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

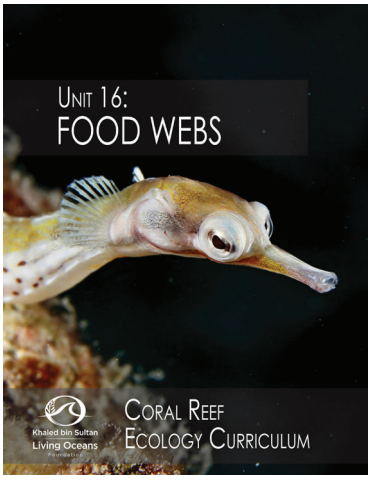
ONLINE CONTENTS

- 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

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READ IT! Teacher's Notes

AUTHOR

- Amy Heemsoth, Khaled bin Sultan Living Oceans Foundation

LEARNING OBJECTIVES

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

MATERIALS

- Internet access
- *Sharks* blog (*https://bit.ly/sharksGBR*)
- **Read It! Sharks** 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, 4, 10
- **NGSS Practices**: 6, 7, 8

PROCEDURE

1. Have students read *Sharks* blog (*https://bit.ly/sharksGBR*).
2. 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! Sharks** student worksheet.
3. 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.
4. 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.
5. 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.

Name: _____ Date: _____

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READ IT! SHARKS

INSTRUCTIONS:

1. Read *Shark*, a blog from our Great Barrier Reef, Australia mission (*https://bit.ly/sharksGBR*).
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. How does the first paragraph tie into the rest of the blog (what is its purpose)?

2. What is a shark's trophic level? What is their role on the coral reef?

3. Compare and contrast the shark populations from the previous study to what the scientists are finding on this Great Barrier Reef research mission. Cite specific textual evidence to support this.

4. Did the author fully support his claim? Explain why you think this.

5. *Top-order predator*, *abundance*, and *fishing regulations* are specific vocabulary for the topic of this blog. Define them below.

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

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

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

9. Describe three things that you learned while reading this blog entry.

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. How does the first paragraph tie into the rest of the blog (what is its purpose)?
   This paragraph provides background information about the importance and role of sharks in the coral reef ecosystem. It also describes the types of sharks, how to identify them, and the coral reef zone that they inhabit on the Australian Great Barrier Reef. This information helps connect the reader to the information in the rest of the blog.

2. What is a shark's trophic level? What is their role on the coral reef?
   Sharks are apex predators, or as mentioned in the blog, top-order predators. They are in low abundance on most reefs because they are a top predator; however, their presence often indicates that the coral reef ecosystem is healthy.

3. Compare and contrast the shark populations from the previous study to what the scientists are finding on this Great Barrier Reef research mission. Cite specific textual evidence to support this.
   Ten years prior, research revealed that fishing had caused shark abundance to decline on the Great Barrier Reef. As a result, fishing regulations were put into place. Ten years later, Dr. Will Robbins observed that the fishing regulations seemed to be having a positive effect because there were more sharks present. Students should have specific quotes to back up this claim, which may vary but might include the following:
   - **"Estimates of reef shark abundance conducted 10 years ago found significant declines in reef shark abundance in areas open to fishing, and in entry-but-no-take zones on the Great Barrier Reef."**
   - **"This research resulted in changes to fishing legislation in 2004, giving reef sharks a greater level of protection."**
   - **"Excitingly, our abundance surveys indicate that the modified fishing regulations are having a positive effect on shark numbers. For example, grey reef shark numbers are much higher than 10 years ago, and encouragingly the biggest increases have been found in management zones previously found to be markedly depleted of sharks."**

4. Did the author fully support his claim? Explain why you think this.
   Answers may vary. Students should explain their reasoning. Suggested answer: Although the author provides evidence that shark abundance seems to be greater than ten years prior, he makes it known that these are only initial observations. Dr. Robbins expresses how these initial observations are encouraging, but that further research is needed to determine if shark abundance has increased. Then the author continues to explain how scientists use a stereo video system to determine the exact size of the shark and make sure that the sharks are not being counted more than once in their abundance results. These results will provide scientists with the ability to later calculate the size structure of each shark population.

5. *Top-order predator*, *abundance*, and *fishing regulations* are specific vocabulary for the topic of this blog. Define them below.
   - **Top-order predator: This is another term for apex predator, which means an organism that resides at the top of the food chain and have few to no predators. They help regulate the food chain.**
   - **Abundance: The number of individuals per species in a given area.**
   - **Fishing regulations: Rules and laws that reduce the threat of destructive and unsustainable fishing practices to aid in rebuilding overfished aquatic and marine ecosystems.**

6. Write a sentence of your own creation that connects the three words from #5, above.
   ***Top-order predators*, such as sharks, typically have a lower *abundance* than their prey because of they are at the top of the food chain; however, when there are few *fishing regulations* in place, their *abundance* can decline to unstable levels.**

7. 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.

8. Do you notice any bias in this writing? If so, what?
   Answers may vary but may note that it seems very factual.

9. Describe three things that you learned while reading this blog entry.
   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.