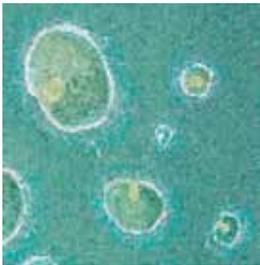


# For Creative Minds

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## Food Web Cards

Cut copies into food web cards. Using the information in the book and on the card, stack each “**predator**” card on top of its “**prey**” card (predators eat the prey). How many cards can you get in one pile? Are there some animals that are always at the top of your pile or on top of the food chain?



**Phytoplankton**  
**Prey:** gets its energy from the sun (bottom card)  
**Predators:** small fish, crabs, shrimp, and zooplankton



**Phytoplankton**  
**Prey:** gets its energy from the sun (bottom card)  
**Predators:** small fish, crabs, shrimp, and zooplankton



**Phytoplankton**  
**Prey:** gets its energy from the sun (bottom card)  
**Predators:** small fish, crabs, shrimp, and zooplankton



**Kelp**  
**Prey:** gets its energy from the sun (bottom card)  
**Predators:** urchins, snails, and crabs



**Zooplankton**  
**Prey:** phytoplankton and other zooplankton  
**Predators:** small fish, crabs, shrimp, and baleen whales



**Urchins**  
**Prey:** kelp  
**Predators:** sea otters, fish, crabs, and snails



### Sea Otters

**Prey:** urchins, abalone, crabs, clams, octopuses, fish, and sea stars

**Predators:** orca whales, bald eagles, and sharks



### Small Fish

**Prey:** phytoplankton, zooplankton, and other small fish

**Predators:** big fish, crabs, and orca and humpback whales



### Small Fish

**Prey:** phytoplankton, zooplankton, and other small fish

**Predators:** bigger fish, crabs, and orca and humpback whales



### Big Fish

**Prey:** small fish, zooplankton, crabs, shrimp, and urchins

**Predators:** sharks, dolphins, seals, sea lions, bears, orca whales, and humans



### Crabs

**Prey:** kelp and other plants, small fish, worms, and decaying matter

**Predators:** humans, octopuses, big fish, snails, and other crabs



### Seals (Harbor Seals)

**Prey:** squid, octopuses, clams, shrimp, and fish

**Predators:** orca whales, polar bears, humans, and sharks



### Humpback Whales

**Prey:** plankton and small fish

**Predators:** orca whales and humans



### Salmon

**Prey:** plankton, fish, squid, and shrimp

**Predators:** humans, seals, orca whales, eagles, seabirds, bears, and sea lions



### Humans

**Prey:** urchins, crabs, shrimp, fish, whales, and seals

**Predators:** none



### Orca Whales

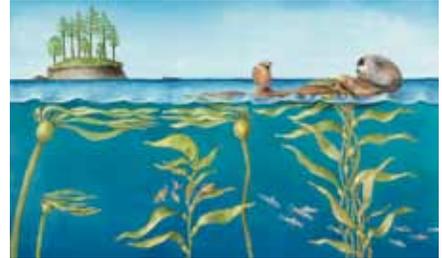
**Prey:** other whales, seals, sea lions, fish, sharks, birds, and sea turtles

**Predators:** none

# Seasons Come and Go, Around and Around

## Spring

On land, plants bud and blossom in the **spring**; in the ocean, marine plants bloom too. Just like land animals, many fish and marine animals are born or hatch in the spring when plants and food are plentiful. These births signal a time of feasting so important that humpback whales travel thousands of miles to dine on the newly hatched fish and blooms of plankton.



## Summer

During the **summer**, insects swarm on land and marine plants (phytoplankton) and invertebrates float on the sea's surface. Near the shore, dense tangles of kelp and other seaweeds create undersea forests. Some small fish lay their eggs on these sea plants. Herring and other small forage fish swim away from the shore and become important food for whales.



## Autumn

**Autumn** winds blow leaves from trees on land. In the ocean, powerful winds whip the waves that tear leaves and entire plants from the sea floor. Tangles of these plants float like small islands, offering birds, and even seals, a resting place at sea. The seaweed tangles also wash onto beaches, creating another important food source for small marine life.



## Winter

**Winter** brings colder weather to land and the ocean. In some areas, rain turns to snow and ice might line the ocean shore. In other areas, it gets cold but not enough to snow. Some animals migrate or move to warmer areas in the winter. *What are some other animals that migrate? What are some other ways that animals protect themselves from the colder weather?*



# Ocean Food Web

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Our food comes from many sources. Most of us simply buy it at the grocery store without paying attention to where food is grown or prepared. Yet, some of us still catch fish from the sea, pick berries in the meadows, or visit local farms for fresh fruits and vegetables.

Imagine how different life is for wild animals. They never go to a grocery store or restaurant and don't get to come inside for hot chocolate on a cold, winter day! They have to find or catch their own food when and where it is available.

Plants are the “bottom” of food webs because they make their own food by getting their energy from the sun. Seaweed, kelp, eel, and turtle grass are all types of ocean plants. The most common ocean plants are called **phytoplankton**.

**Zooplankton** are tiny floating animals that eat phytoplankton. Some stay the same their entire lives. Others are early life stages of much larger animals such as lobsters, crabs, and other sea life.

Together, phytoplankton and zooplankton are just called **plankton**. Most are so tiny you would need a microscope to see each one. But they appear in such large numbers, that they often paint miles and miles of the sea with a solid wash of colorful plankton blooms. Some zooplankton, such as shrimp-like krill, can be two inches long and weigh a gram (about as much as a paper clip). While some plankton such as krill can swim a little, most drift with the wind and tides. Not only do smaller animals eat plankton, but the largest animals on earth eat plankton—blue whales!

Baby animals live in shallow waters where **kelp forests**, **mangrove swamps**, and **salt marshes** make important **nursery habitats**. They can hide in the dense growth of plants, where there is lots of food to eat as plankton and chunks of plants swirl in with the tides.

When animals in the nurseries get bigger, many start swimming farther and farther in search of food, deeper waters, or distant breeding grounds.

