Team OCEAN Tours Lesson Plan- Food Webs

- Ask the students if they know of or have ever heard of Marine Protected Areas (MPAs).
- Let the students know that today we are in or near a MPA. MPAs are areas in the ocean where fish are protected. You can still fish in an MPA but not for all types of fish. Check the fishing rules if you are fishing at the ocean or in an MPA.

What is a food web? A food web is a system of food chains that describes what eats what in a habitat.

Food Webs can have different levels:
Producers: Members of a food web that take in energy in the form of sunlight or chemicals in the environment and grow using that energy source. Producers are also known as autotrophs.

Consumers: Members of a food web that eat producers or other consumers. Consumers that eat producers (plants) are usually called herbivores. Consumers that eat other consumers are called predators.

Student engagement:

- What producers can the students think of?
- What consumers can the students this of?
- Show an organism and ask the students if it is a producer or consumer.
- Discuss with the students what feed son it or what it feed on.

On the water:
Use the lenses to focus on found species and discuss their food web- what do they eat and what eats them.

Species	Producer	If a producer, what eats it?	Consumer	If a consumer, what does it eat?
Eel grass	X	Snails		
Cormorant			X	Fish
Sea otter			X	
Kelp	X	Crabs, snails		
Crab			X	Small fish, kelp
Anemone	X	Sea slugs	X	Anything
Jellyfish			X	Plankton, fish
Pickleweed	X	Mice, birds		
Sharks			X	Fish, otters, seals

To learn more about **Marine Protected Areas** check out: Californiampas.org/explore/fun-activities
Team OCEAN Tours is a project funded by the **Ocean Protection Council** and **Coastal Quest**.

Be prepared to focus on food webs when interpreting species observed in Elkhorn Slough or kelp forests, or plants/animals the students ask about.

Species commonly seen:

Birds	**Plants**	**Mammals**	**Invertebrates**	**Fish**
Cormorants	Eel grass	Sea otters	Jellyfish	Sharks
Gulls	Kelp	Sea lions	Crabs and shrimp	Rays
Great Blue Herons	Pickleweed	Harbor seals	Sea hares and slugs	Baitfish- sardines and anchovies
Pelicans	Eucalyptus	Whales	Mussels	Mola molas
Egrets		Dolphins	Anemones	

NGSS

Use these disciplinary core ideas to help guide your food webs discussion.

5-LS1-1	Plants acquire their material for growth chiefly from air and water.
5-LS2-1	The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment.
MS-LS2-1	Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constrains their growth and reproduction. Growth of organisms and population increases are limited by access to resources.
MS-LS2-3	Food webs are models that demonstrate how matter and energy is transferred between producers, consumers, and decomposers as the three groups interact within an ecosystem. Transfers of matter into and out of the physical environment occur at every level. Decomposers recycle nutrients from dead plant or animal matter back to the soil in terrestrial environments or to the water in aquatic environments. The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem.

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