

## 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. This lesson is designed to follow a lesson in a Biology or Life Sciences class that involves the construction of a food web. It was originally developed for the Arctic Ocean food web (See the lesson plan Arctic Smorgasbord).

**Grade Level:** High School

### Objectives (Should be consistent with the format “Students will learn/understand/be able to . . .”

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.
- 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.

### Standards

This lesson plan was developed prior to finalization of the Next Generation Science Standards and alignment of the Alaska Science Standards to them. When those standards are available, these activities will be re-aligned.

## **National Science Education Standards**

### **Grades 5-8**

Content Standard C: Life Science:

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

### **Grades 9-12**

Content Standard C: Life Science:

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

### **Other Standards:**

#### **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.

#### **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)\*

### **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 printed as handouts or displayed in the classroom for student reference.
- Copies of the data sheet (1 per student, see below)

### **Preparation**

This lesson is to be delivered the day following their Biology lesson, "[The Arctic Smorgasbord.](#)" 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.

- Make required copies of the graphic and rubric.
- 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.

### **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:
  - a. Did your partner explain the entire web as depicted on the graphic?
  - b. Did your partner use non-descript words or phrases such as: thing, it, stuff, etc.?
  - c. Did your partner use the vocabulary correctly?
  - d. 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.
  - a. 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.
  - b. 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.
  - c. Rubric: (either hand out or display) Discuss the rubric so that students are aware of how this writing will be graded.

### **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.

### **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/>

### **Credits**

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This lesson plan was developed as part of the Arctic Ocean Ecosystem Workshop, held in Barrow, Alaska, on May 18-23, 2012. The Alaska Center for Ocean Sciences Education Excellence (COSEE) and its partners Alaska Sea Grant, the University of Alaska Fairbanks (UAF) School of Fisheries and Ocean Sciences, the Alaska SeaLife center, Alaska Ocean Observing System (AOOS) and the UAF Center for Cross-cultural Studies collaborated with the North Slope Borough School District, the North Pacific Research Board (NPRB), and the Arctic Research Consortium of the US (ARCUS) to engage scientists and teachers in lesson plan development. Major support was provided by the National Science Foundation.