

# Hawaiian Islands Humpback Whale National Marine Sanctuary



## “Corals and Coral Reefs”

**Grade Level:** 4-8

**Timeframe:** Two 45 minute sessions

### Materials

**Parts of a Coral:** Paper and pencils or markers

**Edible Corals:** Marshmallows, graham crackers, pretzels, icing, green sprinkles, plastic knives and small paper plates

**Create a coral reef:** A variety of arts and crafts materials, tape, scissors and glue.

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### Key Words

**Habitat:** A place where animals live that provides shelter, food and clean water.

**Calcium Carbonate:** What the corals extract from the sea water to build a limestone skeleton around the polyp to protect it.

**Zooxanthelle:** Single celled alga that helps the coral photosynthesis and produce its own food.

### Lesson Summary

“Corals and Coral Reefs” will introduce students to what a coral reef is and how a group of corals creates a coral colony. How can a coral be both a plant and an animal? We will also look at the difference between a fringing reef, a barrier reef and an atoll. Students will be challenged to create corals and to put them together to create a coral colony.

### Learning Objectives

- Students will be able to explain how a coral can be both a plant and an animal.
- Students will create a model of a coral polyp.
- Students will be able to draw and explain the differences between a fringing reef, a barrier reef and an atoll.
- Students will be able to describe what a coral colony is.

### Background Information

A coral is an invertebrate (an animal with no backbone) with a soft body called a polyp. Most corals are attached to a hard surface, with just one opening that serves as the mouth and where wastes are passed out. It has a hard skeleton that protects the soft polyp, made from calcium carbonate it extracts from the water. Corals have an alga called zooxanthelle, that helps the coral photosynthesis and produce food. The shape and size of a coral depends on where it lives and the water conditions.

## Procedure

1. **Introduction:** Have students brainstorm and draw a sketch of what they think a coral reef looks like and who lives there. Share the introduction of the video for the description and images of corals and a coral reef.
2. **Three Types of Reefs:** Explain what a fringing reef, a barrier reef and an atoll are and how they are created. Have students write a paragraph describing the difference between them.
3. **Parts of a Coral Polyp:** Have the students draw the coral polyp as you explain the parts. Begin with the hard surface the polyp settles on. Add the soft coral body. Explain that the coral extracts calcium carbonate from the seawater to create a hard skeleton around the soft body. Add tentacles and discuss how they catch food and that the coral is stuck to a hard surface and can't move to catch the food. Discuss how the coral can photosynthesis (review how trees photosynthesis if needed). The polyp has a single-celled alga called zooxanthelle that enables it to photosynthesis. Add little green dots to represent the zooxanthelle.
4. **Edible Corals:** Each student needs a small paper plate, a plastic knife, a marsh mellow, graham cracker, enough icing to cover the marshmellow, a handful of pretzels and some green cookie sprinkles. Ask the students which of the food items represent what part of a coral polyp. To make the polyp start by placing the graham cracker on the plate.

Next add a little icing to the bottom of the marsh mellow and place it on the graham cracker. Then cover the marshmellow with the icing and explain that the icing represents the hard skeleton that covers the soft body. Stick the pretzels out of the top of the marshmellow to represent the tentacles the polyp uses to catch food. Explain that the polyp can also create some of its food through photosynthesis. Add the green sprinkles to the top of the marsh mellow. The green sprinkles represent the zooxanthelle which are the little alga that makes the photosynthesis happen. Finally discuss that parrot fish like to eat corals. Have the students pretend that they are parrot fish, and eat their edible coral polyps. But as a fish, that means that no hands can be used. This makes a great picture!

5. **Create a Coral Project:** The students are to use a variety of art supplies to create different corals that can be put together to create a coral colony. You may want to share with them the beginning of the video, where we describe different coral shapes. Then encourage some creative play and build a coral colony. Next week you will be creating animals that could live in this special reef.



