

At Home in the Ocean

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PERFECTION LEARNING[®]

For the Teacher

HABITATS

At Home in the Ocean

Genre

Expository

Text Features

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photosynthesis

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Overview

Three-fourths of the Earth is covered with salty ocean water. The World Ocean has been divided into five smaller parts—the Pacific Ocean, Atlantic Ocean, Indian Ocean, Arctic Ocean, and Southern Ocean. Each of these oceans has its own special characteristics. Because the ocean is so large, it is home to millions of organisms. Each one is suited to life in a certain part of the ocean, such as the shore, the surface, or the ocean floor.

The ocean shore has several types of environments. Some parts of the ocean are lined by rocky cliffs where sea birds nest and hardy plants grow. Below the cliffs, tide pools form where areas of ocean water are trapped among rocks. Sandy beaches change with the tides. Only the areas behind the tide line remain permanently dry, leading to the formation of sand dunes. Mangrove forests grow where rivers meet the ocean. Mud flats are areas of mud, grass, and salt water that are flooded by tides. All of these shore environments are home to an amazing variety of plants and animals.

Coral reefs are underwater communities built from the remains of coral polyps. Many sea creatures depend on the reefs for food and shelter.

Because the sunlight, temperature, and pressure vary at different spots in the ocean, the water has been divided into zones that support different organisms. The sunlit zone is the top layer of water where photosynthesis takes place and life is abundant. Below it, the twilight zone is cold and dark. The bottom layer, which includes the ocean floor, is the midnight zone. Here, food is scarce and animals must possess special adaptations to survive.

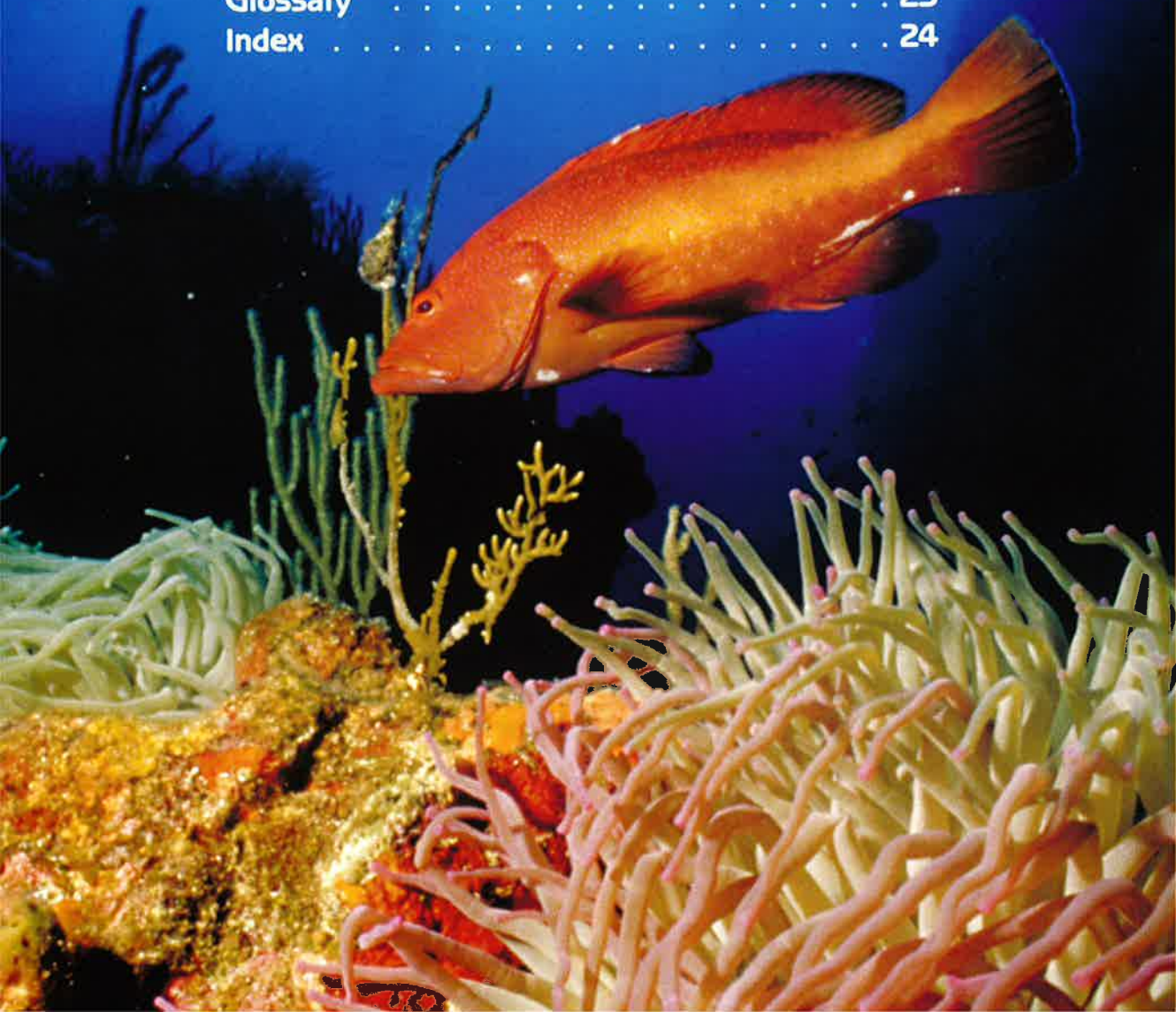
From the deepest zone to the highest rocky cliff, millions of organisms depend on the ocean habitat.

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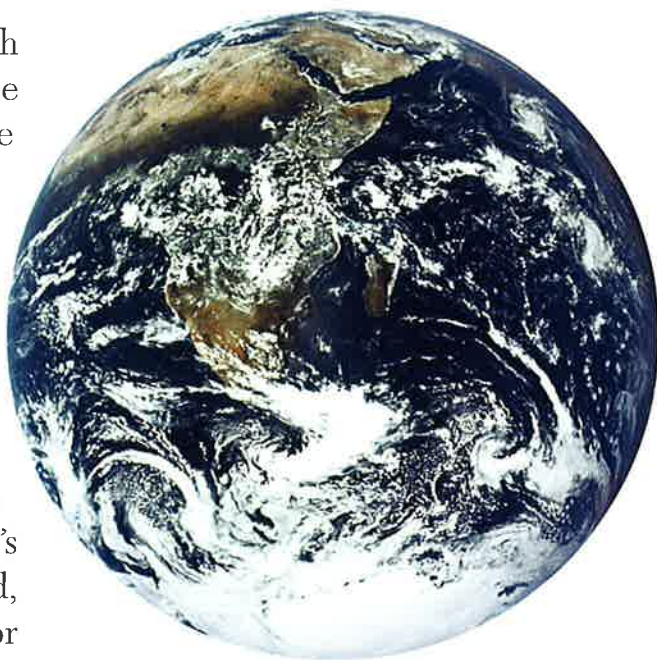
The Blue Planet

Have you ever heard Earth called the “big blue planet”? That’s because almost three-fourths of the Earth is covered with ocean water. From space, this makes the planet look blue.

The blue water of the ocean provides a home for many **organisms**. This home is called a **habitat**. A habitat has to meet all of an organism’s needs. It must provide food, water, shelter, and a place for **reproduction**. Let’s explore the ocean habitat.

A Salty Home

The ocean is filled with salt water. Rivers break down rocks containing salt and other minerals. When rivers flow into



the ocean, they carry the salt with them. When ocean water **evaporates**, the salt is left behind. The plants and animals that live in the ocean habitat must be able to survive in a saltwater **environment**.

Inquire and Investigate Floating in Freshwater Versus Salt Water

Question: Do objects float better in freshwater or salt water?

Answer the question: I think objects float better in _____.

Form a hypothesis: Objects float better in _____.

Test the Hypothesis

Materials

- 2 drinking glasses
- spoon
- 4 tablespoons of salt
- 2 eggs

Procedure

- Fill both glasses with tap water.
- Stir four tablespoons of salt into one glass.
- Place an egg in each glass of water.
- Observe whether the egg floats or sinks in each glass.

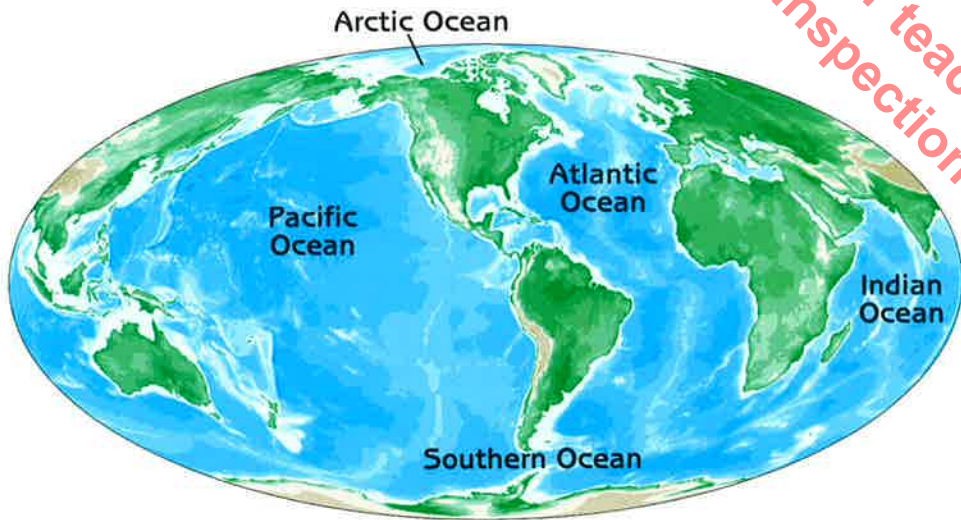
Observations: The egg sinks in plain tap water. The egg floats in the salt water.

Conclusions: Objects float better in salt water. The salt makes the water more dense. This means that the salt water is heavier than the freshwater. Floating is the ability of a lighter object to rest on top of a heavier object. So the heavier the water is, the easier it is to float in it.

One World Ocean

How many oceans are there? Where does one ocean begin and another end? Actually, there is just one large ocean with no

beginning and no end. If you look at a world map, you'll notice that all ocean water is connected. This is why it's called the World Ocean.



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Scientists have divided the World Ocean into five smaller parts. These are the oceans you may have heard of—the Pacific Ocean, Atlantic Ocean, Indian Ocean, Arctic Ocean, and Southern Ocean. These oceans are separated by the continents.

The same salty water flows through all of the oceans. However, each one has its own special characteristics.

The Pacific Ocean has many volcanoes. It also has the deepest place on Earth—the Mariana Trench.

The Atlantic Ocean is home to the longest chain of mountains on Earth. It's called the Mid-Atlantic Ridge. Most of these mountains are underwater.

The Indian Ocean is a source of many minerals, including oil and gas. A part of this ocean known as the Red Sea contains the saltiest water on the planet.

A New Name for an Ocean

The Southern Ocean has just recently been named. It used to be part of the Pacific, Atlantic, and Indian Oceans. But over time, many scientists came to believe that the very southern part of the World Ocean has different characteristics that make it a unique habitat that deserves its own name.

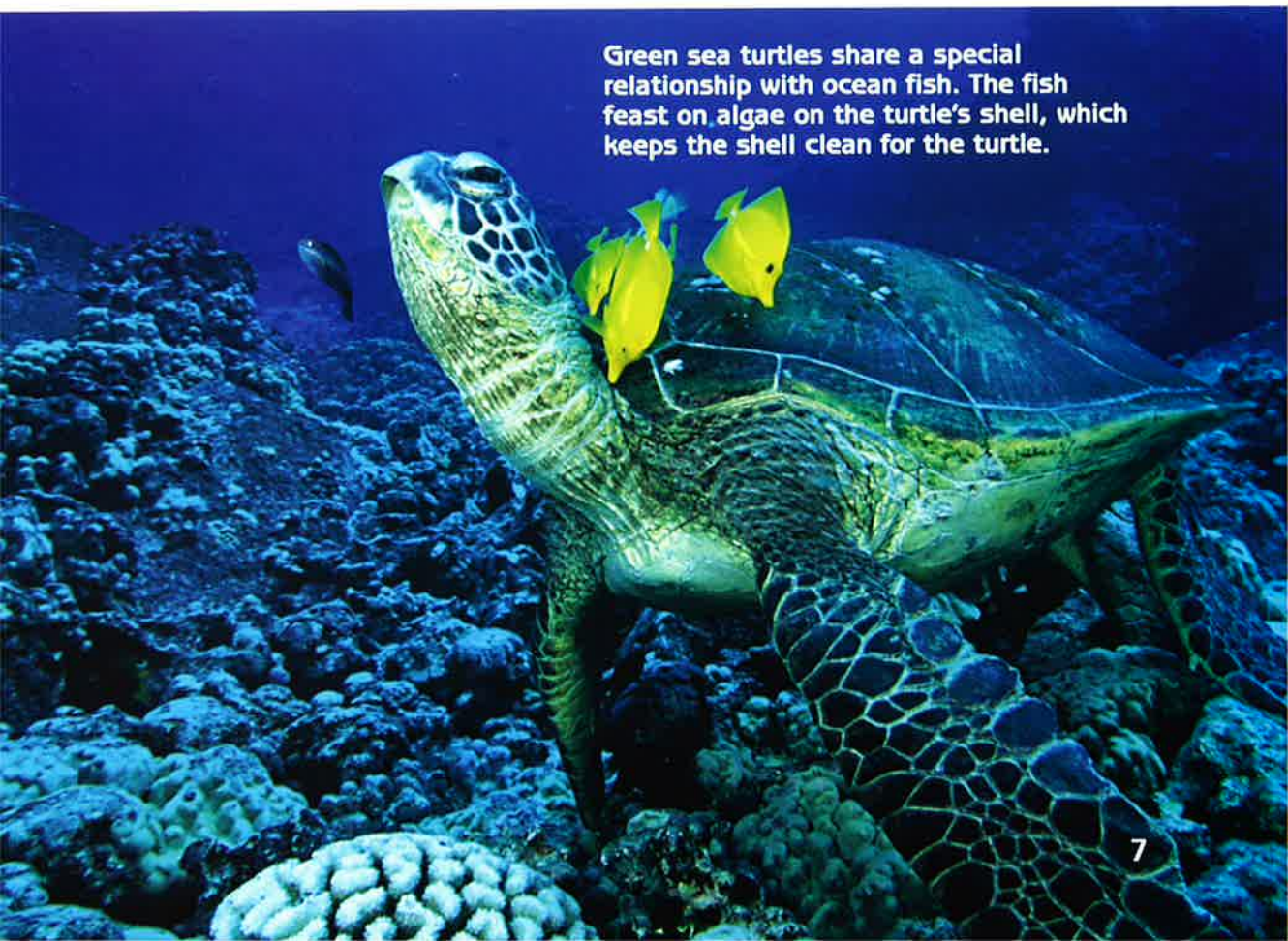
The cold Arctic Ocean surrounds the North Pole. This ocean is the smallest and shallowest ocean.

The Southern Ocean surrounds the South Pole. This ocean is so cold that each year the ocean freezes along the shoreline, increasing the size of Antarctica.

Home Is Where the Ocean Is

Because the ocean is so large, it is home to millions of plants and animals. Each one is suited to life in a certain part of the ocean, such as the shore, the surface, or the ocean floor. But despite their differences, the organisms all share the same “home sweet home” in the ocean habitat.

Green sea turtles share a special relationship with ocean fish. The fish feast on algae on the turtle's shell, which keeps the shell clean for the turtle.



Along the Shore

The edge, or shore, of the ocean has several types of environments. Each one is home to different plants and animals.

Rocky Cliffs and Tide Pools

Some parts of the ocean are lined by rocky **cliffs**. Seabirds often **nest** on these slopes. Albatross, frigate birds, gulls, cormorants, and petrels are just a few of these birds. Plants that grow on the cliffs must be able to tolerate the salt water that sprays on them constantly. Thrift, or sea pink, is one of the plants that covers many rocky cliffs.

Below the cliffs, **tide pools** form where rocks meet the ocean. Tide pools are areas of

ocean water trapped among rocks. When the tide comes in, water rushes into the tide pools. When the tide goes out, sometimes all or most of the water in the pools goes with it. So survival in a tide pool is tough. Sometimes animals must fight not to be washed away. Other times they must wait in the dry sand or rocks for the water to return.

Time-Out! What's a Tide?

Tides are the movement of water along the ocean shore. They are caused by the gravitational pull of the Sun and Moon. During high tide, the water rushes toward the shore. During low tide, it moves back toward the ocean.

Colorful red, green, and brown plantlike organisms called *algae* or *seaweed* decorate tide pools. Green sea lettuce, brown rockweed, and red Irish moss are common tide pool seaweeds. Seaweed uses sunlight and carbon dioxide to create food. This process is called **photosynthesis**. Seaweed beds provide food and shelter for many ocean creatures.

Kelp, another kind of seaweed, can grow to 300 feet long. Colorful sponges live in kelp beds. These simple animals have small openings that allow water to flow through them, providing food and oxygen. Sea slugs feed on the sponges. Sea otters swim through kelp beds looking for sea urchins, **bivalve mollusks**, **crustaceans**, octopuses, sand fish, and squid.



Food Chain Facts

A food chain is the order of who eats what in a habitat. The kelp → sponge → sea slug food chain is just one of millions of food chains in the ocean habitat.