

Wild Reef

6–8 TEACHER'S GUIDE



Grade: 6–8

Objective:

Understand why Shedd Aquarium rescues and houses corals.

Define a food web as a model that shows how matter and energy are transferred in an ecosystem.

Define and identify producers or consumers.

Materials:

Printed activity sheet for each student

Background information

Shedd Aquarium rescues animals big and small—sometimes very small. Even corals need rescuing from time to time, and Shedd Aquarium has animal experts that can help. In November 2011, Shedd experts were called upon by the U.S. Navy to help rescue 1,500 coral colonies that were living on a seawall that had to be rebuilt. That meant that the corals needed to be moved. Shedd experts assisted with the rescue by giving a home to coral specimens that were too small to be relocated to another part of the ocean. Those corals now live in the Wild Reef exhibit alongside tropical fishes and invertebrates that depend on corals to survive. According to collections manager Mark Schick, "This team effort with the navy and our conservation partners allowed us to save corals that might have been lost, aid our ongoing research to understand how to protect corals all over the world, and give Shedd guests the opportunity to see corals that are rarely exhibited in public aquariums." Mark has also used his expertise to help with the SCORE project, which improves coral colonies' rates of reproduction to ensure that reefs can survive long into the future. In this lesson, you will learn about why rescuing corals is so important for the health of the oceans. Every colony counts!

LS2.B: Cycle of matter and energy transfer in ecosystems

- Food webs are models that demonstrate how matter and energy are transferred among producers, consumers and decomposers as the three groups interact within an ecosystem. Transfers of matter into and out of the physical environment occur at every level. Decomposers recycle nutrients from dead plant or animal matter back to the soil in terrestrial environments or to the water in aquatic environments. The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem. (MS-LS2-2)

Developing and using models

- Modeling in 6-8 builds on K-5 experiences and progresses to developing, using and revising models to describe, test and predict more abstract phenomena and design systems.

Systems and system models

- Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy, matter and information flows within systems.



Lesson Outline

Know before you go

- Coral reefs are amazing underwater ecosystems. They are made up of many kinds of plants and animals.
- Food chains are a model that scientists create to show how energy flows in an ecosystem.
- The arrows in food chains should point from the prey toward the predator.

Explore at Shedd!

Have you ever visited the Wild Reef exhibit at Shedd Aquarium? This exhibit allows you to explore a Philippines reef from the tide zone down to the ocean bottom and back up through mangroves and a lagoon. Did you know that corals are animals? It might seem weird, because once they are adults, they do not move, but they eat photosynthetic plankton. Corals also provide homes to other reef animals, and they're a food source to many fishes and other species in the ocean.

- Read the information and use the Wild Reef exhibit to complete the table and reflection questions.
- Have students share their thoughts with a partner or small group.

Ask more in your classroom

- How do different organisms interact in the coral reef ecosystem?
- Why do humans need healthy corals?
- What can you do to keep corals healthy?

Learn more in your classroom

- Review the KWL sheet the group completed before visiting Shedd. Discuss the field trip and have students fill in the "Learned" column of their KWL chart.
- Ask the students to write an autobiography from the perspective of a reef dweller. What does a day in the life of this organism look like?
- Tell the students to step into the role of a marine biologist. Based on their observations of the exhibit, have them write a scientific paper about the reef habitat. What additional investigations can be designed to find out more information about a species or interactions between organisms?
- Have students create a brochure about the Wild Reef ecosystem for a conservation organization. They must make their brochure informative and appealing to the public so that people will want to learn more about how they can protect the reefs of the world.

Notes/considerations

Differentiation

- Students do not complete portions of the scientific evidence on page 1.
- Omit reflection questions 3 and/or 4.

Supporting these CC Standards

ELA/Literacy W.4.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (4-LS1-1)