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Living Oceans
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 2

SYMBIOSIS CHARADES

INSTRUCTIONS: Research the organisms in *italics* on the **Symbiosis Charades Card** assigned to you by your teacher. Take notes on their symbiotic relationship below.

NOTES:

1. Organisms involved in this relationship: _____ and _____.
2. What happens to the first organism in this relationship?
3. What happens to the second organism in this relationship?
4. Types of symbiosis represented:
5. Additional notes to help you act this relationship out during charades:

You have just participated in Symbiosis Charades. Now, answer the following questions.

1. In your own words, define the following and give an example from Symbiosis Charades:

Term	Definition	Example
Symbiosis		
Parasitism		

Term	Definition	Example
Commensalism		
Mutualism		
Facultative Symbiosis		
Obligate Symbiosis		
Endosymbiont		
Ectosymbiont		

2. Which types of symbiosis are found between coral and zooxanthellae? Explain your answer.

3. Provide three *different* examples of symbiotic relationships that were not acted out during Symbiosis Charades.

4. Which of the symbiotic relationships acted out by your classmates was your favorite? Why?



Mutualism Facultative	Parasitism Obligate Ectosymbiont
The <i>boxer crab</i> has a unique type of boxing glove -- <i>anemones</i> !	The <i>tongue-eating louse</i> gets its name from what it does to a <i>fish</i> .
Parasitism Obligate Endosymbiont	Mutualism Facultative Ectosymbiont
Can a <i>coral</i> get pimples? When they are invaded by a <i>trematode</i> , it looks like it.	<i>Decorator crabs</i> get their name from what they do with <i>sponges</i> .
Mutualism Facultative	Parasitism Obligate Ectosymbiont
A <i>wrasse</i> is like a dentist to the <i>sea bass</i> .	<i>Loxo</i> is a barnacle that makes male <i>mud crabs</i> think they are females.
Mutualism Obligate	Parasitism Obligate Ectosymbiont
<i>Anemonefish</i> are named for their home -- in an <i>anemone</i> .	A unique symbiosis is found within one species -- the <i>male</i> and <i>female anglerfish</i> .
Parasitism Obligate Endosymbiont	Commensalism Facultative Endosymbiont
Find out what this <i>copepod</i> has to do to a <i>fish</i> to be known as the eye maggot.	The <i>pearlfish</i> makes its home during the day in an odd part of a <i>sea cucumber</i> .
Commensalism Facultative	Commensalism Facultative
<i>Hermit crabs</i> get their homes secondhand, from a <i>sea snail</i> .	The <i>titan triggerfish</i> helps out smaller <i>fish</i> while it goes about its daily routine.
Mutualism Facultative	Commensalism Facultative
The <i>shrimp goby fish</i> and <i>pistol shrimp</i> are sometimes known as the odd couple of the ocean.	An <i>imperial shrimp</i> has an interesting mode of transportation -- a <i>nudibranch</i> .
Mutualism Obligate Endosymbiont	Commensalism Facultative Ectosymbiont
<i>Zooxanthellae</i> live in the endoderm of many <i>corals</i> .	<i>Barnacles</i> are often found on <i>whales</i> , especially around their mouths.

