

ECHINODERMS

Echinoids

Domain	Eukaryota
Kingdom	Animalia
Phylum	Echinodermata
Class	Echinoidea

450 MYA – PRESENT

Echinoids are commonly called sea urchins, heart urchins, or sand dollars. They are marine invertebrates belonging to the phylum Echinodermata, along with crinoids, sea stars, and sea cucumbers. Their shell, called a test, is round or heart-shaped, spiny and is usually 3–10 cm in diameter.

Echinoids move slowly across the sea floor on numerous hydraulic tube-feet. The mouth is located on the underside of the body, and contains a series of teeth, that contains a series of teeth, which are used to grind up food.

Fossil Record

Echinoids first appear in the late Ordovician and have survived to the present day. Sand dollars, a flattened group of echinoids, first appeared in the early Paleogene.

Habitat and Lifestyle

Sea urchins live in all oceans and range from the poles to the Equator and from intertidal zones to depths of more than 5000 m. They mostly feed on algae or sedentary invertebrates. Heart urchins use their tube-feet to pick up food particles from the sediment on the seafloor. Sand dollars eat sand and digest the small food particles trapped in the sediment.

Fossilisation

Echinoids have calcite plates, which tend to fossilise well but as their shells are easily broken, complete examples are rare. Echinoid plates and spines are commonly found in marine sand and mud which means their fossilised remains are often a major component of some limestones.



Sand dollar echinoid, *Monostychia sp.*, Paleogene (about 30 million years old), South Australia. Image from Jim Frazier.



Purple spiny sea urchin. Image from timvb1990, pixabay.

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DID YOU KNOW



The name sea urchin comes from the Middle English (1100 – 1500 CE) word ‘urcheon’, which was the name for a hedgehog; a small mammal covered in hard spines on its back used for protection. Similarly sea urchins are covered in spines for protection.