I. TITLE - 

II. OBJECTIVE - 

III. PROCEDURE

MATERIALS - dissection tools - dissection tray - stereo scope - Sea Star specimen

NOTE - Answer all questions as you go. No sketches needed but file all handouts with your lab notebook notes.

1. The scientific name of your Sea Star specimen is

2. It belongs to the Kingdom and Phylum

3. What type of symmetry does your specimen display?

4. Begin with the dorsal surface. Note the short, white, "spines". This phylum is also called the _______________ animals.

5. Look between the spines. Notice how the skeleton is covered with a layer of tissue. Because this tissue covers the skeleton the sea star is said to have an _______________ skeleton.

6. Use a stereoscope to look closely at the tissue. Look for the small _______________ between the spines. These structures look like small "Y's" and are actually tiny pincers that are used to remove debris from the dorsal surface. They keep the _______________ clean which allows better O₂ and CO₂ exchange. Note - the answer to #8 is NOT "dorsal surface".

7. Near the middle of the central disk there will be a small opening. Use a probe to find it. Do not confuse this small opening with the larger, light-colored, sieve plate nearby. This small opening is the _______________. (Hint - the sea star has a complete, one way, digestive system!)

8. The common sea star will have five arms, also known as _______________. Study the tip of each arm. There should be a sensory structure visible at the end called the _______________ and can detect the presence of 12.

9. The sieve plate or _______________ on the central disk is an opening which allows water to enter the sea star’s _______________ system. It also functions as a type of balance organ. Begin your dissection with scissors (the skeleton will dull razor blades). Use great care to remove part of the tissue and skeleton around the sieve plate on the dorsal surface of the central disk. Directly under the sieve plate, & attached to it, you will find a slender white tube leading down. This tube is called the 15. _______________ canal and leads down to a larger circular structure in the middle of the central disk called the 16. _______________ canal.
The circular structure surrounds the bag-like structure in the center. This soft structure is connected ventrally to the (tube) which in turn is connected to the mouth.

It will also have a slender tube that leads upward to the dorsal surface where it connects to the .

The bag-like structure will also have five radiating tubes, each called a that radiate out from the central disk. Trace these tubes. Just before a tube enters an arm it will branch into a pair of feathery that will secrete digestive enzymes. You will have to use your scissors to dissect away the dorsal surface of the arm to allow you to trace these structures. The stomach can be extruded from the body through the mouth and inserted between the valves of a Mollusk. Enzymes are then secreted to break down the Mollusk tissues.

Since this process occurs outside the body it is called .

Carefully cut away and remove the two feathery structures in the arm. You should now be able to continue tracing the water system as it leads outward from the circular structure (see step #16) and into the arm that you have now exposed. The water tube that extends out into each arm is called the canal. Trace the path water would take as it moves through the system beginning at the sieve plate & ending at the tip of an arm. Along this water canal in each arm are many small bulb-like structures called . They will appear as densely packed rows of small round buds extending out into each arm on both sides of the water tube. Each of these bulbs is in turn connected to a long, hollow which passes ventrally to the outside and aids the sea star in movement.

The hollow inner cavity (not in roundworms) that contains all the organs is called the .

It is filled with a fluid that bathes all the internal organs and fulfills the four main functions of "blood"...

27. Function #1

28. Function #2

29. Function #3

30. Function #4 EXPLAIN !!!

Some of this blood fluid extends outside of the main central cavity into the small finger-like structures projecting up through the external tissue layer. This is where gas exchange takes place with the surrounding water.

If present, the reproductive organs (also called ) will be paired like the digestive glands but will be located beneath them and tend to be shorter.

Corrected by: ____________________________  Verified by: ____________________________