



C.S.I. Biscayne: Coral Structure Investigator

- **Booklet Page:** 4
- **Time Needed:** 20 min
- **Materials:**
 - Reef Building Diagram
 - Coral samples
 - Laminated Coral Core
 - Magnifying Glasses
 - Pictures of Live Coral

Summary

Students will learn about what makes up coral reefs by examining coral specimens. Students will categorize coral types and examine an x-ray of a coral core.

Exploration:

Introduction - Read (1 min.): Biscayne National Park has about 28 miles of one of the largest coral reefs in the world. Coral reefs are habitats that grow in warm, shallow water and where you can find great numbers of creatures. In fact, corals take up less than 1% of the ocean, but provide a home to over 25% of the species! Although small, some coral colonies can grow up to be the size of a school bus, the biggest reef in the world can be even seen from outer space! The building blocks of these dynamic places are actually tiny animals about the size of a pea.

Read & Show Diagram (5 min): A coral is actually a colony of tiny animals called coral polyps. Coral polyps are soft bodied animals related to jellyfish. Since they are jelly-like animals, they need protection. So beneath this layer of living soft tissue, the polyps create stony “cups” of calcium carbonate taken from the water. (Show diagram and follow the arrows)

This is what we consider the hard, or stony, part of the reef. This is the coral skeleton. When coral polyps of the same species grow close to one another, they form a colony, with each polyp joined to the one beside it.

Do (7 min.): Let’s look at the coral skeletons again and see if we can find the cups where the polyps once lived. The polyps’ homes are basically the tiny holes in the coral. The most obvious are the ones in the star coral. Examine the coral skeletons provided using the magnifying lenses. As a group, try to match up the coral skeletons with the pictures of different coral types. Pay attention to patterns and shapes. Can you see how they got their names? You may have noticed some corals unlike the stony corals. These are called soft corals. You may be able to see how they get their name. They bend and move with the water, and they don’t have the stony “skeletons” like reef building corals.



Read & Do (4 Min):As polyps die, other polyps build cups on top of the old cups. After thousands of years of this piling up, a large stony structure called a reef is formed. But remember, the outer layer is alive. Also remember that these corals grow very slowly, with the fastest growing about the same speed as your fingernails.

As coral colonies grow, new layers of skeleton are deposited. Some corals can grow to 800 or even 1000 years old! The amount of growth in coral skeletons depends on temperature and other weather conditions. The corals create growth layers each year. In order to see these layers, scientists must drill cores out of established coral heads. These layers, or bands, can tell scientists what the weather was like in that particular year. This is much like rings observed in trees. ***Slow coral growth makes darker bands, and fast coral growth makes lighter bands. A dark band and a light band together represents about one year.*** The larger the coral colony, the more years of data they can extract. You will find an example of a “Coral Core” in the activity station box. Open it up and trace back the years through the coral bands.

Read (1 Min):

These coral cores are valuable tools to tell scientists how corals respond to weather. For example they may grow more in warm years and less in cold. Coral Cores may also show signs of hurricanes. You can notice these by a slightly darker line in between large areas of lighter colored growth.



Conclusion (2 min.): Coral reefs are considered the “rainforests of the sea”, home to hundreds of kinds of fish and other animals around the world. Biscayne’s scientists do their part to help conserve these important ecosystems. Even though these corals have strong skeletons, they are actually very fragile. It can take hundreds of years to grow and only one second with a dropped anchor to break.

Through monitoring the state of the park’s reefs and partaking in research that replaces damaged coral pieces when needed, they learn about this special animal.

Objectives:

(Students will)

- know that variations in light, water, temperature and soil content are largely responsible for the existence of different kinds of organisms and population densities in an ecosystem.

SOURCE: Flower Garden Banks National Marine Sanctuary, NOAA.gov

CORAL CORE PICTURE: Amy Bratcher