

## 7-2 Marine Food Webs

### Guided Practice: From Tiny to Tremendous

#### DIRECTIONS

Carefully follow the instructions below to complete a diagram that represents the transfer of food energy within a community of organisms. This diagram is a marine food web.

- Use the organism information provided below to build the connections between organisms. Each organism has the name and information about what the organism eats and what it is eaten by. Begin with the different types of phytoplankton because they use the Sun's energy to make food. Place the phytoplankton near the bottom of your diagram.
- Read the list of organisms and determine which consumers eat the phytoplankton. This means that the organisms are deriving (getting or acquiring) energy from the phytoplankton. Write these organisms on your diagram above the phytoplankton. Use arrows to indicate the flow of energy.
- Continue to add the different organisms to your diagram. Connect them using arrows. Remember that the arrow shows the direction in which the energy flows. There may be one or many arrows connected to a single organism.

#### ORGANISMS

<p><b>Lobster Larvae:</b> A type of zooplankton that feed on phytoplankton until they grow large enough to sink to the bottom of the sea.</p>	<p><b>Sharks:</b> Most sharks eat seals, sea birds, sea turtles, fish, and squid. They are considered to be some of the ocean's top predators.</p>	<p><b>Krill:</b> Shrimp-like creatures that thrive in cold water. They are the most important food source for baleen whales such as the Humpback.</p>
<p><b>Diatoms:</b> One-celled phytoplankton.</p>	<p><b>Seabirds:</b> Seabirds like albatrosses, gulls, and others feed on small fish, fish eggs, and squid.</p>	<p><b>Porpoises:</b> These close relatives of dolphins eat mostly fish and squid. Shark attacks are common.</p>
<p><b>Humpback Whales:</b> These huge mammals filter feed by straining their food through broom-like plates in their mouth called baleen. Their diet consists mostly of krill, small fish like herring and mackerel and squid. Since they are so big, adult humpback whales have few natural predators, other than humans. Sharks and killer whales sometimes prey on young or sick Humpbacks.</p>	<p><b>Squid:</b> These invertebrates are well known for their tentacles, which they use to catch their prey. There are many different types of squid in many different sizes. Squid eat small fish and invertebrates like crabs, shrimp, and krill. Squid are eaten by seabirds, sea turtles, seals, sea lions, and others.</p>	<p><b>Sea Turtles:</b> While there are several different species of sea turtle with slightly different diets, these vertebrates eat invertebrates like sponges, jellyfish, crabs, and mussels. Adult sea turtles can be vulnerable to attacks by sharks. The young have many more predators.</p>

<p><b>Herring:</b> This small fish is an important food source for larger fish, marine mammals, and sea birds. The main food source for herring is copepods, but they also eat other types of plankton.</p>	<p><b>Mackerel:</b> These fish eat copepods and other plankton, as well as other small invertebrates. They are an important food source for larger fish, marine mammals, and seabirds.</p>	<p><b>Bacteria:</b> Many bacteria in the ocean (not the cyanobacteria) are decomposers. Being a decomposer means that they break down dead organisms and waste, and return nutrients to the water.</p>
<p><b>Cyanobacteria:</b> A type of phytoplankton and one of the most important groups in the ocean. Scientists believe these were the first producers on Earth.</p>	<p><b>Copepods:</b> Tiny shrimp-like animals that spend their entire lives with the plankton population. They are food for baby fish, krill, and other animals.</p>	<p><b>Jellyfish:</b> Not fish at all, these slimy invertebrate animals use their tentacles to catch zooplankton and other prey. Jellyfish are an important food source for some sea turtle species.</p>
<p><b>Sea Star Larvae:</b> A type of zooplankton that feed on phytoplankton until they grow large enough to sink to the bottom of the sea.</p>	<p><b>Seals:</b> These marine mammal predators primarily eat small fish, but will also feed on squid and other invertebrates. Seals fall prey mostly to sharks.</p>	<p><b>Sponges:</b> Simple animals that live on rocks, shells, docks, or other hard places. Sponges filter phytoplankton and zooplankton out of the water.</p>

## QUESTIONS

1. What is the initial source of energy for this food web?
2. Is this a complete food web? Why or why not?
3. What could happen if a volcanic eruption blocked out sunlight so photosynthesis could not occur?
4. Why are phytoplankton called the base of the marine food web?
5. If the amount of phytoplankton in an area decreased, what do you predict would happen?
6. How might some of the larger consumers cope with fewer phytoplankton in an area?