

Lab: Starfish Dissection

Purpose: Examine the external and internal anatomy of the starfish.

Materials:

Preserved starfish, dissecting pan, scissors, scalpel, forceps, T-pins, pencil, lab apron, safety glasses

Procedure:

I. 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) Observe the starfish and determine its symmetry.

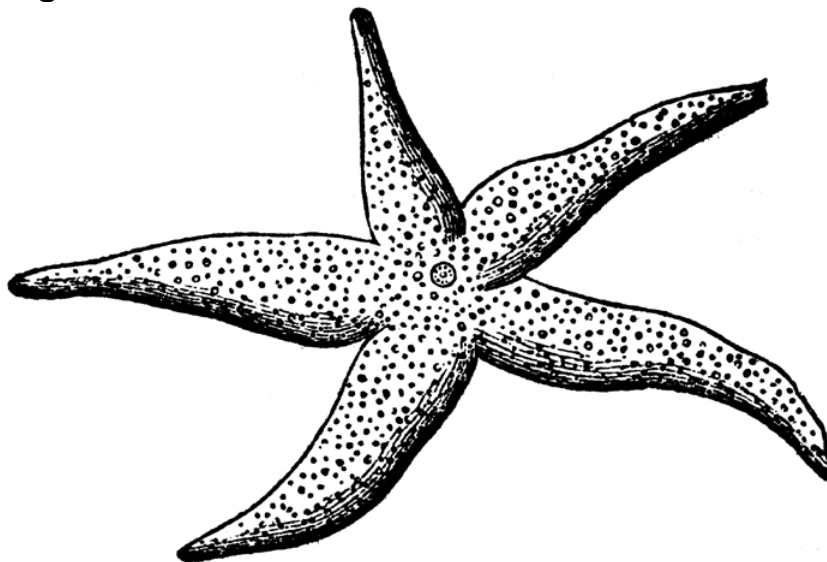
4) Locate the central disc in the center of the starfish. **Count and record the number of arms or rays the starfish has.**

Number of arms: _____

5) Locate the small, round hard plate called the madreporite on top of the central disc. Water enters through this into the water vascular system. **Label the central disc, arms, and madreporite on Figure 1.**

6) Feel the upper surface of the starfish for spines. These spines protect the starfish and are part of their internal skeleton. **Label these on figure 1.**

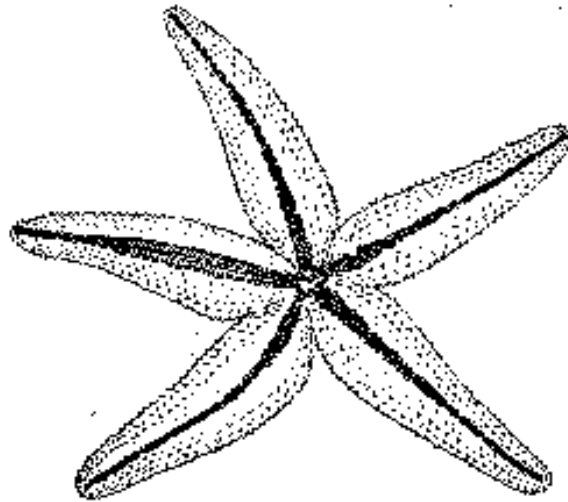
Figure 1 -Aboral Surface



II. Oral Surface

- 7) Turn the starfish over to its ventral or oral surface (underside).
- 8) Locate the mouth in the center of the central disc. Find the ring of oral spines surrounding the mouth. **Label these on figure 2.**
- 9) Find the groove that extends down the underside of each arm. This is called the ambulacral groove. **Label this 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. **Label these on Figure 2.**

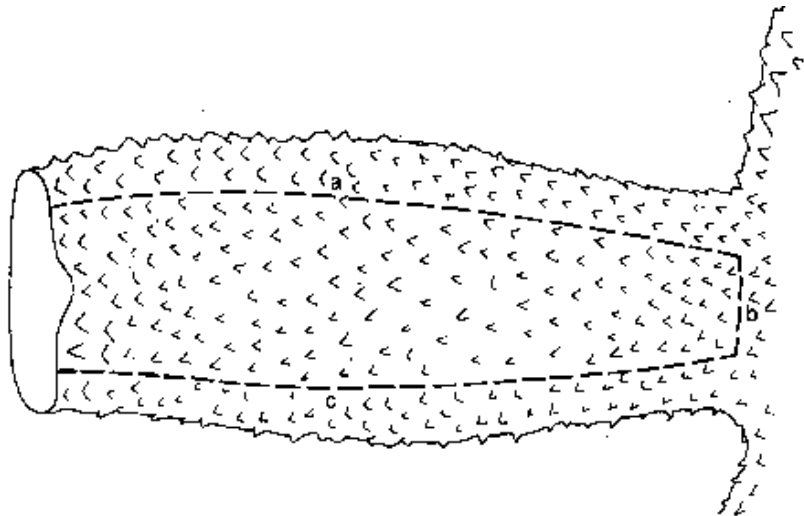
Figure 2 – Oral Surface



III. Internal Anatomy

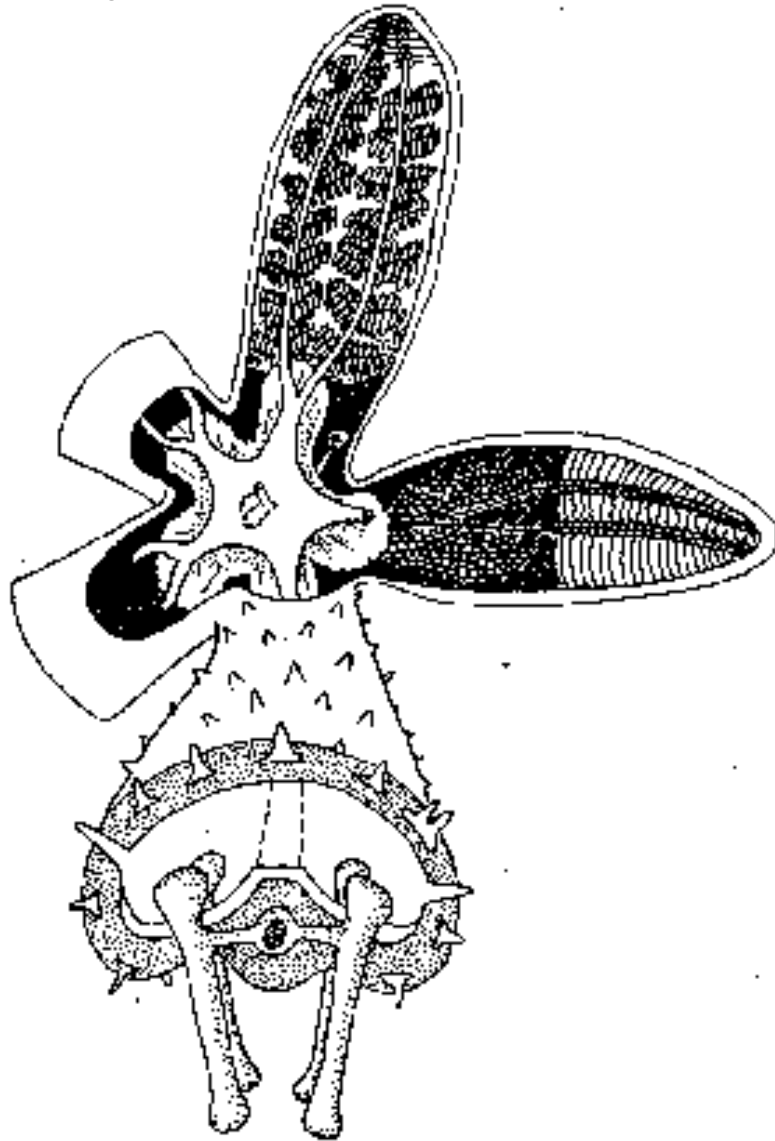
- 11) With the starfish's aboral surface facing you, cut off the tip of a ray. Cut along lines a, b, and c (Figure 3) and then remove this flap of skin.

Figure 3 – Cuts in Arm



- 12) 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. **Label this on Figure 4.**
- 13) Cut off the tip of a ray to observe the parts of the tube feet. Find the zipper-like ridge that extends the length of the ray. The tube feet are attached to these.
- 14) Locate the bulb-like top of a tube foot called the ampulla. This sac works like the top of an eyedropper to create suction. The bottom of the tube foot is a sucker. **Label these in Figure 4**

Figure 4 – Digestive system and tube feet



- 15) Running down the center of each arm is a lateral canal to which tube feet are attached. **Label this in Figure 5.**
- 16) In the central disc the five lateral canals connect to a circular canal called the ring canal. **Find this canal & label it on figure 5.**
- 17) A short canal called the stone canal leads from the ring canal to the madreporite where water enters. **Label the stone canal & madreporite on Figure 5.**

Figure 5 – Water Vascular System

