
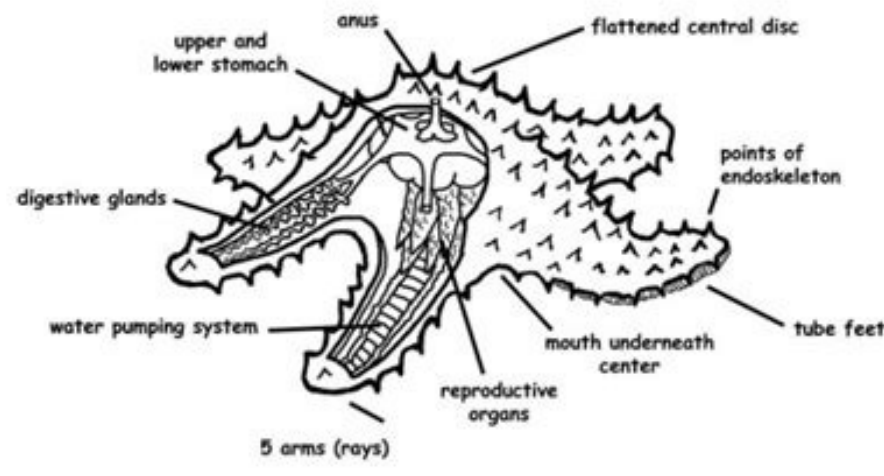


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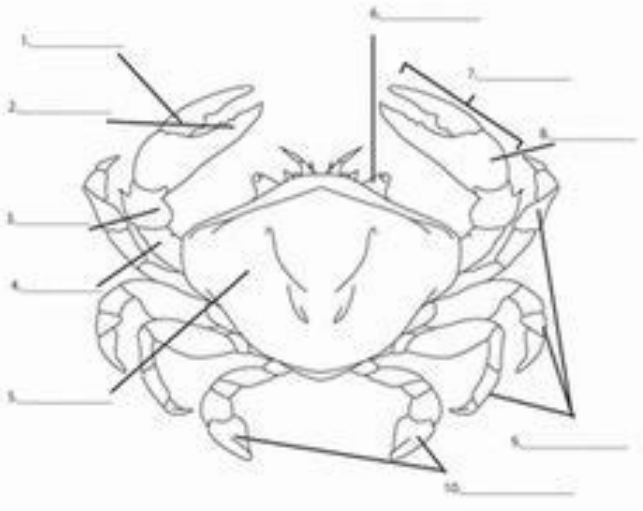
**Phylum - Echinodermata**  
 sea stars (starfish), brittle stars, sea cucumbers,  
 sea lilies, sand dollars and sea urchins



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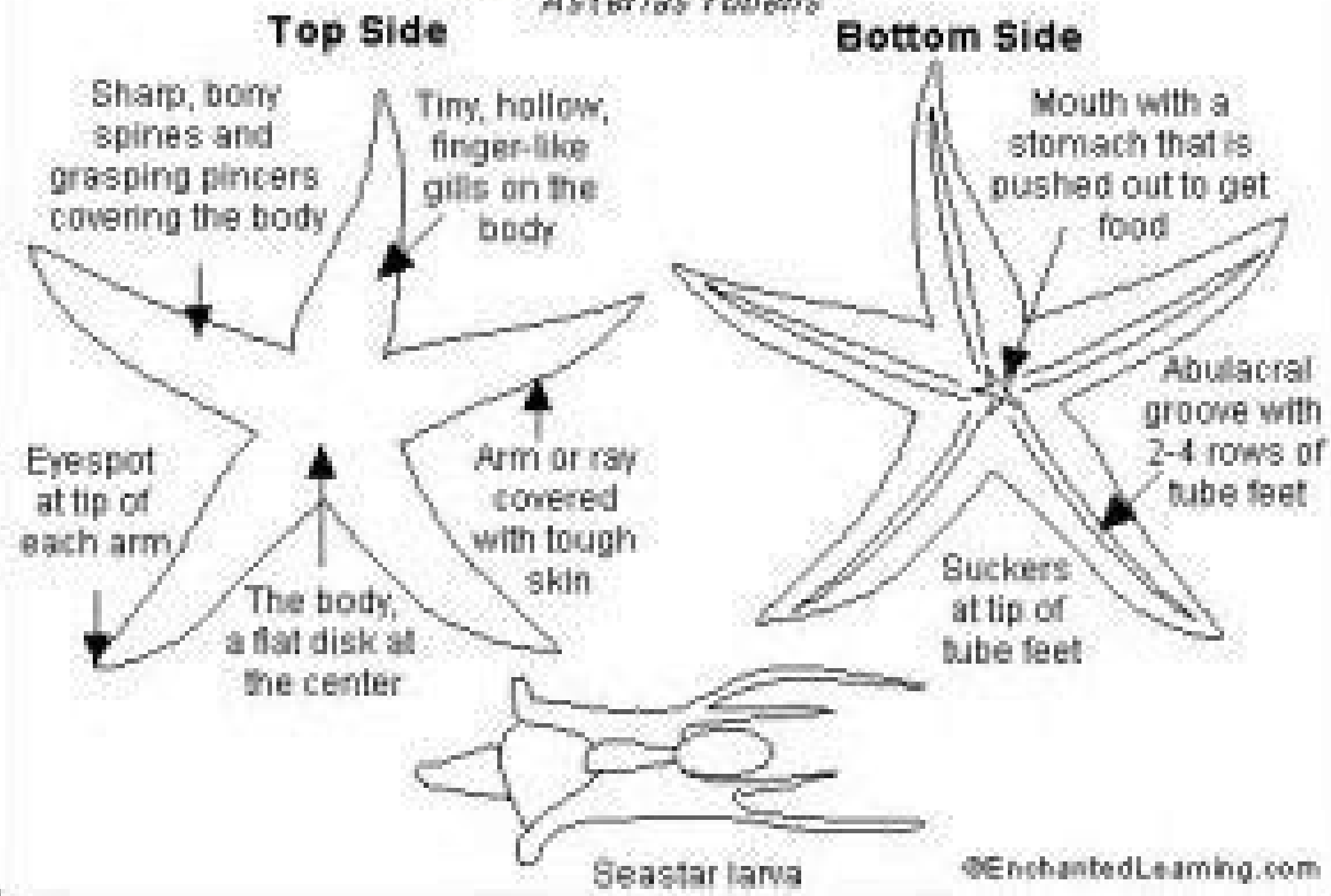
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**Crab External Anatomy**



A	B	C	D	E
1. Antenna	2. Carapace	3. Chela	4. Eye	5. Walking Leg
6. Claw	7. Gills	8. Heart	9. Stomach	10. Swimming Leg

**Common Sea Star**  
*Asterias rubens*



SEA-LIFE

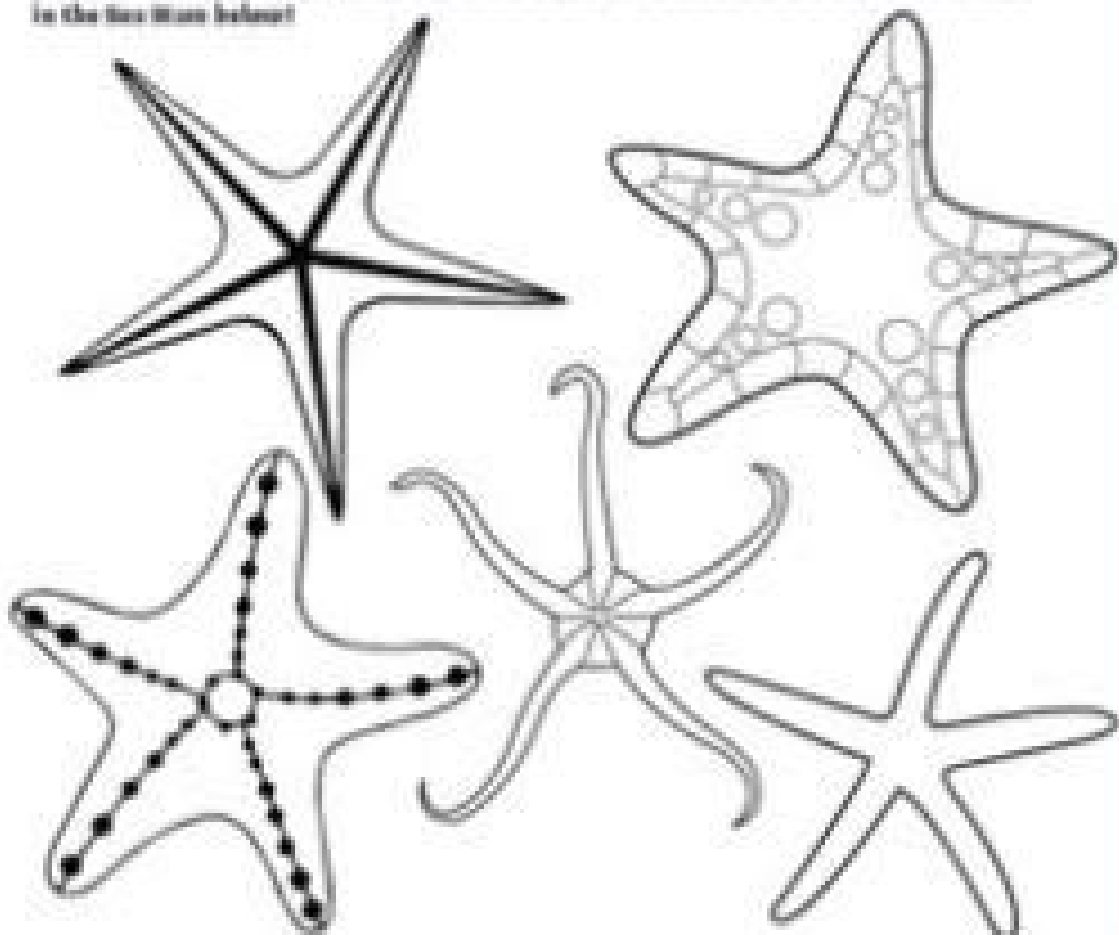
**Sea Stars**



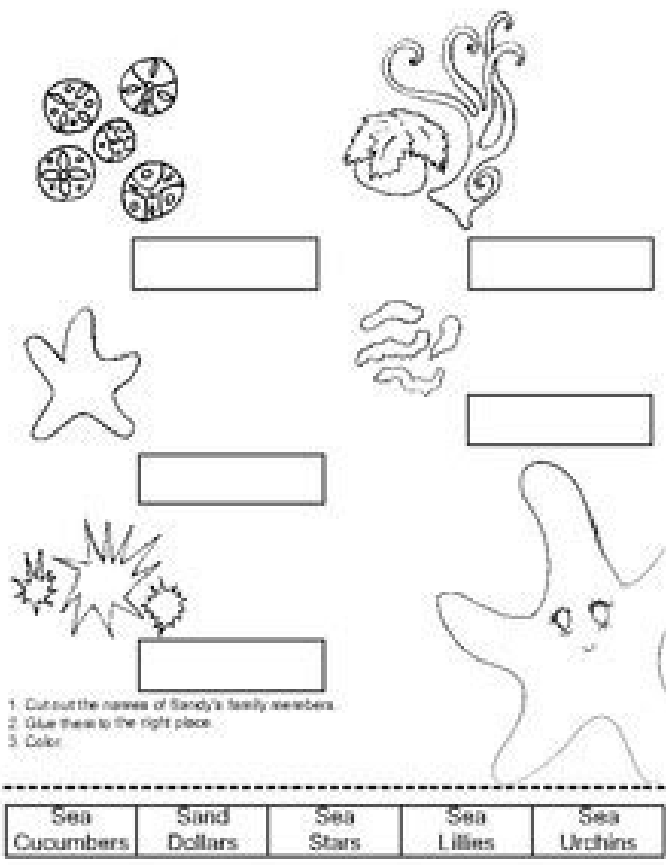
Sea Stars are amazing creatures that have learnt to adapt to live in rocky reef environment. Watch the Sea Stars Fun Facts YouTube video, <https://www.youtube.com/watch?v=U5cst4Q2Ww> and record in the table below and list 3 features about Sea Stars

Feature 1	Feature 2	Feature 3

There are many different types of Sea Stars, some Sea Stars don't take on the star shape! Research some different types of Sea Stars and find out their colour markings and colour in the Sea Stars below!



## Sea Star Family



1. Cut out the names of Sand's family members.  
2. Use these to the right place.  
3. Color.

These spines protect the starfish and are part of their internal skeleton. Look at the tip of each arm and find the eyespot. Asteroids have arms that are connected to each other. As larvae, echinoderms are bilaterally symmetrical. As they mature, they become radially symmetrical. This is called the ambulacral groove. Feel the numerous, soft tube feet inside each groove. Find the ring of oral spines surrounding the mouth. Find the groove that extends down the underside of each arm. The vascular system of the sea star is also filled with sea water. Radial symmetry means that the body is a hub, like a bicycle wheel, and tentacles are spokes coming out of it (think of a starfish). Running down the center of each arm is a radial canal to which tube feet are attached. In the central disc, the five radial canals connect to a circular canal called the ring canal. A short, canal called the stone canal leads from the ring canal to the madreporite where water enters. This is how sea stars move around. Loading... digestive glands called the pyloric caeca. Echinoderms mean "spiny skin" in Greek. Some bumps are used to absorb oxygen, they are called dermal branchiae. Pedicellariae are pincher-like organs used to clean the surface of the skin. Thank you very much for your cooperation. Related Posts In order to continue enjoying our site, we ask that you confirm your identity as a human. There is a distinct boundary between the arm and central disk. Sea Stars Sea stars (group name Stellerioidea) are sometimes called starfish, though they are not real fish (they lack both vertebrae and fins). Find the gonads (testes or ovaries) underneath. Find the zipper-like ridge that extends the length of the ray. There are over 6,000 species. About Cookies on PurposeGames This site uses cookies and similar technologies to save your settings, statistics and to customize ads. Barnacle larvae could land on a sea star and start growing if it were not for these organs. Echinoderms usually have five appendages (arms or rays), but there are some exceptions. By moving water from the vascular system into the tiny feet, the sea star can make a foot move by expanding it. READ: Fetal Pig Dissection Lab Answers Oral (Ventral) Surface: Turn the starfish over to its ventral or oral surface (underside). Locate the mouth in the center of the central disc. These may be small if the starfish is NOT in the breeding season. Each ray of a sea star has a light sensitive organ called an eyespot. Internal anatomy: With the starfish's aboral surface facing you, cut off the tip of a ray. These tiny feet can be filled with sea water. Though it cannot see nearly as well as we do, sea stars can detect light and its general direction. In our Privacy Center you can read more about it, change the behavior of this, and opt out of our use of cookies Echinoderms are radially symmetrical animals that are only found in the sea (there are none on land or in fresh water). Water enters through this into the water vascular system. Feel the upper surface of the starfish for spines. Loading... Inside each arm, locate two long. Locate the bulb-like top of a tube foot called the ampulla. Most adult echinoderms live on the bottom of the ocean floor. (You will have to also cut around the madreporite in order to remove this flap.) Observe the stomach under the central disc. Remove the pyloric caeca from the dissected ray. If you look very closely you will notice that there are different types of growths on the surface. Cut along lines a, b, and c (Figure 3) and then remove this flap of skin. The bottom of the tube foot is a sucker. Embedded in the soft body wall are skeletal plates called ossicles. Muscles within the feet are used to retract them. Each sea star had hundreds of tiny feet on the bottom of each ray. Procedures: Aboral (Dorsal) Surface Obtain a preserved starfish. Place the starfish in the dissecting pan with its dorsal or aboral (top) surface upward. Observe the starfish and determine its symmetry. Locate the central disc in the center of the starfish. Remove these to see the rest of the water vascular system. Cut off the tip of a ray to observe the parts of the tube feet. Count and record the number of arms or rays the starfish has. Locate the small, round hard plate called the madreporite on top of the central disc. Many, but not all, echinoderms have spiny skin. These are tube feet, or podia. This sac works like the top of an eyedropper to create suction. They have some idea of where they are going. The sea star's top surface (or skin) looks spiny if you examine it. How Do Sea Stars Move? Many echinoderms have suckers on the ends of their feet that are used to capture and hold prey, and to hold onto rocks in a swift current. There are two sub-types of sea stars: Asteroidea are the true sea stars and sun stars. Ophiuroidea are brittle stars and basket stars. Also, it is harder to tell with asteroids where the central disk ends and the arms begin. Find this canal & label the stone canal & madreporite. Clean all your materials, dispose of your dissected sea star, and return to the teacher. These are part of the water vascular system & aid in movement and feeding. The differences between the two sub-types lies in how the arms connect to the central disk. The tube feet are attached to these. Ophiuroids have arms that do not connect with each other. These make enzymes to digest food in the stomach. Cut a circular flap of skin from the central disc.

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