



**Khaled bin Sultan
Living Oceans
Foundation**

STANDARDS

- **CCSS:** RST.9-10.1, 2, 4, 5, 7, 8, 10; RST.11-12.1, 2, 4, 10; SL.6.1-8.1; SL.6.5-8.5
- **NGSS:** MS-LS2-3, MS-LS2-4
- **OLP:** (grades 6-8) 5.A.1, 5.A.3, 5.A.4, 5.A.6, 5.A.16, 5.A.21, 6.A.5-6.A.7, 6.D

ONLINE CONTENTS

- [Food Web Quiz](#)
- [Coral Reefs: Unraveling the Web](#) Coral reefs are an ecosystem that supports millions of different creatures. A coral reef is so complex, it's better to think of it as a food web - a network of food chains - that tells a story about the interdependence of all the animals and plants that live in the reef.

FOOD WEB

This lesson is a part of the *Food Web* unit, which explains how matter is recycled and energy is transferred in the biotic (living) parts of a coral reef ecosystem. Below is a summary of what is included in the entire unit.

UNIT CONTENTS

A. [Background Information](#)

- Earth's System
- Matter
- Energy
- Feeding Strategies
- Food Chain
- Food Web
- Ecological Pyramids
- Energy Pyramid & 10% Rule

B. Lessons

[Watch It! Unraveling the Web](#)

- A worksheet to accompany the [Coral Reefs: Unraveling the Web](#) video

[Stringing it Together](#)

- An activity that models food chains and food webs in the coral reef ecosystem to aid in understanding how matter is recycled and energy flows through it

[Read it! Sharks](#)

- A worksheet to accompany the [Sharks!](#) field blog

[Read it! Faces & Functions of Algae](#)

- A worksheet to accompany the [The Faces and Functions of Algae on the Reef](#) field blog



READ IT!

TEACHER'S NOTES

AUTHOR

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LEARNING OBJECTIVES

- Read, interpret, and comprehend a blog.
- Determine how to responsibly use the internet for collecting and responding to information.

MATERIALS

- Internet access
- The Faces and Functions of Algae on the Reef* blog (<https://bit.ly/functionsalgae>)
- Read It! Faces & Functions Algae** student worksheet

INTEGRATING SUBJECTS

- English Language Arts

PRIOR KNOWLEDGE

- Students will have prior knowledge about bias and how to critique the validity of websites.

STANDARDS

- CCSS:** RST.9-10.1, 2, 4, 5, 7, 8, 10; RST.11-12.1, 2, 4, 10
- NGSS Practices:** 6, 7, 8

PROCEDURE

- Have students read *The Faces and Functions of Algae on the Reef* blog (<https://bit.ly/functionsalgae>).
- While reading, instruct students to take notes, connecting the information to their prior knowledge. They can note things that they agree and disagree with. A space, called *Notes*, is provided for this on the **Read It! Faces & Functions Algae** student worksheet.
- Ask students to analyze the blog to determine the elements (like tone or visual design) and content that they like and dislike. Remind students to explain why they like or dislike each element they mention. There is also a space provided for these answers on the student worksheet.
- Have students answer the questions on their worksheet. When they are looking for definitions, they should use the context from the blog, our glossary, or other online resources. You may want to set rules distinguishing other websites or resources that they are allowed to access.
- If you set up an online community for your class, have the students post their comment(s) from the last question and allow them to respond to each other. If you do not have an online community, have the students share their comment(s) with each other, either orally or by passing their written responses around the classroom.

READ IT!

FACES & FUNCTIONS ALGAE

INSTRUCTIONS:

1. Read *The Faces and Functions of Algae on the Reef*, a blog from our Palau mission (<https://bit.ly/functionsalgae>).
2. While reading the blog, take notes and connect it to your prior learning. Note things that you agree or disagree with. There is a space, below, for this.
3. Next, document what you like and dislike about this blog in the space below. Be sure to pay attention to things like style and tone, along with the content and visual design. Be sure to *explain* what it is that you do or do not like about each element.
4. Answer the questions.

NOTES

LIKES

DISLIKES

1. What is the central idea of this blog?
2. What is algae's trophic level? How are algae beneficial to the coral reef food web? Cite specific textual evidence to support this.
3. Did the author fully support her claim? Explain why you think this.
4. *Algae*, *competition*, and *eutrophication* are specific vocabulary for the topic of this blog. Define them below.

5. Write a sentence of your own creation that connects the three words from #4, above.
6. Is this blog a reliable source for scientific information? Why or why not?
7. Do you notice any bias in this writing? If so, what?

8. Read *Alices' Fishes*, a blog from our Columbia mission (<https://www.lof.org/alices-fishes/>). Compare and contrast the information about the role of algae on coral reefs (found in this blog) to that from *Alice's Fishes*. Be sure to cite the other sources of information in your answer.
9. Describe three things that you learned while reading this blog (they do not have to relate to the central idea).
10. Construct a comment to post in response to this blog. Remember that a good comment makes connections, asks a question, or gives an opinion in a respectful manner. You might want to quote the part of the blog that you are specifically referring to. Don't be afraid to disagree with another writer but be sure to explain yourself and remain polite.

1. What is the central idea of this blog?

Although algae may often be associated with environmental decline, it provides many benefits to the coral reef ecosystem under normal conditions.

2. What is algae's trophic level? How are algae beneficial to the coral reef food web? Cite specific textual evidence to support this.

Algae are primary producers because they photosynthesize to create their own food. Even though algae can have negative impacts on the coral reef food web, in normal conditions, they are beneficial in many ways. They provide food and habitat for organisms. Different genera have different roles, such as producing sand, providing substrate, and cementing the reef. Students should have specific quotes to back up this claim, which may vary but might include the following:

- **"They provide important habitat for many small creatures and act as the base of the food chain that fuels the community of coral reef critters."**
- **"...has branches that contain calcium carbonate—these calcified segments become sand on the reef..."**
- **"...referred to as the "cement of the reef" because it grows over loose bits of reef and essentially glues them together."**
- **"Turf is an important food source for herbivorous fishes and sea urchins..."**

3. Did the author fully support her claim? Explain why you think this.

Answers may vary. Students should explain their reasoning. Suggested answer: The author expresses minimal opinions in the blog. She primarily provides factual evidence. In addition to presenting the reasons that algae are beneficial to this ecosystem, she also provides evidence for how algae can become a problem when pollution and overfishing fuel the excess growth of these producers.

4. *Algae*, *competition*, and *eutrophication* are specific vocabulary for the topic of this blog. Define them below.

- **Algae: (plural for alga) A group of aquatic photosynthetic organisms that are often referred to as "seaweeds."**
- **Competition: An interaction between organisms of the same or different species that are vying for the same resources.**
- **Eutrophication: An excess of nutrients in an aquatic ecosystem that stimulates rapid growth of organisms such as algae, phytoplankton, and cyanobacteria, which can lead to adverse effects. Often eutrophication is due to pollution such as dumping sewage, fertilizer, and wastewater into an aquatic ecosystem.**

5. Write a sentence of your own creation that connects the three words from #4, above.

Algae are in constant competition for space and sunlight with corals, but when eutrophication occurs, this fuels the rapid growth of algae which can then outgrow corals.

6. Is this blog a reliable source for scientific information? Why or why not?

Yes. This is a first-hand account of what the author has seen. It is from a reputable organization that is based on scientific research. It also links you to the author's credentials.

7. Do you notice any bias in this writing? If so, what?

Answers may vary but should note that there is factual evidence presented. Responses may also include that the author provides evidence explaining multiple points of view – how algae can be both detrimental and beneficial to coral reefs.



8. Read *Alice's Fishes*, a blog from our Columbia mission (<https://www.lof.org/alices-fishes/>). Compare and contrast the information about the role of algae on coral reefs (found in this blog) to that from *Alice's Fishes*. Be sure to cite the other sources of information in your answer.

Answers may vary. Students should the similarities and differences between blogs.

Similarities	Differences
<ul style="list-style-type: none"> • Herbivores are important in helping regulate algae. • Algae can overgrow coral when too many herbivores are removed due to overfishing. • Pollution fuels the growth of algae. 	<ul style="list-style-type: none"> • The author of <i>Alice's Fishes</i> points out that algae can also overgrow corals when they are sick or diseased. • Although it is expected that there is a balance between algae, corals, and herbivores in a coral reef ecosystem, perhaps that is not always the case. In <i>Alice's Fishes</i>, the author reveals that there are many herbivores, but also plentiful algae. They suspect that perhaps on this reef, there were never large corals that dominated the reef, but perhaps they were always algae-dominated. This blog suggests that not all reefs are alike and that sometimes other environmental factors shape the dynamics of the reef.

9. Describe three things that you learned while reading this blog (they do not have to relate to the central idea).

Answers may vary.

10. Construct a comment to post in response to this blog. Remember that a good comment makes connections, asks a question, or gives an opinion in a respectful manner. You might want to quote the part of the blog that you are specifically referring to. Don't be afraid to disagree with another writer but be sure to explain yourself and remain polite.

Answers may vary.