

Learning Cycle Model

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Concept: Students will understand the interdependence between living things and their environment.

Alaska Standards:

Science A14.a.b.c, B1, B3

English/Language Arts: A2

Gear-Up: Sea Café – Relationships between Marine Food Producers and Food Consumers. This activity demonstrates the balance between consumers and producers. Activity: Balanced pages 178 – 179, *Oceans for Every Kid* by Janice VanCleave. Place a pencil on the table. Put tape on the pencil to hold it steady. Place a ruler over the pencil in a teeter-totter fashion. Place small cups on the end of each ruler. It will resemble a child's seesaw. In one cup, place some small fish created from clay. Explain to students that they small clay fish represent consumers. Allow them to observe how many producers, represented by paper clips, it will take to balance the cup. At first the cups will not be balanced. Ask students what situations this might represent. Ask students what will happen to the clay fish if the balance was disturbed. Explain that when the cups are balanced the food producers are abundant enough to meet the needs of the consumers.

Process Skills: Observation, Inference, Classify, and Predicting

Materials: Pencil, tape, small paper cups, modeling clay (small amount), paper clips and ruler.

Explore: Students will explore relationships in the marine food chain. We will use a model of the Ocean Food Pyramid. Students will be asked to add the animals in the Bering Strait that are not shown in the model. WE will discuss food webs. Who eats what? After we complete the food web and decide about other biotic factors that affect the food chains and webs of our environment, we will label each part on a note card. Phytoplankton t -> zooplankton -> small fish and so on until we have the animals that are known to the Diomedea students. Each student will wear a creature card and form a circle. The classroom aide, teacher and principal will join us so we have plenty of creatures. We will form a circle and hand a ball of string to a student. That student in turns passes the ball of string to someone who it eats or is eaten. This process will continue until a really good web has been formed. I will then direct students to stop and we will generalize by asking questions.

Generalize: One person tugs on the string. Who feels the tug? Describe how one member of the web needs the other? What happens when a part of the environment is disconnected?

Explore: Have one student drop the string and find out who is connected. Ask students what will happen to the other creatures that are connected. This process may be repeated more than once to observe the connections and disconnection that can occur.

Generalize: Ask students to describe the relationships that they notice in the web.

Apply/Assess: Ask students what might happen if a natural disaster or man made disaster were to hit. Discuss with students what might happen to one population if there is over hunting or over fishing that limits the food supply. Ask student if they have heard stories from the elders of times when animals were scarce. What were the conditions of the stories?

Assess: Students will be asked to pretend to be a journalist. They will write a story about a disaster that has hit a beach, such as a big storm, or an oil spill. Describe what happened to the beach, the animals and the people.

Extensions: Create a Food Web 3-D board. Do a habitat activity, keep a beach log.

Vocabulary: producers, consumers, biotic factors, abiotic factors, food chain, food web, producers, consumers, food chain, food web, and food pyramid.

Scoring Guide

Possible Points	Criteria
5 90 - 100	The assignment is engaging, concise, and polished. An attention-grabbing headline and clear topic sentence in the first paragraph introduce the reader to the subject. Factual details, visual elements, quotations, and/or the proper use of scientific terminology add clarity and interest to the assignment.
4 80 - 89	The assignment is well written. An attention-grabbing headline and clear topic sentence in the first paragraph introduce the reader to the subject. Factual details, visual elements, quotations, and/or the proper use of scientific terminology add clarity and interest to the assignment. Sometimes the writing is slightly repetitive or unclear, but the writer does demonstrate a good understanding of the subject matter.
3 70 - 79	The assignment is fairly well written and clear, but several errors indicate that the author may not have a complete understanding of the subject. Factual details, visual elements, quotations, and/or proper use of scientific terminology are used.
2 60 - 69	The assignment has several significant problems in style and content. The topic is never clearly stated, scientific terms are misused, and misspelled words are present. Inadequate or incorrect use of factual details, visual elements, or quotations seems to indicate that the author does not have a solid understanding of the subject.
1 below 60	Although attempted, the author has clearly not put forth much effort. The writing is unclear, unfocused, and vague. A topic sentence is not given or is not adequately supported with details. The author has not used scientific terminology correctly and has introduced false statements and errors in writing style that make reading the work very difficult.
0	No work completed.