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Foundation

## STANDARDS

- **CCSS:** RST.9-10.1, 2, 3, 4, 5, 6, 7, 8, 10; RST.11-12.1, 2, 3, 4, 6, 8, 9, 10; W.9-10.2, 4; W.11-12.2, 4; SL.9-10.1, 2, 3, 6; SL.11-12.1, 2, 3, 6; HSN.Q.A.1; HSA.CED.A.1
- **NGSS:** ESS 2.A, HS-LS1-5, HS-LS1-7, HS-LS2-5, HS-LS2-6, PS 1.B, PS 3.D
- **OLP:** 4.A.1, 5.A.2, 5.A.6, 5.A.7, 5.B.5, 5.C.23, 5.C.40, 5.C.41, 5.C.42, 5.C.43

## ONLINE CONTENTS

- [Coral Feeding Quiz](#)
- [Coral: What Does it Eat?](#) Video Coral polyps are mostly stomach, with a mouth on top. Symbiotic algae, zooxanthellae, live in the coral and provide them with energy. Corals also snatch zooplankton and other food particles right out of the water.

# CORAL FEEDING

This lesson is a part of the *Coral Feeding* unit, which explains what corals eat, how they feed, and additional ways that they obtain energy. Below is a summary of what is included in the entire unit.

## UNIT CONTENTS

### A. [Background Information](#)

- Predation
- Symbiosis
- Photosynthesis
- Cellular Respiration

### B. Lessons

#### [Watch it! Coral – What Does It Eat?](#)

- A worksheet to accompany the [Coral – What Does It Eat?](#) video

#### [It's Tentacular!](#)

- An activity to simulate feeding strategies of corals

#### [Symbiosis Charades](#)

- A game of charades adapted to learn different forms of symbiosis

#### [Round and Round](#)

- An art project to show the relationship between coral and zooxanthellae, photosynthesis and cellular respiration

#### [Read it! What's on the Menu?](#)

- A worksheet to accompany the [What's on the Menu: Sunlight, Plankton or Organic Debris?](#) field blog





# WATCH IT!

# CORAL - WHAT DOES IT EAT?

**INSTRUCTIONS:** Watch *Corals - What Does it Eat?* YouTube video (<https://youtu.be/tZuxZdG6TfM>) and answer the following questions.

1. Are corals animals? \_\_\_\_\_

2. What is a coral polyp?

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3. How many polyps can make up an individual coral?

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4. How does a coral polyp grow? List the steps.

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

5. What mineral do polyps use to create their skeleton? \_\_\_\_\_

6. What are zooxanthellae?

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7. How do zooxanthellae create food?

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8. Do corals need zooxanthellae in order to survive? Explain.

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9. What type of benefits do corals and zooxanthellae receive from each other?

Corals Receive	Zooxanthellae Receive



# WATCH IT!

# CORAL - WHAT DOES IT EAT?

10. What is a symbiotic relationship?

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11. What gives coral their color? \_\_\_\_\_

12. What is another way that corals can obtain food?

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13. What do corals eat? \_\_\_\_\_

14. What is a nematocyst?

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15. How do nematocysts aid corals in feeding?

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16. How does mucus aid corals in feeding?

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17. What is the function of cilia?

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18. What structure allow polyps to share nutrients? \_\_\_\_\_



**VIDEO SCRIPT:**

A coral reef, it can be one of the liveliest places on earth.

But what's really surprising is how much more goes on here than meets the eye. Even the corals themselves are alive.

They're made up of tiny animals called "coral polyps," distant cousins of jellyfish.

Hundreds, even thousands of polyps can make up a coral.

And this impressive reef, they built it, millimeter by millimeter.

How?

A polyp is mostly stomach, with a mouth on top. It sits in a hard skeleton that's part of the reef. The polyp takes in dissolved minerals from the water and mixes them with proteins.

Then it rises up out of its skeleton, leaving space below. It deposits calcium carbonate, also known as limestone, into this space. Over time, each little polyp not only builds its own skeleton, but adds to the structure of the reef.

So, what gives the polyp the energy for all this building? A unique partnership.

Inside most reef-building polyps are tiny algae called zooxanthellae. They use energy from the sun to photosynthesize, producing up to 95 percent of the food the corals need.

As animals, the corals emit nutrients valuable to the algae too, and also give them a protected place in which to live.

This trade-off benefits both the algae and the corals. It's called a symbiotic relationship. The algae are even responsible for the colors we identify with corals.

The resourceful little polyps feed in other ways too.

They can't move to get food, but they make up for it.

At night, they rise up out of their skeletons to feed stretching their long tentacles to snatch zooplankton and other food particles passing by.

This amazing time-lapse footage was taken at night under bright lights.

A polyp's tentacles are studded with thousands of stinging cells called nematocysts.

They catch prey by piercing it and releasing toxins, and then the polyp uses its tentacles to place the prize into its mouth.

Most coral polyps also have an outer layer of mucus that aids in feeding.

## WATCH IT!

# CORAL - WHAT DOES IT EAT?

It acts almost like flypaper, trapping dissolved nutrients from the water and sediment. The polyp draws the mucus into its gut with hair-like projections called cilia.

Some coral polyps can even share nutrients with each other.

In coral colonies, the stomachs of polyps are connected by a tissue called coenosarc.

This allows individual polyps to work together like one big organism.