

ISBN-13: 979-8218220037 Reading age: 8 -12 years Grades: 4th - 6th

A Common Core Anchor Standards & Next Generation Science Standards-
Aligned Educator Guide for

AT THE EDGE OF THE ICE

Carolyn Armstrong
Books: Earth Friendly

Fiction

Fact based - Middle

Grade - Climate

Focused



www.ckabooks.com

ABOUT THE BOOK:

Sydney Cabella talks to animals. Big animals. Wild animals. Endangered animals. They never talk back. Until one day, they do.

An intuitive eleven-year-old Sydney, her brainiac twin sister Sierra, and her photojournalist parents arrive at Svalbard, a tiny group of Norwegian islands near the North Pole. As the family explores the Arctic ecosystem, Sydney accidentally hits her head and when she wakes up, the impossible has happened: she can talk to animals and the animals can finally talk back!

The first animal who speaks up is a ringed seal named Ringo who needs her help big time. What Ringo tells Sydney is alarming. Loss of habitat and global warming have pushed this ecosystem to the brink of collapse. What in the world does the seal expect Sydney to do about it? With just 72 hours before they leave the Arctic, the twins must put their squabbles aside to decipher Ringo's clues, messages, and sea ice antics. When he leads them back to the elusive polar bear, Sydney realizes just how interconnected their lives really are. One depends on the other. And both are depending on her.

ABOUT THE AUTHOR:

Carolyn Armstrong is the author of Earth-friendly middle grade fiction. A former educator and an imperfect environmentalist, she blends her love of travel and animal well-being into her stories. Featured in Bloomberg for her sustainability efforts, Carolyn encourages everyone to become eco warriors for Planet Earth. It's as easy as picking up trash and refusing a plastic drinking straw! Learn more about Carolyn and her many amazing projects at ckabooks.com



PRE-READING DISCUSSION:

- Identify the images featured on the cover of the book.
- Synonyms for the phrase “being on edge” are uneasy, anxious, and apprehensive. Make a connection between the illustration of the bear and the list of synonyms. What reasons would the polar bear have to be “on edge”?
- Identify ways that the graphic on the book cover serves as a symbol for the ecologically threatened Arctic ecosystem.
- Tell how the iceberg scene might serve as foreshadowing for the events to take place in the story.
- Predict what AT THE EDGE OF THE ICE is going to be about.

POST-READING DISCUSSION:

“Last night. Right after I spoke to them.” Sydney cringed, waiting for the teasing or eye rolling that sometimes followed when she said things like that (pg. 29).

- List the differences and similarities between Sydney and Sierra – intellectually, intuitively, and ability to be open to new ideas.
- Tell why Sydney risked ridicule to mention that she communicated with a pod of beluga whales.
- How would you react if your sibling claimed to be able to communicate with animals? Explain your answer.

It was now or never. Time for the big reveal. Sydney cleared her throat. “I can talk to animals, and they talk back” (pg. 62).

- In this scene, Sydney adamantly claims her ability to communicate with animals. Explain why she chose this moment in the story to make such a bold statement to her doubting sister.
- *Trust* is defined as confidence, belief, and faith. Determine the level of trust Ringo has in Sydney that she might become the voice of the animals in need of saving.
- Trust is something that is earned and developed over time. Discuss how Sydney must establish a sense of trust in her sister before being able to make an impact on environmental needs of the Arctic habitat.

In that race to the edge of the ice, the polar bear had almost caught Ringo! The seal dipped in and disappeared into the water. The next photo was of the polar bear mid-flight, with its arms and legs completely spread out before splashed into the water (pg. 153).

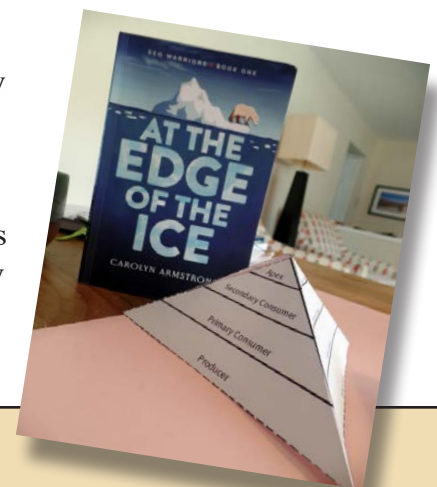
- While engaged in chasing and romping about, the animals were precariously close to the crew’s expensive camera equipment and yet did not disturb it. Sydney wondered how the camera remained stable during all of the action. Do you think the animals may have been aware that they were being filmed? If so, why would putting on a dramatic spectacle help to save their habitat?
- Sydney’s mother speculates that the animals may have been drawn to the zodiacs (pg. 154). Determine how her theory is partly true.
- Of all of the photos and videos depicting PB-861, the polar bear, and Ringo together, the one that moved Sydney the most was the image featuring the two seemingly staring at one another with a shared feeling of desperation (pg. 156). Why is this so?

“I hate fighting. We need to work together more,” Sydney said, staring straight ahead. Ringo and PB had managed to work together to get their message across. And they were arch enemies (pg. 171)!

- The word *synergy* is defined as cooperation, collaboration, partnership, and teamwork. Consider the synergy between Sydney and Sierra. Describe the synergetic shift in positivity and purpose that took place when the two sisters began to work together on the shared goal of becoming eco warriors.
- How about you? Are you ready to join the cause? What gifts and talents are you willing to share to save the planet? Remember, small steps can make a big difference!

APPLICATION:

Complete the Animals of the Eco Warrior Food Pyramid matching activity on page 3. Use that information and the back matter in the book to inform the construction of the Eco Warrior Food Pyramid found on page 4. Write an essay explaining how the creatures featured in the pyramid represent keystone species of the Arctic habitat. Describe the environmental dangers the animals of the Arctic experience. Explore ways to solve such issues by adopting Eco Warrior values and principles. Share your completed Eco Warrior Food Pyramid and essay with the class.



Animals of the Eco Warrior Arctic Food Pyramid

Draw a line to match the animal photo with the correct description. Use the pictures and definitions as a resource to build the Eco Warrior Arctic Food Pyramid featured on the following page of this guide. Write an essay explaining how the creatures featured in the pyramid represent keystone species of the Arctic habitat. Describe the environmental dangers the animals of the Arctic experience. Explore ways to solve such issues by adopting Eco Warrior values and principles. Share your completed Eco Warrior Food Pyramid and essay with the class.



Polar Bear

Krill, small shrimp-like crustaceans belonging to the order Euphausiacea, are integral producers in the Arctic food web, serving as a critical link between primary producers and consumers. Despite their diminutive size, krill play a monumental role in sustaining the productivity and biodiversity of the Arctic ecosystem.



Seal

The **Arctic cod**, also known as polar cod or *Boreogadus saida*, holds a pivotal role as a primary consumer in the Arctic food web. This small, silvery fish species is perfectly adapted to the extreme cold and harsh conditions of the Arctic Ocean, and its presence influences the entire ecosystem.



Arctic Cod

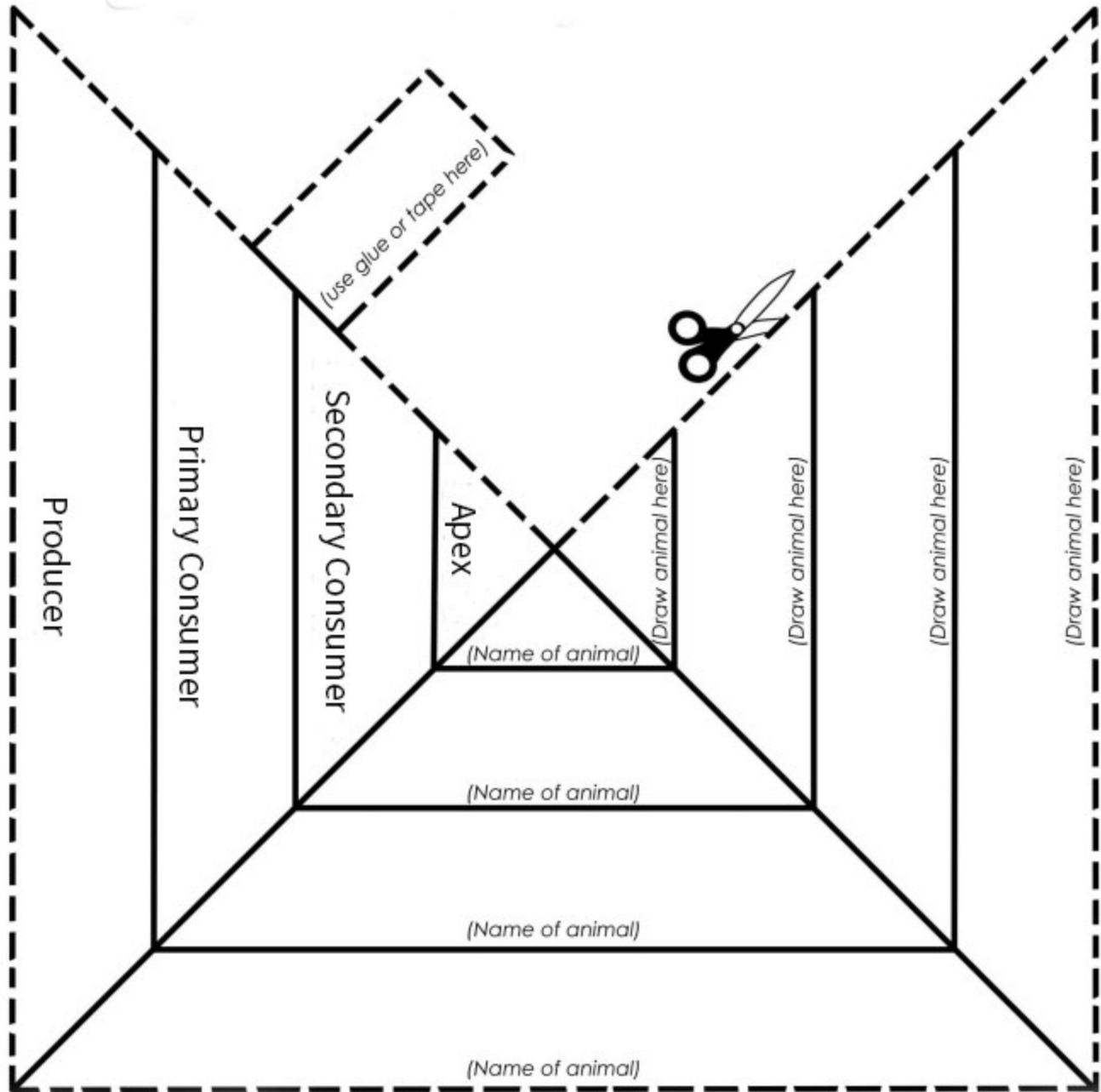
The **polar bear**, *Ursus maritimus*, reigns as the apex predator in the Arctic food web, embodying the pinnacle of this icy ecosystem's intricate hierarchy. These majestic creatures are uniquely adapted to their frozen realm, making them the undisputed rulers of the Arctic wilderness.



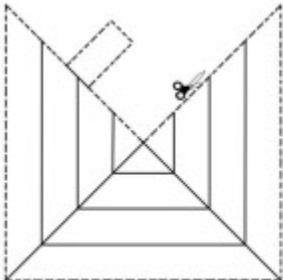
Krill

Seals play a vital role as secondary consumers in the Arctic food web, serving as a bridge between primary producers and apex predators like polar bears. These semi-aquatic mammals are adapted to both land and sea, making them essential components of the Arctic ecosystem.

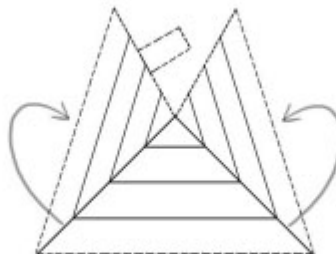
The Eco Warrior Arctic Food Pyramid



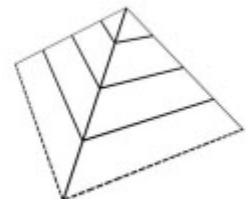
Directions:



1) Cut along the dotted line.



2) Fold along the solid diagonal lines.



3) Glue or tape flap to join.