

# The Web of Life

## Purpose

A classroom game to demonstrate the balance of life in the ocean.

## Materials

- ball of yarn
- [species cards](#)
- safety pins

## Background Information

Either directly or indirectly, almost every animal in the ocean depends on microscopic phytoplankton for food. These tiny plants form the base of nearly every food chain in the ocean. Plants use energy from the sun to make their own food through photosynthesis. In turn, some animals eat plants, and other animals eat the plant-eating animals.

## Procedure

1. Hand out the role cards and ask students to sit in a circle wearing the card pinned to their shirt.
2. Ask the students to identify which organisms rely directly on the sun for their growth and nutrition. The student that represents the sun holds a ball of yarn and passes it to one of the members identified. For example, if the plankton are identified as needing the sun for nutrients, then the ball of yarn is passed to one of the students labeled "plankton", while the sun continues to hold the end of the yarn.
3. Ask the students to identify which organisms rely on plankton and repeat the questioning and passing of the yarn until the each level of the web is identified. Having the students describe their roles to the class during the game will help build a better understanding of the interdependence between roles in each web.
4. Eventually, everyone will be all tied together in a tangle of yarn. Some participants such as plankton may have the ball of yarn passed to them as part of several webs, indicating their importance to more than one species in the ecosystem.
5. Now cut the string at some point. The food web is broken. What might happen to the various organisms in the food web?

## Going Further

- What happens if a member of the web disappears completely?
- Could any part of the web be replaced? If so, with what?

- Are any members of the web in competition with one another? How and for what?
- How do people influence the food chain?

# Web of Life

## Species Cards

Print and cut these cards in advance. You can adjust the numbers to match your class size, but attempt to keep the numbers proportional; eliminate top-level consumers first if necessary. Members of this food web include:

- 4 phytoplankton
- 7 zooplankton
- 2 rock scallop
- 7 northern anchovy
- 4 chub mackerel
- 1 giant Pacific octopus
- 1 blue shark
- 1 northern fur seal
- 1 humpback whale
- 1 killer whale (orca)
- the sun

<p><b>Phytoplankton</b></p> <ul style="list-style-type: none"> <li>• microscopic plants that drift near the ocean's surface</li> <li>• absorbs sunlight and nutrients from water</li> <li>• diatoms are one of the most common kinds of phytoplankton</li> </ul>	<p><b>Zooplankton</b></p> <ul style="list-style-type: none"> <li>• tiny animals that live near the ocean's surface and in deeper waters</li> <li>• some kinds of zooplankton feed on phytoplankton; others feed on other zooplankton</li> <li>• most are very small, though some, such as krill, grow to be several inches long</li> </ul>	<p><b>Rock scallop</b></p> <ul style="list-style-type: none"> <li>• a shellfish that lives on the ocean bottom</li> <li>• the largest living scallop; it can grow to be 4 to 11 inches long</li> <li>• eats phytoplankton, along with other small particles of food</li> </ul>
<p><b>Northern anchovy</b></p> <ul style="list-style-type: none"> <li>• a small fish that</li> </ul>	<p><b>Chub mackerel</b></p> <ul style="list-style-type: none"> <li>• swims near the</li> </ul>	<p><b>Giant Pacific octopus</b></p>

- usually stays near the ocean's surface
- feeds mostly on zooplankton
- netlike parts of its gills strain zooplankton from water

- ocean's surface and in deeper waters
- feeds on krill (a kind of zooplankton), squid and anchovies

- spends most of its time on the ocean bottom
- feeds on shrimp, crabs, scallops, abalones and clams
- traps prey with its arms, then tears it with its sharp beak

### **Blue shark**

- found near the ocean's surface and in deeper waters
- feeds on squid and fish such as anchovies and mackerel

### **Northern fur seal**

- spends most of its time near the ocean's surface
- eats squid and small fish such as anchovies and herring
- may dive 300 feet in search of prey

### **Humpback whale**

- found near the ocean's surface and to depths of about 130 feet
- eats mostly krill and other types of zooplankton; sometimes eats anchovies and other small fish

### **Killer whale**

- usually found near the ocean's surface
- eats other whales (such as humpbacks), seals, and fish such as mackerel

### **The sun**

- provides energy for plants to photosynthesize