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Sea Jellies

Sea jelly is the name used by marine biologists to refer to the animals known to the general population as jellyfish. Students who have learned their lessons well should also refer to these beautiful and interesting sea creatures as sea jellies because they are not fish at all. Sea jellies belong to the scientific phylum Cnidaria which also includes coral, hydras and sea anemones. These other members of the phylum Cnidaria attach themselves to rocks or coral while sea jellies are moving animals. Some species of sea jellies are active swimmers while other species rely on winds and currents to move them through the ocean waters.

Characteristics

One characteristic of the sea jellies and other members of their phylum is radial symmetry. This means that the body parts of members of the Cnidaria phylum are distributed around a central axis or center line. Humans and other mammals have a body that is balanced on two sides of a center line; this is bilateral symmetry. With radial symmetry, sea jellies can be aware of their surroundings in all directions simultaneously. This symmetry allows the central nervous system of sea jellies to detect food or danger in all directions. Being lower level creatures, sea jellies do not have a brain; instead, their primitive nervous system responds to light and odors in the water.

Sea jellies derive their name from the fact that many look like blobs of clear jelly floating in the water. Some species of sea jellies are composed of less than 5% solid matter so they are translucent, which means that light passes through them. Zoos and aquariums around the country have created spectacular visual displays within salt water tanks by shining colored lights into the masses of swimming sea jellies. Many sea jellies have a bell-like shape with flowing tentacles that hang down from the central body. Moon jellies have a transparent rounded bell that also makes for a marvelous display under colored lights. Sea jellies swim by contracting and elongating again and again. This movement is fascinating to watch under a display of lights.

However, as beautiful as these creatures are to watch, the sting of some species of sea jellies is poisonous, but not necessarily fatal, to humans. These species are equipped with a stinging mechanism housed in the tentacles or near the

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mouth. Since sea jellies are primitive creatures, the stinging mechanism triggers whenever it comes in contact with a foreign object, in case the sea jelly has encountered a predator or prey. The stinging mechanism ejects barbed threads into the other object and injects a paralyzing toxin.

Swimmers in tropical and subtropical waters learn to avoid the Portuguese man-of-war because of its painful and venomous sting which can send humans to the hospital. This sea creature is a member of the Cnidaria phylum, but it is not a sea jelly. The Portuguese man-of-war is not a single creature, but a unique colony of polyps and other members.

Anatomy

The bell-shaped body of a sea jelly is composed of gelatinous material that is enclosed by an outer layer of skin called the epidermis. Beneath the epidermis is the mesoglea or middle jelly. The inner layer of a sea jelly body is called the gastrodermis, which encloses a primitive digestive system. This digestive system has a single opening for food and the elimination of waste products. Four to eight arms located around this opening help to move food into it.

A distinguishing feature of the sea jellies is dangling tentacles; in some large species of sea jellies these tentacles can reach 100 feet in length. Tentacles are attached directly to the sea jelly's bell or body. Tentacles are equipped specialized venom apparatus called cnidoblasts, related to the phylum name Cnidaria. Within each cnidoblast is a nematocyst which contains the stinging mechanism. This mechanism varies among the sea jelly species but most sea jellies sting using a threadlike harpoon that is ejected from the nematocyst. A single sea jelly tentacle can have thousands of cnidoblasts and nematocysts.

Even though sea jellies are primitive creatures, they have a complex life cycle that occurs in two stages. Adult male sea jellies release sperm into the water and the adult female sea jelly nurtures the young inside her body or in a brood pouch that is attached outside. The young, called larvae leave the female; attach to nearby rocks; and develop into flower-like polyps. These polyps spawn additional polyps on the same stem. When sea conditions are right, these new polyps float off the stem as embryonic sea jellies. Adult sea jellies live for several months but a polyp can continue to spawn sea jellies for a long time.

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Circle True or False after analyzing each of the following statements.

1. True False Sea jellies belong to the scientific phylum Cnidaria which also includes coral, hydras and sea anemones.
2. True False Sea jellies are low level creatures with a primitive brain and slightly developed nervous system.
3. True False Sea jellies derive their name from the fact that their bodies are composed of clear gelatinous material.
4. True False Sea jellies have a bell-shaped body.
5. True False Nearly all sea jelly stings are fatal to humans.
6. True False The Portuguese man-o-war is the most dangerous sea jelly in the ocean.
7. True False The three layers of a sea jelly are: epidermis, mesoglea and gastrodermis.
8. True False The tentacles of sea jellies are equipped with a specialized venom apparatus called cnidaria.
9. True False Even though sea jellies are primitive creatures, they have a complex life cycle that occurs in three stages.
10. True False When sea conditions are right, polyps float off the polyp stem as embryonic sea jellies.

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Answers

1. True
2. False
3. True
4. True
5. False
6. False
7. True
8. False
9. False
10. True