Learning A–Z	level **N**	Multi-level	**N** **Q** **U**
Grade	2	Word Count	607
Lexile	890	Nonfiction • Informational	

Refer to the Focus Question on page 2 of this title to guide discussion and support additional learning connected to the text.

Coral Reefs teaches readers about these huge ocean communities that are home to millions of animals and sea plants. Readers are invited to explore the diverse but fragile world of coral reefs while also learning about why these unique ecosystems need protection. Vivid photographs will keep students engaged during the lesson. The book can also be used to teach students how to determine cause-and-effect relationships as well as to ask and answer questions to better understand the text. The book is also available for levels Q and U.

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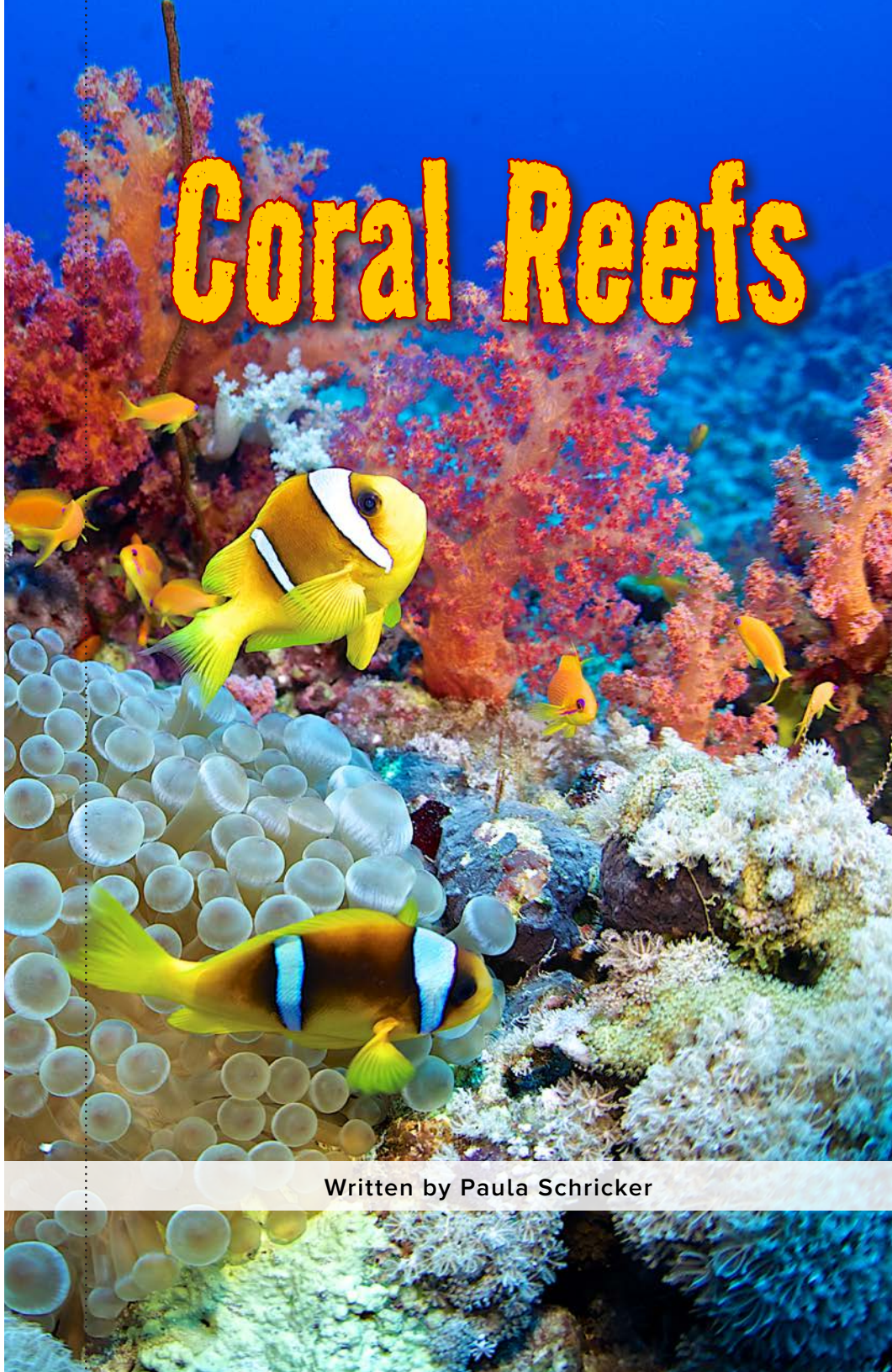
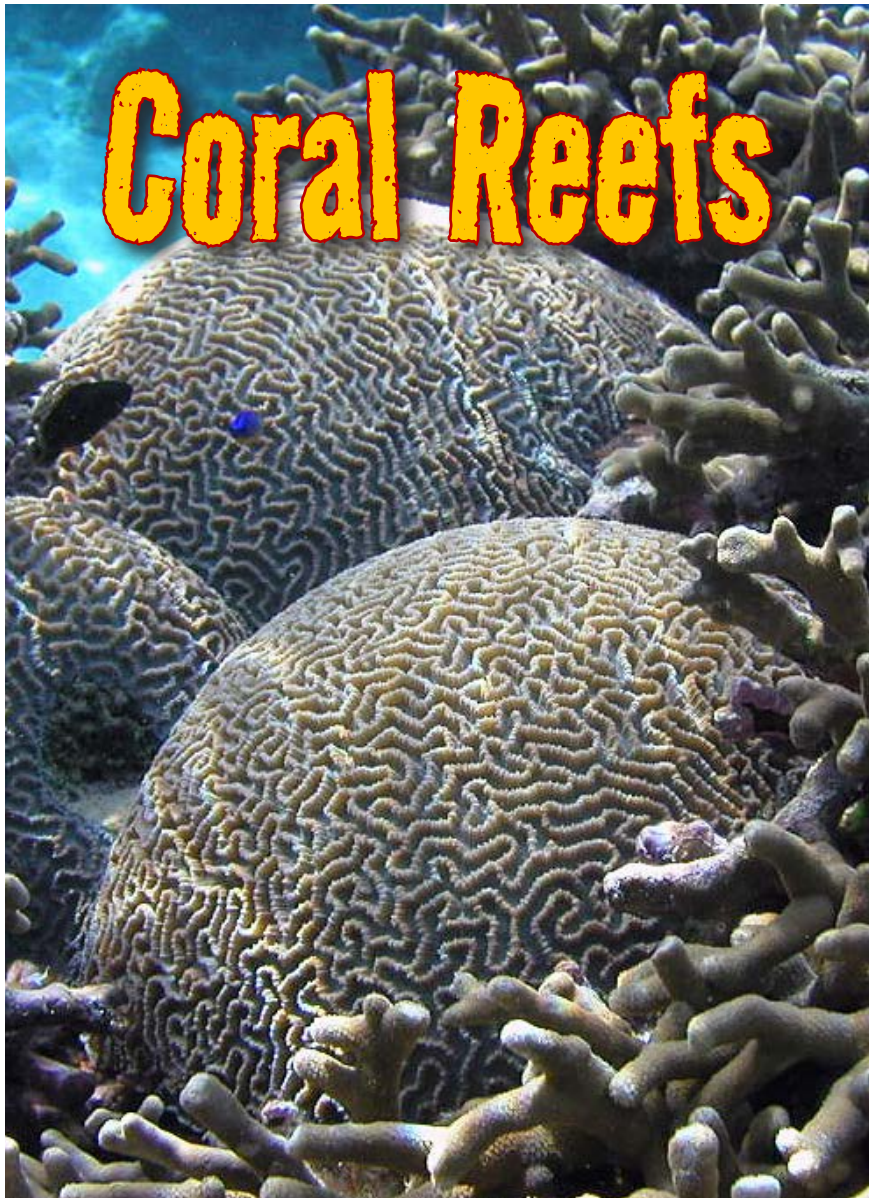


Written by Paula Schricker



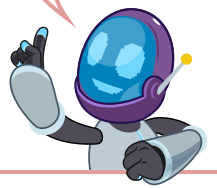
Written by Paula Schricker

Above: Brain corals are hard corals that look like . . . brains!

Page 3: Reefs offer many good hiding places for animals, such as this

Focus Question

What are coral reefs, and why are they being protected?



Words to Know

algae
coral reefs
diseases
explosives
fragile
polyps
skeletons
smother
surface

Connections

Writing

Do you think people should protect coral reefs? Write an answer to the question using details from the book.

Art

Draw or paint a picture of a coral reef. Label your art with at least ten words from the book.

Table of Contents

Many kinds of corals, fish, and other sea creatures live on coral reefs.

Underwater Communities

Coral reefs are huge ocean communities. Millions of animals and sea plants live in them. Coral reefs are very busy places.

Many kinds of coral make up reefs. Corals aren't rocks or plants. They are tiny animals called **polyps** (PAH-lips). Most polyps are smaller than a pea.

Kinds of Coral

There are two kinds of coral. The first kind is hard corals. These corals have hard **skeletons**. Over time, thousands of polyp skeletons help build a reef.

Algae (AL-jee) live in the bodies of these corals. Algae are simple cousins of plants. The algae are food for the corals.

Coral polyps attach to what's beneath them and stay there forever.

Soft corals are the second kind of coral. They often look like trees or other plants. These corals can bend with the water currents. Algae live in the bodies of some of them.

Many corals are named for what they look like. Brain corals look like brains. Sea fans look like open fans. Sea pens look like old-fashioned pens made from big feathers.

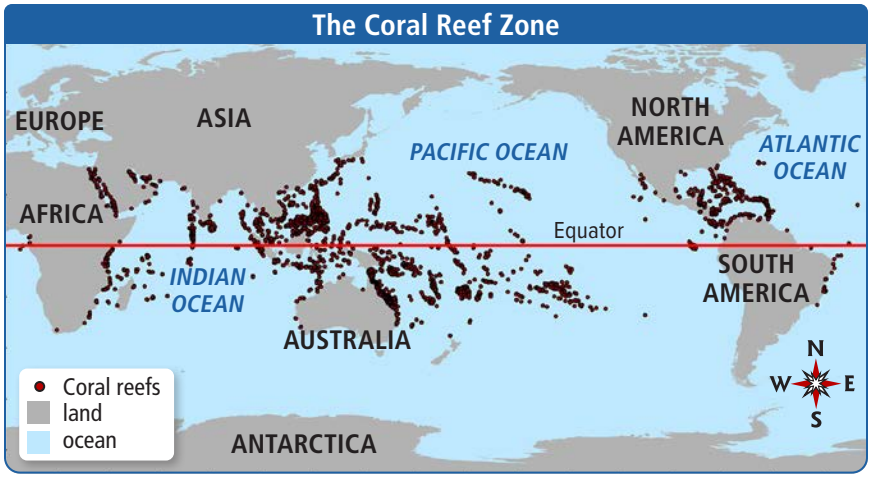
The shape of sea fans helps them catch tiny bits of food.

Golden butterflyfish and a school of red bigeye fish swim past soft corals in Egypt's Red Sea.

A Busy Home

Thousands of fish of all sizes, shapes, and colors live on reefs. They depend on the reef for food and safety.

Shrimp, lobsters, crabs, and sea stars feed on reefs. The holes in reefs are good places for animals to hide.



Source: NOAA 2017

Most coral reefs are found near the equator.

Where Corals Live

Most coral reefs are close to shore in warm parts of the world. Corals need certain things to stay healthy. They need algae for food. They must be near the water's **surface** so the algae can get enough sunlight. Also, both corals and algae need water that is not too warm or cold.

There are three kinds of coral reefs. *Fringing reefs* are close to the shore.

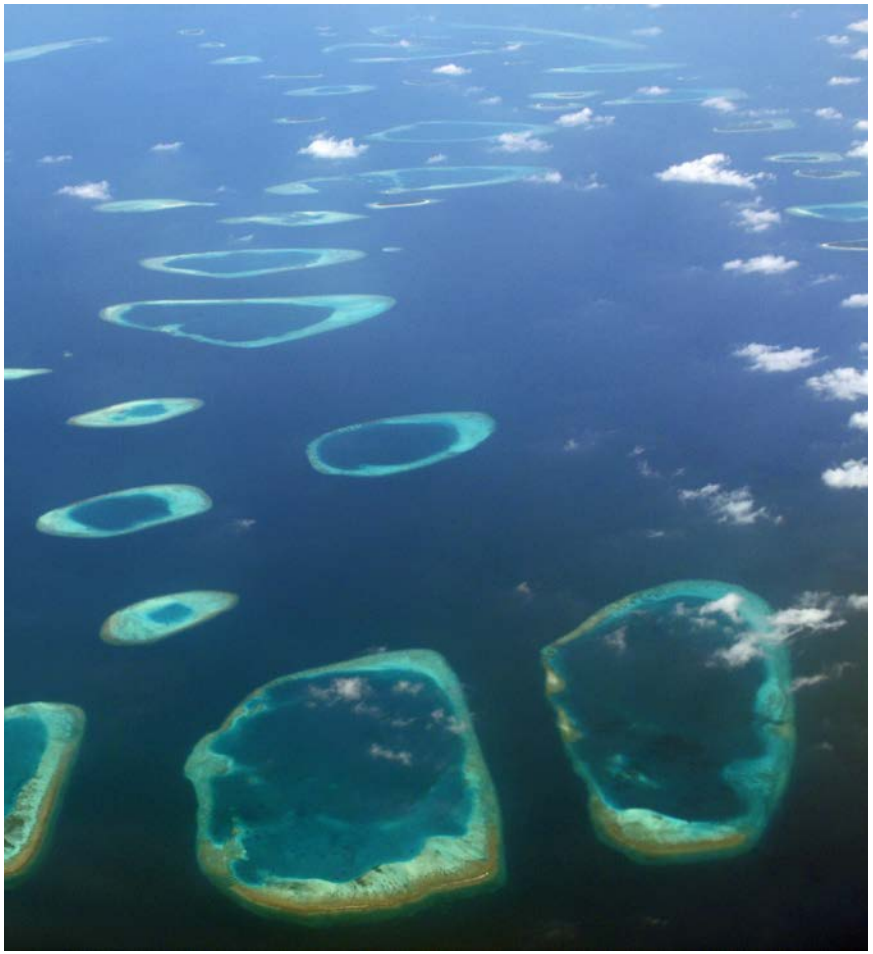
This fringing reef is in the Caribbean Sea. Fringing reefs are also common in Hawaii.

Barrier reefs have a large, deep area of water between the reef and the shore.

Wowser!

The Great Barrier Reef is about half the size of Texas.

Australia's Great Barrier Reef is between six and eight thousand years old.



These atolls are in the Indian Ocean.

Atolls, the third type of reef, are shaped like circles. They form around the edges of a slowly sinking island. After the island sinks, a small body of water called a *lagoon* forms in the center.

Burning coal puts harmful gases into the air. The gases make Earth's air and water warmer.

Dangers to Coral Reefs

Coral reefs are very **fragile**. Many things can harm them. People are the biggest cause of harm. People burn huge amounts of coal, oil, and gas to power cars and factories and to heat and cool buildings. Burning coal, oil, and gas is making Earth's air and water warmer. Warmer ocean water causes many problems for coral reefs.

Corals are getting sick. Coral **diseases** can destroy a big reef in just weeks. Warmer water is also causing corals to lose their algae. Without algae, corals have no food. They also lose their color and turn white. Three-fourths of all coral reefs have this problem.

Ocean water that is too warm is causing coral reefs to die.

People in a boat broke this elkhorn coral.

Other things harm coral reefs, too. Some people use poisons and **explosives** when they fish. Boats can break off large pieces of reefs. Dirt and trash can **smother** them.

Boats can also leak gas and oil. Gas and oil hurt coral, plants, and fish.

Each year, volunteer divers help clean reefs.

Protecting Coral Reefs

Coral reefs are beautiful. They are also important for many reasons. Reefs help protect coasts from storms and floods. They provide food for many kinds of fish that people eat. Some reef plants and animals are used for medicines.

Many countries try to protect their reefs. They have written laws and rules to keep reefs safe. But people do not always follow those laws and rules.

Half of the world's reefs have been destroyed. Most of the others are in trouble. Scientists are working to help coral reefs. Each of us can help, too, even if we don't live near an ocean. Never throw things in the water. Learn about what people do that makes ocean water too warm.

We can all help protect coral reefs. Then all the living things on coral reefs will continue to have homes and food.

Coral Nurseries

Scientists can grow pieces of healthy coral in nurseries. The pieces may be rescued from boat-related damage or coastal building projects. Scientists hang the pieces from bars, place them in baskets, or attach them to stands on the ocean floor. They later move the pieces to damaged reefs to help fix them.

Glossary

algae *(n.)* page 5
simple cousins of plants that grow in water and make their own food

coral reefs *(n.)* page 4
underwater ridges that are found in warm seawater and are made from the skeletons of small ocean animals *called* polyps

diseases *(n.)* page 12
illnesses that hurt the way something normally functions

explosives *(n.)* page 13
substances that can blow up with a sudden release of energy

fragile *(adj.)* page 11
easily damaged or broken; delicate

polyps *(n.)* page 4
small sea animals that have tube-like bodies

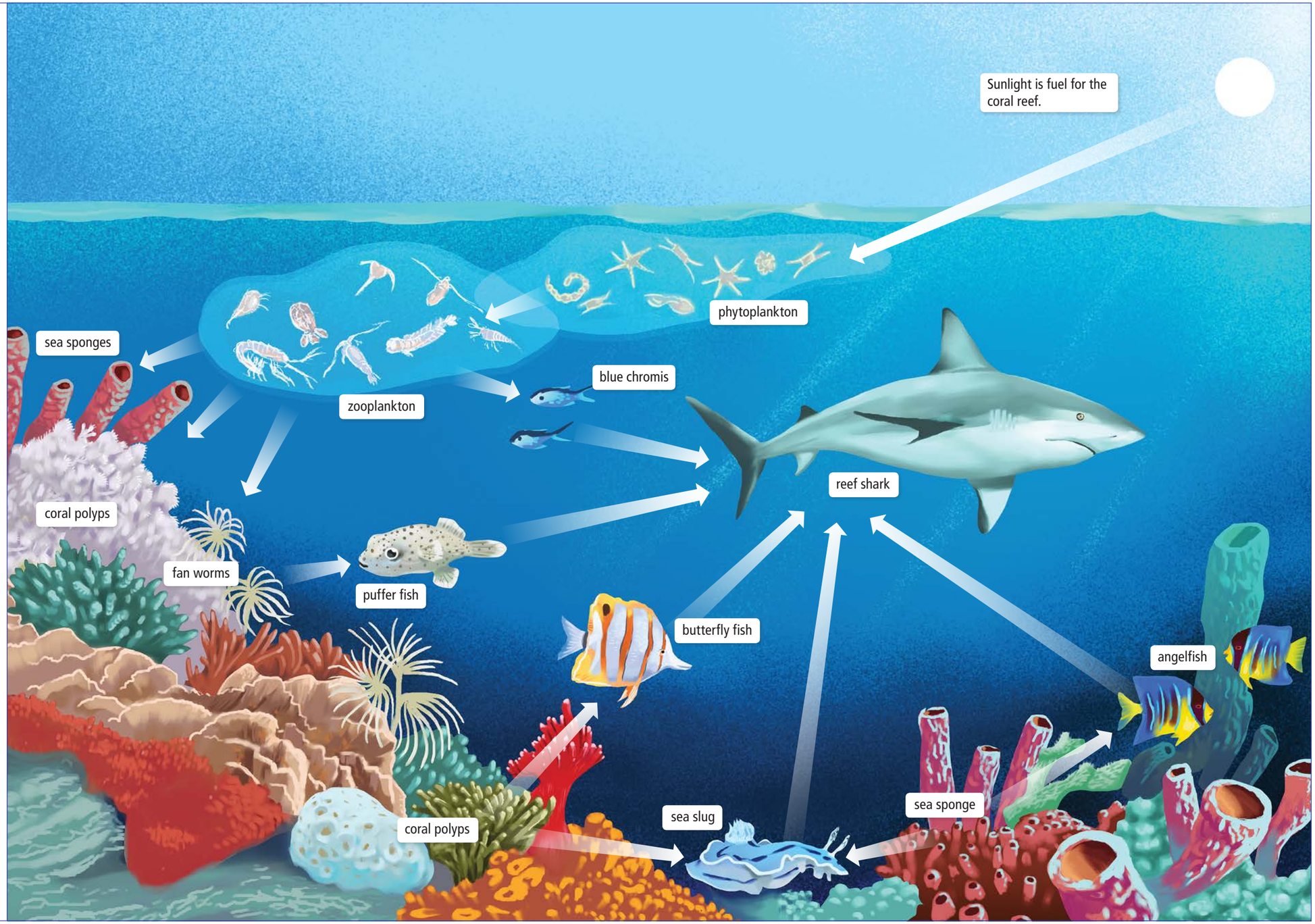
skeletons *(n.)* page 5
hard structures that support and protect the bodies of some animals

smother *(v.)* page 13
to prevent someone or something from getting enough air

surface *(n.)* page 8
the outside or top layer of something

Coral Reef Food Web

A food web is a group of plants and animals that are interconnected through what they eat. This food web shows how living things on a coral reef depend on each other. If one living thing is missing in the web, the whole web falls apart. Each coral reef is different. This food web shows just one example of which animals eat which foods found on a coral reef.



Checklist

Healthy Reefs

When you are feeling sick, you may not look well. The same is true of coral reefs. Scientists keep track of a reef's health by watching for signs of problems. When you explore a coral reef—whether real or in pictures—use this checklist to see how healthy it is.

This coral reef has many sign that it is healthy, such as the number of fish and the color of the coral.

A coral reef is healthy if you see . . .

- ☐ Many large fish

barracuda

- ☐ A healthy number of sea urchins, not too few, and not too many

purple sea urchin

- ☐ Many algae-eating fish

blue surgeonfish

- ☐ Octopuses

red octopus

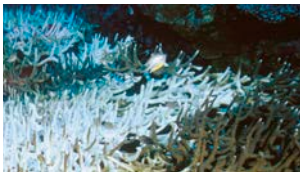
- ☐ Some sharks

great white shark

- ☐ Many giant clams, conches, and mollusks

giant clam

- ☐ No bleached white coral



Staghorn coral colony

- ☐ No dark blackish-brown bands

coral killed by black-band disease

- ☐ No white bands, spots, or blotchy patches

coral with white-band disease

- ☐ No dark gray or black bands

coral with black-band disease

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Content Area Skills Assessment

Use the Pack Rubric to determine if students have met objectives for content area skills. Objectives are met through projects, and by using Reading & Activities Chart resources along with these project resources:

Ask and Answer Question KWLS
Driving Question Project Outline
Investigation Planner

Content Area Skills	*Does not meet the objective.*	*Approaching the objective.*	*Meets the objective.*
Language Arts			
• CCSS RI.2.1: Ask and answer questions to demonstrate understanding of a text.	☐	☐	☐
• CCSS RI.2.2: Identify the main topic and key details of a text.	☐	☐	☐
• CCSS RI.2.3: Describe the connection between a series of scientific ideas or concepts.	☐	☐	☐
• CCSS RI.2.4: Determine the meaning of words and phrases relevant to the topic or subject area.	☐	☐	☐
• CCSS RI.2.9: Compare and contrast the most important point presented by two texts on the same topic.	☐	☐	☐
Social Studies			
• Identify and describe the way people affect their environment or surroundings.	☐	☐	☐
• Identify the physical changes of climate and its effects on plants and animals.	☐	☐	☐
• Describe the concept of growth and change.	☐	☐	☐
• Analyze how society often turns to science and technology to solve problems.	☐	☐	☐
• Describe the technology we use to study the natural world.	☐	☐	☐
Science			
• Make indirect observations of plants and animals to identify the diversity of life in a habitat.	☐	☐	☐
• Identify where water is found on Earth and whether it is solid or liquid.	☐	☐	☐