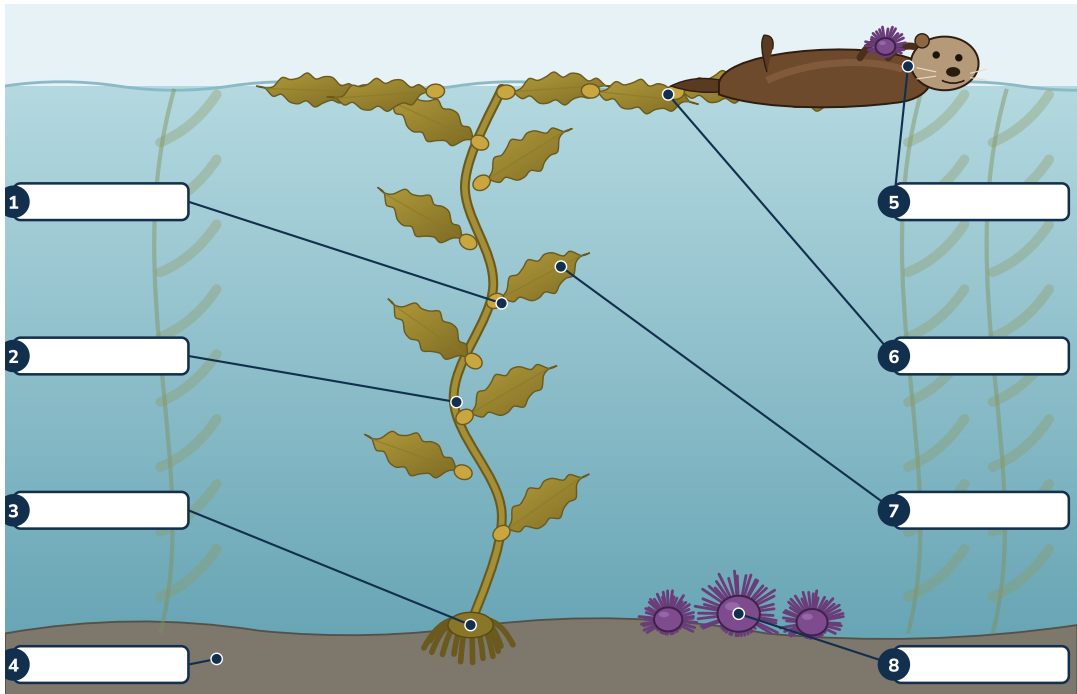


Kelp Forest

*Giant kelp, *Macrocystis pyrifera*, and its community*

Look at the diagram. Write the correct name from the word bank in each numbered box.

blade | canopy | gas bladder | holdfast | rocky reef | sea otter | sea urchin | stipe



A slice through a Pacific kelp forest, from the rocky sea floor to the surface canopy.

Did you know?

- Giant kelp can grow up to about **50 cm a day**.
- Kelp is an **alga**, not a true plant. It has no roots, flowers or seeds.
- Sea otters have the **thickest fur** of any animal: up to a million hairs per square inch.
- One otter can eat about **a quarter of its body weight** in food each day.
- Kelp forests grow in **cold, nutrient-rich** water, often where upwelling happens.

About Kelp Forests

Kelp is a large brown seaweed that grows on rocky reefs in cool, clear, shallow water. It makes food by photosynthesis, so it needs sunlight.

A kelp has a **holdfast** that grips the rock, a stem-like **stipe**, and leaf-like **blades**. Gas-filled **bladders** float the blades up to the light, where they spread out to form a **canopy**.

The forest shelters hundreds of species. **Sea urchins** graze on kelp. **Sea otters** eat urchins, so they are a **keystone species**: without them, urchins can destroy the forest, leaving 'urchin barrens'.

Kelp forest food chain



Arrows mean "is eaten by".

Urchin barrens: where otters vanish, urchins multiply and chew through holdfasts. The kelp drifts away and the reef becomes bare.

Functions of Each Part	
Part	Function
Holdfast	
Stipe	
Blade	
Gas bladder	
Canopy	
Sea urchin	
Sea otter	

Hint: use the diagram, the About box and the Did you know? panel to fill in the Function column.

Answer the Questions

- 1 Kelp is an alga, not a plant. Name one part a plant has that kelp does not.
- 2 Explain why kelp needs gas bladders.
- 3 Why does kelp only grow in shallow, clear water?
- 4 Write the food chain for kelp, sea urchin and sea otter, using arrows.
- 5 Explain what might happen to a kelp forest if sea otters were removed.
- 6 Stretch: kelp forests are sometimes called 'the rainforests of cold seas'. Give two ways they are like rainforests.