



The Sea Urchin



Study the diagram and read the information below.

Parts of a Sea Urchin

Spines

Long, pointed spines made of calcium carbonate that protect the urchin from predators.

Gonopore

Opening where eggs or sperm are released into the water.

Tube Feet (Podia)

Soft, flexible appendages that extend through small holes in the shell. They help the urchin move, attach to surfaces and handle food.

Anus (Periproct)

Opening at the top of the urchin through which waste exits.

Madreporite

A small, porous plate that allows water to enter the water vascular system, which controls tube feet.

Mouth (Aristotle's Lantern)

Located on the underside. A five-toothed structure used for scraping and grinding food.

Test (Shell)

The hard outer shell made of fused plates that protects the urchin.



About Sea Urchins

Sea urchins are echinoderms, which means they are related to starfish and sea cucumbers. They live on the seabed in rocky areas and rock pools around the world, from shallow waters to deep oceans.

Why are sea urchins spiky? Their long, sharp spines protect them from predators such as fish, octopuses and sea otters. The spines also help deter attacks by making them difficult to bite or swallow.

What do sea urchins eat? Sea urchins are herbivores. They feed mainly on algae that grows on rocks. Using their strong, five-toothed mouth (Aristotle's lantern), they scrape algae from surfaces and grind it into small pieces.

How do sea urchins move? Sea urchins move slowly along the seabed using hundreds of tiny tube feet. These work like small suction cups to grip rocks and push the urchin forward in any direction.

Sea urchins reproduce by releasing eggs and sperm into the water, where fertilisation occurs. The larvae drift in the plankton before settling on the seabed and growing into young urchins.



Top view of a sea urchin showing its protective spines.



Underside view showing the mouth (Aristotle's lantern) and tube feet.

Functions of Each Part

Part	Function
Spines	
Tube Feet (Podia)	
Mouth (Aristotle's Lantern)	
Madreporite	
Gonopore	
Anus (Periproct)	
Test (Shell)	

Answer the Questions

- Why are sea urchins covered in spines?

- What do sea urchins mainly eat and how do they eat it?

- How do sea urchins move? Describe the role of their tube feet.

- What is the purpose of the madreporite?

- Where is the mouth of a sea urchin located and what is special about it?

- How do sea urchins reproduce?

- What would happen if a sea urchin lost many of its spines?

- Why is the hard shell (test) important for a sea urchin's survival?

- Sea urchins help keep algae growth under control on rocks. Why is this important for the marine ecosystem?

- Some sea urchins, like the purple sea urchin, can survive in very deep water. What adaptations help them live in such environments?

