

# Echinoderms

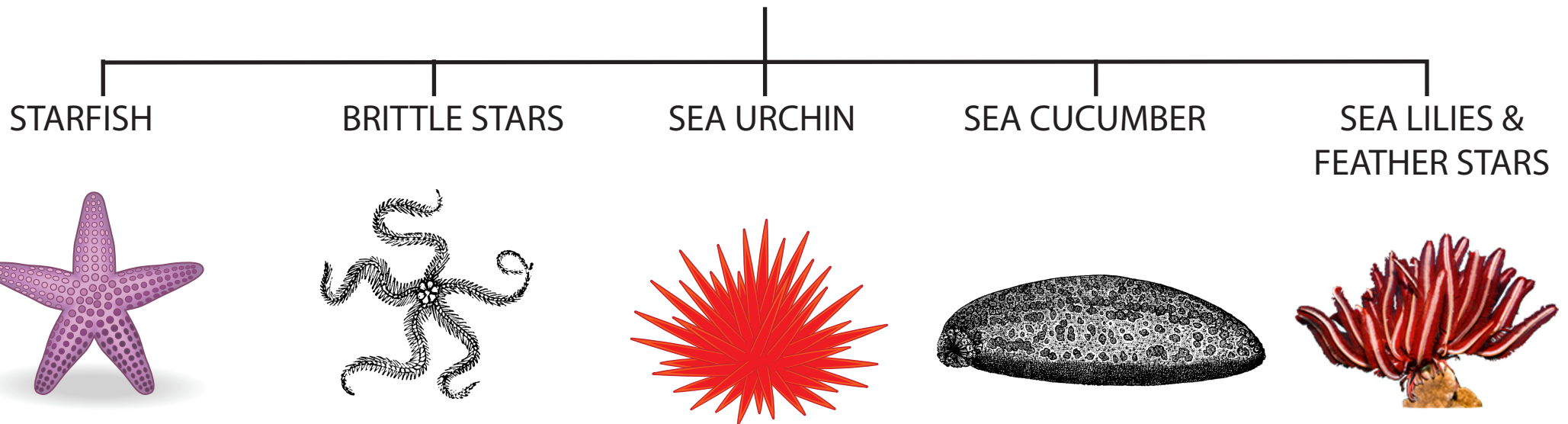
## Discussion Questions:

- 1) What animals belong to the echinoderm group?
- 2) What features do they have in common?
- 3) What type of environments do they inhabit?
- 4) What special features do starfish have?
- 5) What use have humans made of echinoderms?
- 6) How have some echinoderms endangered coral reefs?



# ECHINODERMS

- Some have spiny skin.
- Some have tube feet and flush water through them to move about.
- Most have arms or spines that radiate from the centre of the body.
- Most have a mouth opening on under side of body.
- Many are able to regenerate body parts.



Brittlestars have five flexible arms that they use to help them move around on the sea floor.





Many species of starfish have five legs. Their mouths are located on the underside of their body.





# Crown of Thorns Starfish (*Acanthaster planci*)

The Crown of Thorns Starfish is native to the warm waters of the Indo-Pacific region.

The size of an adult starfish can range between 25 to 35 cm and they can have up to 21 arms. Their bodies are covered with long, thorn-like spines. When these spines penetrate the skin, chemical irritants are passed from the starfish to the predator. In humans it can cause swelling and a sharp stinging sensation that can take up to a week to subside.

Natural predators of the Crown of Thorns Starfish include the giant triton snail and the starry pufferfish.

The Crown of Thorns Starfish preys on coral polyps. Sometimes the starfish collect together in large numbers and spawn simultaneously, which increases the chances of survival of their young. However, the larger numbers cause great damage to coral reefs as the starfish eat the coral polyps faster than they can grow. Great areas of reef destruction can occur as a result.

Countries such as Australia, that have tourist industries built on the popularity of their coral reefs, take this problem very seriously. Governments carefully monitor starfish populations and take actions such as periodic culling to ensure that starfish numbers are controlled.





# Sea Urchins

Sea urchins have a rounded body that is divided into five sections radiating from its centre. The body has a hard shell that is covered in spines. They move about on hundreds of tiny tubular feet located around the mouth on the bottom of their body.

The natural predators of sea urchins are animals that are well adapted to dealing with their hard spiny shells. Creatures with strong jaws such as trigger fish and sea otters and creatures with strong pincers such as lobsters and crabs are well adapted to dealing with the sea urchin's spiny hard shell.

Sea urchins are a food source for humans too. In Japanese sea urchins are called 'uni'. They are a delicate food served in many cuisines.

Once a sea urchin dies it decomposes, leaving a beautiful symmetrical shell. You can see the lines that divide the five sections of the body and all the nodules where the spines were attached in the picture to the right. The shells range in colour from delicate shades of pink, purple and green to striking reds and blues.





A sea urchin has a soft body inside its hard outer shell that is covered in hundreds of sharp spines.





Sea urchins can be eaten by humans. It is a sought after delicacy in many cultures and can be eaten raw.





## Sea Cucumbers

Most sea cucumbers are long and cylindrical. They are shaped like the vegetable cucumber.

They generally have soft bodies with rows of feet on one side of their body called 'podia'. Some sea cucumbers have smooth leathery skins, while others are covered with rows of feet-like nodules. Their mouth is situated at one end of the body. Tentacles located in their mouth filter organic matter from the water.

Sea cucumbers are harvested for human consumption in many parts of the world. They are considered a delicacy in Asian cuisine and are also used in Chinese medicine.

Sea cucumber is known as 'bêche-de-mer' in French, 'namako' in Japanese and 'trepang' in Indonesian.





Sea cucumbers range in size, most are between 10 and 30 cm long.





Sea cucumber is a popular ingredient in asian cuisine.





# Sea Lilies and Feather Stars

Sea lilies and feather stars are amazing animals that look like seaweed! They anchor themselves securely to the sea floor and their many arms sift organic matter and plankton from the current. The hairs on their arms then beat the food down to their mouths, located in the centre.

Some of these animals are able to swim or crawl along the sea bed but many stay attached in the same position.





Feather stars typically have a long stalk that it attaches to the sea bed.

