection Answers
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Marine Biology Lab Sea Star Dissection Answers
 9. Balancing eBooks and Physical Books Marine Biology Lab Sea Star Dissection Answers
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Marine Biology Lab Sea Star Dissection Answers
 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
 11. Cultivating a Reading Routine Marine Biology Lab Sea Star Dissection Answers
 - Setting Reading Goals Marine Biology Lab Sea Star Dissection Answers
 - Carving Out Dedicated Reading Time
 12. Sourcing Reliable Information of Marine Biology Lab Sea Star Dissection Answers
 - Fact-Checking eBook Content of Marine Biology Lab Sea Star Dissection Answers
 - Distinguishing Credible Sources
 13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
 14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

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