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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



# LESSON 3

# ROUND AND ROUND

**OBJECTIVE:** Illustrate the cycling of photosynthesis and cellular respiration by using corals' symbiotic relationship as a model.

## INSTRUCTIONS:

1. Design a model of the relationship between a coral and zooxanthellae. This model could be a 2-D poster or a 3-D sculpture. Be sure to include the following:
  - Coral - Draw/sculpt the basic polyp body form, including tentacles, and label it *polyp*.
  - Zooxanthellae - Draw zooxanthellae and label it *zooxanthellae*.
  - Photosynthesis reactants/cellular respiration products - Should be placed in a logical spot
  - Photosynthesis products/cellular respiration reactants - Should be placed in a logical spot
  - Draw arrows to indicate the cycling of matter and the flow of energy.
2. In the space below, write a paragraph explaining the cyclical relationship between photosynthesis and cellular respiration. Refer to your drawing/sculpture. Also describe at least two other benefits this symbiotic relationship provides.

**GRADING RUBRIC:**

Category	4	3	2	1	Score
<b>Coral and zooxanthellae</b>	Coral and zooxanthellae are clearly recognizable and labeled correctly.	Coral and zooxanthellae are mostly recognizable and labeled correctly.	Either coral and zooxanthellae are not recognizable and labeled correctly.	Both coral and zooxanthellae are not recognizable and labeled correctly.	
<b>Photosynthesis reactants/ cellular respiration products</b>	Molecules are correct and in a logical position that shows how they pass from one organism to the other.	Molecules are correct and in a logical position.	Molecules are incorrect <b>or</b> are not in a logical position.	Molecules are incorrect <b>and</b> are not in a logical position.	
<b>Photosynthesis products/ cellular respiration reactants</b>	Molecules are correct and in a logical position that shows how they pass from one organism to the other.	Molecules are correct and in a logical position.	Molecules are incorrect <b>or</b> are not in a logical position.	Molecules are incorrect <b>and</b> are not in a logical position.	
<b>Arrows</b>	Clearly show the cyclical nature of these reactions.	Mostly show the cyclical nature of these reactions.	Show some indication of these reactions being cyclical, but it is hard to see.	Arrows are present, but do not show cyclical nature of these reactions at all.	
<b>Attractiveness</b>	Model is exceptionally attractive in terms of design, layout, and neatness.	Model is attractive in terms of design, layout and neatness.	Model is acceptably attractive, though it may be a bit messy.	Model poster is distractingly messy or very poorly designed. It is not attractive.	
<b>Paragraph Relationship</b>	Fully and accurately describes the relationship between photosynthesis and cellular respiration.	Accurately describes the relationship between photosynthesis and cellular respiration.	Somewhat describes the relationship between photosynthesis and cellular respiration.	Inaccurately describes the relationship between photosynthesis and cellular respiration.	
<b>Paragraph -- Other benefits</b>	Correctly identifies three other benefits.	Correctly identifies two other benefits.	Correctly identifies one other benefit.	Benefits mentioned are incorrect.	
<b>Grammar/ spelling</b>	There are no mistakes in the paragraph.	There are 1-3 mistakes in the paragraph.	There are 4-6 mistakes in the paragraph.	There are more than 6 mistakes in the paragraph.	
<b>TOTAL</b>	<b>Out of 32:</b>				

