



Coral Reef Biodiversity:
Dive into the Species Found on a Coral Reef
NOAA Live! Webinar Series Companion Activity
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This standards based activity is meant to accompany our [NOAA Live! Webinars](#) on corals and serve as an example of how you can dive deeper into the content with your students. We encourage you to first explore the coral reef by watching the NOAA Live! segments we have highlighted below. Then use this hands-on activity with your students. In this activity, students will create their own coral reef and both explore the different plants and animals found there as well as the importance of each organism to the health of the reef.

Although corals are technically considered animals, many think of them as animals, minerals, and plants all in one. Many corals secrete a hard exoskeleton (the mineral component), and have symbiotic algae (zooxanthellae) living in them (the plant portion). Most corals are colonial, meaning they are composed of many individual animals called polyps. The “hard” coral provide shelter for many species of marine animals as well as depend on the mutualistic symbiotic relationship with zooxanthellae. A mutual symbiotic relationship is when both species benefit from the interaction. Zooxanthellae are housed by the coral and gain protection while the coral benefits from the relationship by getting food from the zooxanthellae. Find out more about corals with this [NOAA Ocean Service coral tutorial](#).

There is a lot that goes into a fully functional coral reef ecosystem. Coral reefs house thousands of species and each of them play a direct role in keeping the reef healthy. For example, sharks play an integral role in managing the populations in the food chain below them so that those fish species don't become overabundant. Some of the common species found in the coral reef ecosystem are: algae, bacteria, sponges, coral, jellies, annelid, crustaceans, mollusks, echinoderms, bony fish, cartilaginous fish, reptiles, marine mammals, and birds. Each of these species contribute to a healthy, balanced reef.

Objectives:

- Learn about coral reef ecosystems, both the coral itself and the different species that keep this ocean ecosystem healthy. Create a model of the coral reef and make observations about the different plant and animal species within the coral habitat.

MA STE Standard:

- 2-LS2-3(MA) Develop and use models to compare how plants and animals depend on their surroundings and other living things to meet their needs in the places they live.

NGSS Standard:

- 2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

Relevant NOAA Live Webinars:

- 1) Learn about Zooxanthellae:

- a. [NOAA Live! Webinar 20: Dive In and Explore Coral Reef Ecosystems](#)
 - i. 8:26-14:44 -Zooxanthellae, Symbiosis
 - b. [NOAA Live! Webinar 84 - Texas Corals, and Mantas, and Sharks, Oh My!](#)
 - i. 10:43-13:40-Zooxanthellae, Coral Color, Coral Skeleton
 - c. [NOAA Live! 76 - Cold Dark Secrets: Discovering Alaska's Deep-Sea Corals and Sponges](#)
 - i. 8:23-12:55 Zooxanthellae, Coral Polyps
- 2) Learn about Polyps and how they create Coral Reefs:
- a. [NOAA Live! Webinar 20: Dive In and Explore Coral Reef Ecosystems](#)
 - i. 5:55- 8:02 (Polyp anatomy) 20:15-24:01(how corals grow)
- 3) Learn about animals living around the reef:
- a. [NOAA Live! Webinar 20: Dive In and Explore Coral Reef Ecosystems](#)
 - i. 28:00-32:10
 - b. [NOAA Live! Webinar 54: Saving Corals: A Day in the Life of a Coral Reef Scientist](#)
 - i. 26:50-44:19
 - c. [NOAA Live! 88 - Fin-tastic Fun with Coral Reef Fish Surveys](#)
 - i. 8:15-24:37
 - d. [NOAA Live! Webinar 84 - Texas Corals, and Mantas, and Sharks, Oh My!](#)
 - i. 27:53- 30:50 (Fish)
 - ii. 34:30- 39:46(Reptiles, Mantas, and Sharks)

Materials List:

- Scissors
- Sheet of Blue Paper
- Glue
- Printer
- Access to Internet/Sheets of Marine Animals

Directions:

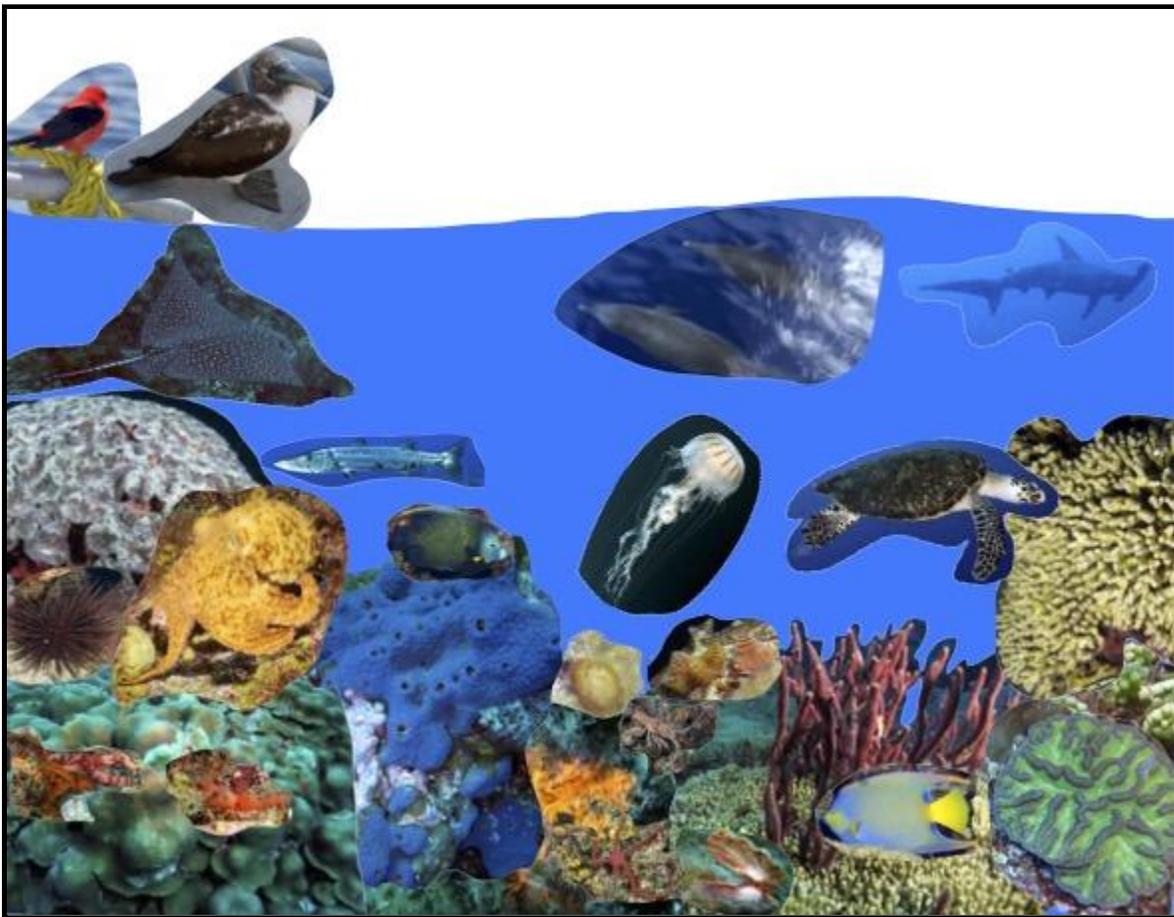
Step 1) Choose one or more of the NOAA Live! Webinars clips listed above to watch with your students and gain a broader understanding of coral reefs.

Step 2) Explore [NOAA's Coral Reef Conservation Programs Interactive Reef so your students can](#) learn more about the species living around the reef and how each plays a vital role in the coral reef ecosystem. For each animal, you can learn a fact about them, their role in the ecosystem, and a threat they face.

Step 3) Print out pictures of the plants and animals for your students to choose from and include in their reef. You can have your students explore the different species online at the [Flower Garden Banks National Marine Sanctuary species pages](#) or use the linked photo sheets below created from that website. (As an alternative activity, you can have your students make their organisms from playdough and build a 3-dimensional diorama).

1. Find 1 Algae ([photo sheet link](#))
2. Find 1 Sponges ([photo sheet link](#))
3. Find 1 Stony Coral within the group “Cnidarian” ([photo sheet link](#))
4. Find 1 Jelly within the group “Cnidarian” ([photo sheet link](#))
5. Find 1 Crustacean ([photo sheet link](#))
6. Find 1 Mollusk ([photo sheet link](#))
7. Find 1 Echinoderm (sea stars, sea cucumbers, and sea urchins) ([photo sheet link](#))
8. Find 1 Bony Fish ([photo sheet link](#))
9. Find 1 Cartilaginous Fish Species (sharks and rays) ([photo sheet link](#))
10. Find 1 Reptile Species (turtles) and 1 Bird ([photo sheet link](#))

Step 4) Cut out your pictures and glue them to your sheet of blue paper to create your own Coral Reef! An example of one way to build your own Coral Reef ecosystem is below:



Step 5) To finish up, discuss the threats facing coral reefs and brainstorm ways your students can make a difference. You can watch some NOAA Live! segments on threats and actions we can take or simply discuss them with your students. Relevant NOAA Live! clips are:

1. Threats

- a. [NOAA Live! Webinar 54: Saving Corals: A Day in the Life of a Coral Reef Scientist](#) (45:34-52:19) Coral Bleaching
 - b. [NOAA Live! Webinar 20: Dive In and Explore Coral Reef Ecosystem](#) (43:16-52:14) Habitat Loss, Hurricanes, Ships, Unsustainable Fishing, Pollution, Disease, Coral Bleaching, Ocean Acidification
2. What can you do?
- a. [NOAA Live! Webinar 20: Dive In and Explore Coral Reef Ecosystems](#) (57:06-58:35).
 - b. [NOAA Live! 88 - Fin-tastic Fun with Coral Reef Fish Surveys](#) (49:35-52:33)

Additional Activities:

You can have your students compare and contrast this coral reef habitat with other types of habitats. This will help students understand the differences between types of habitats, what kind of animals are in each habitat, and hypothesize why you observe these differences.