

Salmon Food Web

Interactive Food Web Game

KNOWLEDGE

- Understand the relationships between organisms within food webs.
- Define ecosystem, food web, biotic, abiotic, and interdependence.
- Know different parts of aquatic ecosystems, both biotic and abiotic.
- Understand how energy flows through an ecosystem and food web.

ACTIVE

- Students create a food web, where they are the different elements of the web.

TIME	GROUP SIZE	LOCATION	GRADE LEVEL	EQUIPMENT
As long or short as you'd like.	Entire Class	Classroom	4-7	Name tags Long string Space to move around Whiteboard
DEBRIEF/REFLECTIVE COMPONENT			HELPFUL TIPS	
<ul style="list-style-type: none"> • What would happen if one organism were to be removed from a food web? • What ways do humans interfere with aquatic ecosystems? How does the affect ecosystems and food webs? • How do we stop human interference? How do we help protect endangered fishes? 			<ul style="list-style-type: none"> • Some ideas the kids have to help keep marine life healthy could include; throwing trash in the garbage can, and recycling in the recycling, or bringing lunch to school in reusable containers • Can use this activity to discuss classifications within a food web (producers, consumers, decomposers, and predators). 	

OCEAN LITERACY PRINCIPLES

- 1 – The Earth has one big ocean with many features.
 - a. The ocean is the defining physical feature on our planet Earth – covering approximately 70% of the planet’s surface. There is one ocean with many ocean basins, such as the North Pacific, South Pacific, North Atlantic, South Atlantic, Indian, Southern, and Arctic.
 - g. The ocean is connected to major lakes, watersheds, and waterways because all major watersheds on Earth drain to the ocean. Rivers and streams transport nutrients, salts, sediments, and pollutants from watersheds to coastal estuaries and to the ocean.
 - h. Although the ocean is large, it is finite, and resources are limited.
- 5 – The ocean supports a great diversity of life and ecosystems.
 - a. Ocean life ranges in size from the smallest living things, microbes, to the largest animal on Earth, blue whales.
 - d. Ocean biology provides many unique examples of life cycles, adaptations, and important relationships among organisms (symbiosis, predator – prey dynamics, and energy transfer) that do not occur on land.
 - e. The ocean provides a vast living space with diverse and unique ecosystems from the surface through the water column and down to, and below, the seafloor. Most of the living space on Earth is in the ocean.
 - f. Ocean ecosystems are defined by environmental factors and the community of organisms living there. Ocean life is not evenly distributed through time or space due to differences in abiotic factors such as oxygen, salinity, temperature, pH, light, nutrients, pressure, substrate, and circulation. A few regions of the ocean support the most abundant life on Earth, while most of the ocean does not support much life.
 - i. Estuaries provide important and productive nursery areas for many marine and aquatic species.
- 6 – The ocean and humans are inextricably interconnected.
 - b. The ocean provides food, medicines, and mineral and energy resources. It supports jobs and national economies, serves as a highway for transportation of goods and people, and plays a role in national security.
 - c. The ocean is a source of inspiration, recreation, rejuvenation, and discovery. It is also an important element in the heritage of many cultures.
 - d. Humans affect the ocean in a variety of ways. Laws, regulations, and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution (point source, non-point source, and noise pollution), changes to ocean chemistry (ocean acidification) and physical modifications (changes to beaches, shores and rivers). In addition, humans have removed most of the large vertebrates from the ocean.
 - e. Changes in ocean temperature and pH due to human activities can affect the survival of some organisms and impact biological diversity (coral bleaching due to increased temperature and inhibition of shell formations due to ocean acidification).
 - g. Everyone is responsible for caring for the ocean. The ocean sustains life on Earth and humans must live in ways that sustain the ocean. Individual and collective actions are needed to effectively manage ocean resources for all.

Setup

1. Write the word “plant” at the top of a big sheet of paper or on the whiteboard.
2. Define ecosystem, food web, biotic, abiotic, and interdependence.
3. As a group brainstorm different components of an aquatic ecosystem (of your choosing) both biotic and abiotic elements.
4. Write any other terms under the “plant” heading.
5. Students are given an identity nametag relevant to some part of an aquatic ecosystem.

6. Students will then form a large circle.
7. Ask the students to think about what he or she would need, or what needs them, in order to survive, depending on the tag they have been given.
8. The leader then steps into the centre of the circle.
9. The leader chooses an identity card that is at the bottom of the food chain, and asks “plant, what do you need in order to survive?”
10. Whatever the answer, the leader will guide the string between participants.
11. That child is then asked the same question, and so on, until every kid has been asked at least once (it is ok to ask the kid more than once).
12. When every has been asked the question, the children remain holding the string as the leader asks the entire class a series of questions:
 - a. What would happen if one of the identity cards were removed (get children to demonstrate by having one kid let go of their string).
 - b. You can ask other questions concerning human interference (what would happen if overfishing occurred? What would happen if a road were constructed along the streambed causing erosion and siltation?)
13. To conclude, start a short discussion on how such things could be avoided. How do we protect delicate food webs? How do we protect the salmon?