

## Details



**Completion Time:** About one period

**Permission:** Download, Share, and Remix

## Writing Science in the Language Arts Classroom: Understanding the Food Web

### Overview

Students will explain, both orally and in writing, a diagram used to illustrate a food web.

### Objectives

- Students will learn how language is used to communicate and is required to impart knowledge and sustain a healthy, traditional community in a modern world.
- Students will learn strategies for communicating complex ideas to an audience.
- Students will know how to adapt their non-fiction writing for an audience.
- Students will be able to explain a graphic orally to a peer and write an explanation of a graphic for a specific audience.

### Lesson Preparation

This lesson is to be delivered the day following their Biology lesson, "The Arctic Smorgasbord", also available as a PolarTREC lesson ([www.polar-trec.com](http://www.polar-trec.com)). Prior to this, students will have been taught non-fiction reading strategies, and they will have read non-fiction articles that support what they are learning in their Biology class. An important piece of reading non-fiction material is analyzing the graphics that an author includes, so students will have also learned approaches to understanding different graphics.

Prior to this lesson:

- Students have been taught non-fiction reading strategies.
- Students have read non-fiction articles supporting the arctic food web concepts.
- Students have practiced reading and comprehension of graphics supporting the food web concept.

During this lesson:

### Materials

- Vocabulary list from the students' science teacher.
- Student pairs will need an Arctic food web graphic.
- Method of taking notes during class discussion – white board, document camera, etc.
- Each student will need a writing utensil and several pieces of writing paper.
- Rubrics will need to be made available to students; they should either be printed as handouts or displayed in the classroom for student reference.

- Students will work in pairs for one activity, so either be prepared with assigned pairs or allow the students to select.
- Obtain the vocabulary list from the science teacher and verify your own understanding of the terms.
- Make required copies of the graphic and rubric.

### **Procedure**

1. Students will examine the graphic depicting the food web in the Arctic.
2. Students will pair up and explain the graphic to their partner. Each partner will have the opportunity to verbally explain the web.
3. After all students have orally explained the graphic, the pairs will then discuss the following:
  - Did your partner explain the entire web as depicted on the graphic?
  - Did your partner use non-descript words or phrases such as: thing, it, stuff, etc.?
  - Did your partner use the vocabulary correctly?
  - Did your partner explain the web in a logical manner or were they jumping randomly from item to item?
4. The class will then discuss the findings. Discussion should include the importance of using the correct vocabulary and logical flow.
5. Teacher will then link the previous readings, the instruction in their Biology class, the lesson graphic, and the explanation they provided to their partner. All are forms of communication. Another form of communication is writing.
6. Students will then be given the instructions to create a non-fiction piece of writing explaining the arctic food web with the audience being a younger sibling or student.
  - Instructions: In your Biology class, you have learned vocabulary for and the process of the arctic food web. In this class you have read non-fiction articles on the arctic food web, and you have been exposed to a variety of writings for different levels of understanding. Today, you communicated orally with a partner and explained a graphic representation of the arctic food web. We also discussed what made a good explanation when communicating scientific ideas.
  - Writing Prompt: Create a non-fiction document that explains the arctic food web graphic using correct vocabulary with your audience being a younger sibling or student.
  - Rubric: (either hand out or display) Discuss the rubric so that students are aware of how this writing will be graded.

### **Extension**

An extension could be to write the explanation for different knowledge level audiences. Lessons on non-fiction reading strategies should be delivered prior to this lesson. Graphic and information on the Arctic can be found at <http://www.arcodiv.org/>

### **Assessment**

As this is an assignment for the language arts classroom, the writing will not be graded for scientific accuracy. The writings could be made available to the science teacher if he/she would like an additional example of their students' comprehension. The assignment will be



graded on vocabulary use, word choice, logical flow, and conventions. The rubric uses four levels for each feature graded.

**Credits**

Mary Jane Geiser

## **National Science Education Standards (NSES)**

### **Content Standards, Grades 5-8**

Content Standard C: Life Science

- a. Structure and function in living systems
- d. Populations and ecosystems

### **Content Standards, Grades 9-12**

Content Standard C: Life Science

- d. Interdependence of organisms
- e. Matter, energy, and organization in living systems

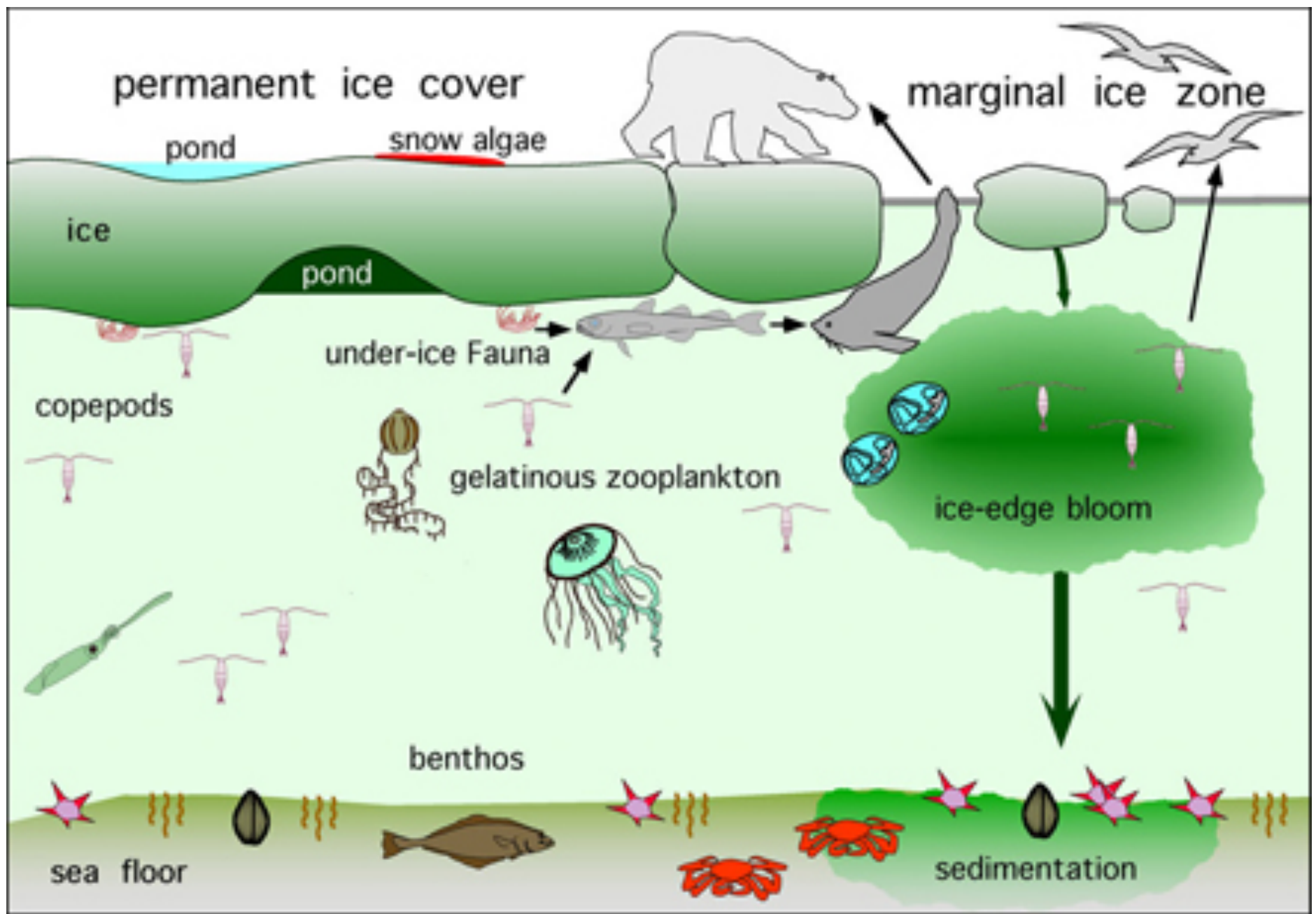
### **Other Standards**

1. National Council of Teachers of English (NCTE) Standards

- a. Standard 5 - Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.

2. Alaska Grade Level Expectations (GLE) Grade 10, Writing

- a. [10] 4.4.1 Reviewing content and organization and making appropriate changes to improve clarity and logical progression of ideas (e.g., increasing elaboration or support for ideas/thesis, providing relevant details, examples, definitions, narrative anecdotes, illustrative scenarios, or counterarguments appropriate to the genre)\*
- b. [10] 4.4.3 Combining sentences for fluency, using precise and descriptive words and/or eliminating irrelevant details to improve quality and effectiveness of writing)\*



Understanding  
the Food Web

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Vocabulary Use

Vocabulary terms were used correctly and all terms were defined or explained in text	All vocabulary terms were used, but no more than three definitions or explanations were missing.	All or most vocabulary terms may have been used, but four or more definitions or explanations were not provided.	Few vocabulary words were used or vocabulary was used incorrectly.
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Precise Word Choice

Precise word choice was used to keep communication clear.	Precise word choice was most often used, but communication was not clear in three or fewer places.	Precise word choice was sometimes used, but due to non-descript terms communication was not clear in four or more places.	Non-descript terms were used (words such as: them, it, those). Communication was not clear.
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Logical Flow

The flow of the written explanation was logical and easy to follow.	The flow of the written explanation was mostly logical and easy to follow, but in three or fewer places there was a jump/leap in thought.	The flow of the written explanation was sometimes logical and easy to follow, but there were four or more places where there were jumps/leaps in thought	The flow of the written explanation was interrupted consistently due to jumps or leaps in logic or thought.
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Grammar and Conventions

Grammar and conventions were used correctly with five or fewer errors that did not impede understanding.	Grammar and conventions were used correctly with six or more errors that did not impede understanding.	Grammar and conventions were sometimes followed, but the errors distracted from the meaning of the explanation.	Grammar and conventions were not followed and the numerous errors greatly impeded understanding.
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