



Objectives

- ▶ understand that the ocean has several different zones
- ▶ understand that the requirements for survival are different in each zone
- ▶ cooperate to create a mural showing the diversity of ocean life

Vocabulary

tidal zone

abyssal zone

plankton

pelagic zone

Background

The ocean is a huge environment. Along the shores of the continents it is shallow, but offshore it can be deeper than the highest mountain is on earth. Scientists refer to the different parts of the ocean as zones. Conditions in these zones can be very different. And the animals that live in each zone are different, too.

Life near shore in the tidal zone is tough. Animals here must be able to hold on tight to rocks or bury into the protection of the sand to keep from being washed away when the tide comes in. When the tide goes out, some of these animals follow the water. Others close up tight and hold water in their shells. All must be well protected with spiny skins, camouflage or shells since their enemies may come from either the land or the sea.

The open ocean, or pelagic zone, is for swimmers, floaters and drifters that never touch the bottom. Open ocean dwellers are some of the largest and fastest ocean animals, like sharks, whales and tuna. They are also some of the slowest and smallest, like the microscopic plants and animals called plankton that are carried along by the ocean currents.

Some of the strangest creatures live in the icy darkness of the deep sea, the abyssal zone. Hundreds of feet below the ocean surface, the sun never shines. Some animals, like the lanternfish make their own light to attract food and scare off predators. There are no plants, so food is scarce. Many deep sea fish, like the gulper eel have giant mouths and fang-like teeth to capture and swallow a meal of any size, even one larger than they are.

At the South Caicos research site, SFS students identify and study zones on the reef—the shallow lagoon behind the reef; the crest, where the waves break; the outer

reef edge; and the deep reef. Their studies report on the different types of animals that live in each zone.

Materials

large roll of paper
markers

paint
reference books

photographs of ocean animals

Activity

Have students work in teams to create a mural showing ocean zones and the diversity of ocean life.

1. Draw a simple cross section of an ocean (like the one on the previous page) on a large roll of paper. Include the shallows near shore, the open ocean and the deep sea. This will be the base for the mural.
2. As a group, discuss the three ocean zones. Ask students: How do these zones differ? What kinds of plants and animals would live in each zone? How does a beach differ from a rocky tidal zone?
3. Divide students into four teams. Assign each team a zone on the mural: rocky tidal zone, sandy tidal zone, open ocean, deep sea.
4. Have each team use reference books to create a list of plants and animals that would live in its zone.
5. Ask each team to illustrate its zone on the mural. Students may draw, paint and/or use collage techniques. Each team member should be responsible for at least two features in his/her zone.
6. Display the mural. Have a spokesperson from each team describe its work.

Extend the Activity

Reverse the ocean zones activity. Start with an animal or plant and ask students to predict the zone in which it would live.

What is the history of ocean exploration? Have students choose a famous ocean scientist or an historic expedition and write a report. Some examples: the *HMS Challenger* Expedition; Charles Darwin and the voyage of the *HMS Beagle*; Rachel Carson; Jacques Cousteau; Bob Ballard and the deep sea voyages of *Alvin* and *Jason Jr*; Sylvia Earle and Eugenie Clark.

If you have a local dive shop, arrange to borrow several pieces of scuba diving equipment and set up a display in the classroom. Inquire about local scuba diving clubs. Ask a club member to visit your class to demonstrate scuba diving equipment and answer questions about diving.