

Echinoderms

What Are They?

Echinoderms are marine **invertebrates** (animals without a backbone) that possess **radial symmetry** (body is identical from a central point, like a bicycle wheel). Echinoderm means “spiny skin” in Greek, but not all have spiny skin.

Have you ever found this



or this



on the beach?

If you have, then you know what some echinoderms look like. Sea stars and sand dollars are just two of 7,000 species.

Where Do They Live?

Echinoderms can be found in oceans around the world. They usually live along the seashore or in reefs, but can also live in deep water from the **intertidal zone** to the **abyssal zone**.

What Do They Eat and How?

Echinoderms feed on a variety of marine life in a variety of ways. **Filter feeders**, like brittle stars, absorb nutrients in marine water. **Suspension feeders** use their arms to capture floating food particles. **Grazers**, like sea urchins, feed on both plants and animals, making them **omnivores**. Grazers feed mostly on seaweeds and algae living in coral and decomposed fish matter. **Deposit feeders**, like sea cucumbers, live on the ocean floor and eat tiny matter found on the top layer of soil. Some echinoderms are **predatory**, like sea stars, and actively hunt their prey. Sea stars feed on **bivalve mollusks** by prying their shells apart with their arms and pushing their stomach out of their body and placing it inside the mollusk’s shell to digest the meat. This is called **partial external digestion** and is unique to the sea star.

What other omnivores do you know?

What Are My Predators?

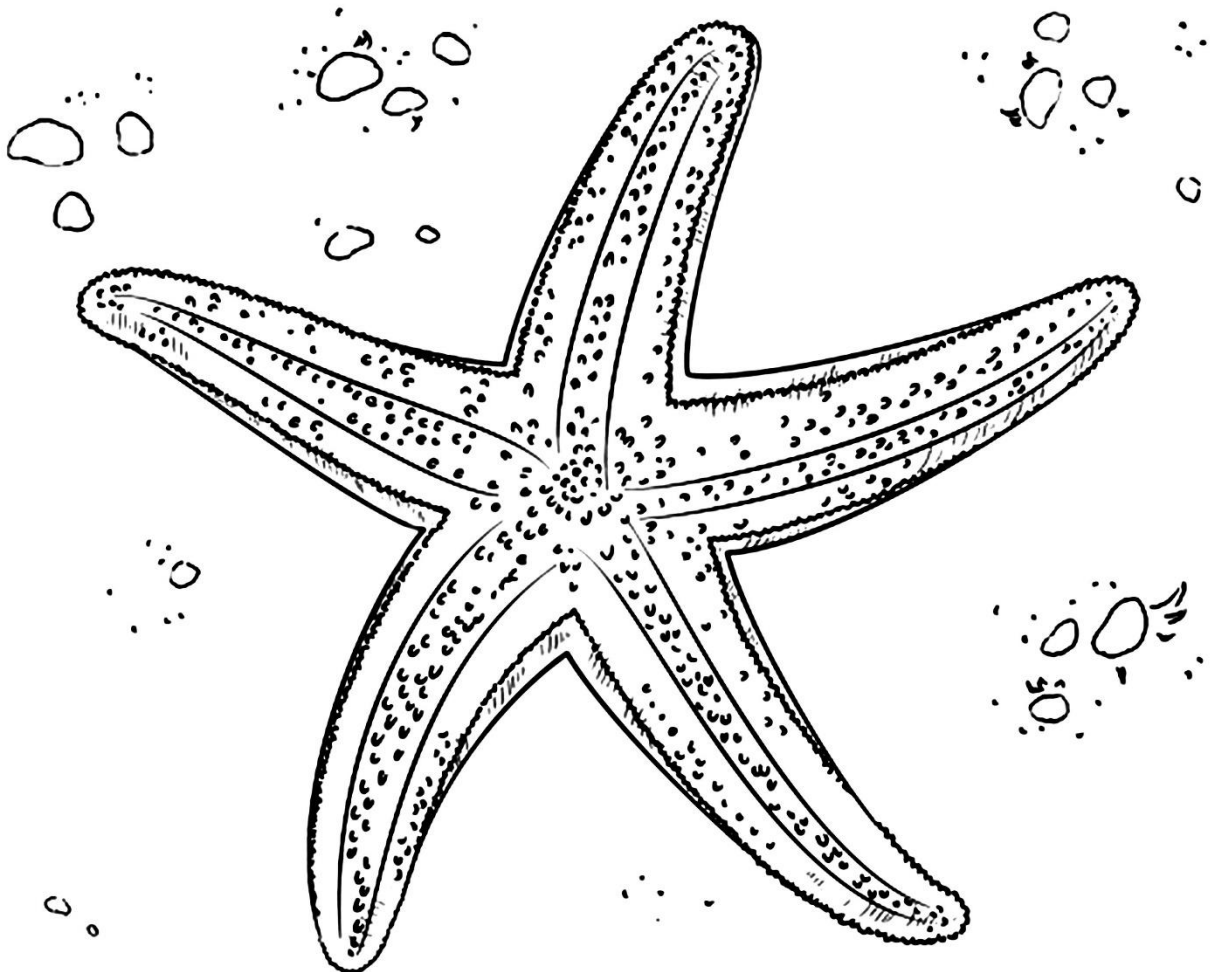
Sea otters, arctic fox, sharks, bony fish, and spider crabs prey on echinoderms. Some species protect themselves by being nocturnal, or active at night. Others have poisonous stinging spines on their exoskeleton.

What Makes Echinoderms Unique and Interesting?

Many echinoderms have the ability to regenerate body parts and organs.

Did You Know?

- Sea stars commonly have 5 **rays** (or arms) but some can have many more.
- Echinoderms range in size from less than one inch to over three feet in diameter.
- The Crown-of-thorns sea star is one of the largest sea stars in the world. It is about 12 inches in diameter and can have up to 21 arms.
- Echinoderms have no heart and no brain.
- Echinoderms have an open circulatory system. Fluid moves freely in the body cavity.



Common sea star