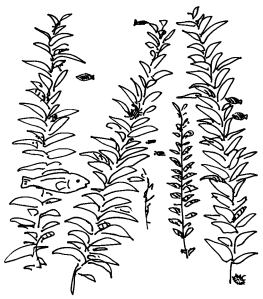
Grade

5-7



Life in the Kelp Forest

Create a marine food web with your class to demonstrate the interdependence of plants and animals in the kelp forest.

THE diversity of plants and animals in the kelp forest habitat is astounding. These organisms are all part of a complex kelp forest food web that exists in the Pacific Rim seas. Have your class discover the vital role that sea otters play in this habitat. Students will be able to see a concrete image of species interaction. This is a good launch point for discussions about ecosystems and a good way to synthesize information regarding food webs and chains.

MATERIALS

- Worksheets or Poster Paper (optional)
- Pencils, Crayons or Chalk

Steps

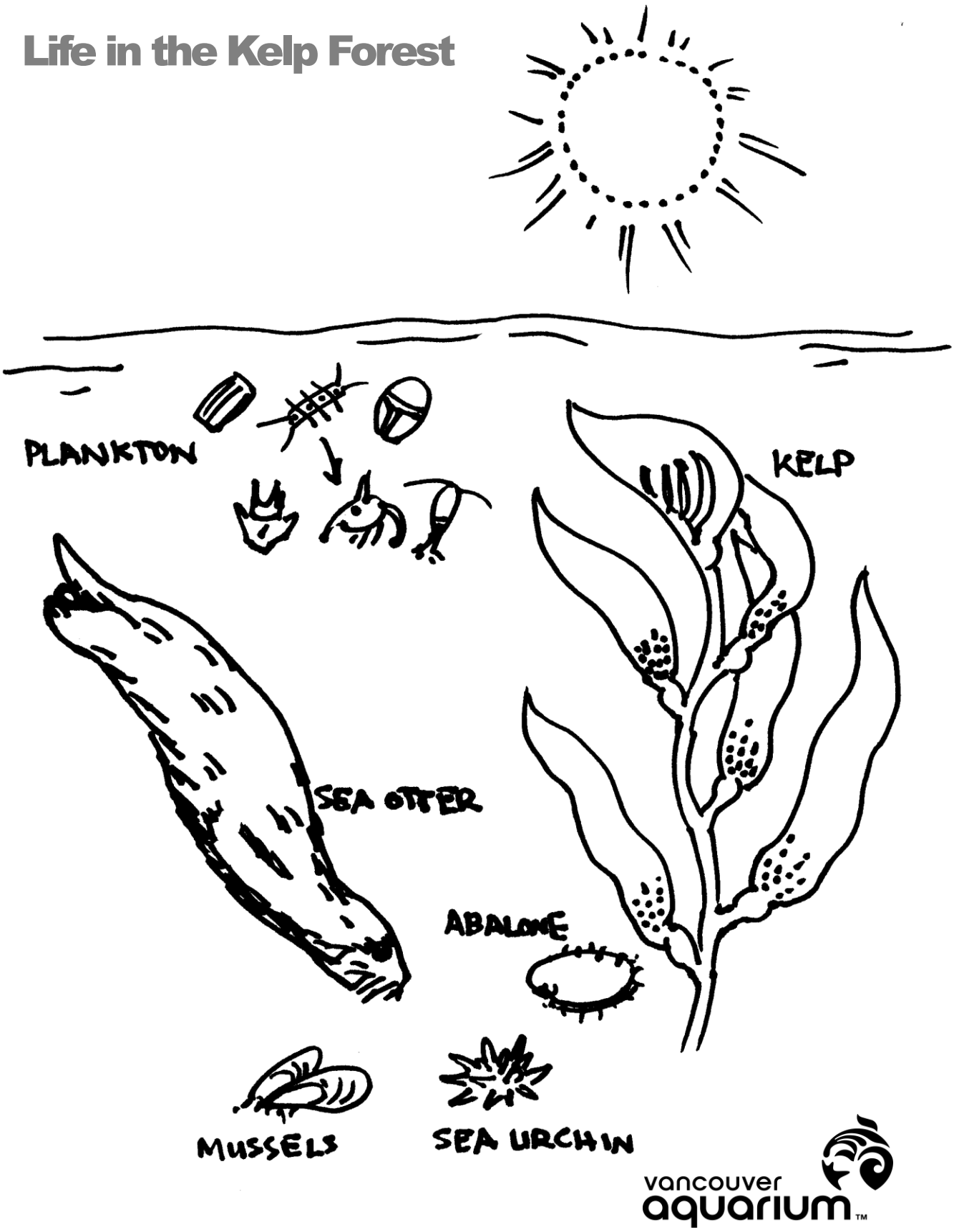
1) Make an enlarged copy of the kelp forest food web shown on the following page on the blackboard or poster paper. Alternately, photocopy the worksheets for your class.

2) As a class, draw lines between the kelp forest predators and the prey. Use arrows to show the flow of energy in the food web.

Discuss how the food web in the kelp forest works. The sun provides energy that plants use to grow. Plants are food for other animals. The kelp provides a habitat for animals to live in. The water provides oxygen and transportation. The following pages include more detailed information about the kelp forest ecosystem see, *Life in the Kelp Forest: Things to Talk About With Your Class.*

Follow up with the BC Hydro AquaVan *Weave an Aquatic Food Web* activity. The students should pick organisms from the kelp forest ecosystem to weave the web.

Life in the Kelp Forest



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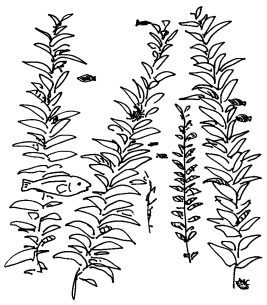

Life in the Kelp Forest: Things to Talk About With Your Class

What is Kelp?

Kelp is large seaweed, or marine algae. Kelp has rootlike *holdfasts* that anchor kelp to the ocean bottom and *fronds* that float at the water's surface.

What is a Kelp Forest?

Extensive forests of kelp sway above the rocky sea bottoms in the cold waters of many of the world's oceans. Kelp forests are underwater forests that are rich in both the density and variety of species that live in them. Along the west coasts of North and South America, kelp forests provide homes for a greater variety and a higher density of plants and animals than almost any other type of marine community. Like terrestrial forests, kelp forests have many small habitats within them. Fishes, sea otters, and other creatures swim through the long stipes, or stems, of kelp that extend 6 to 30 metres to the water's surface. Others hover in the dense canopy of kelp blades at the water's surface, while sea urchins, brittle stars and crabs are sheltered and nourished in the tangled holdfasts at the bottom. Anemones thrive in the darker patches of the forest.

How are the plants and animals connected to each other in the kelp forest food web?

All kelp forest plants and animals are connected to each other in predator-prey relationships called food webs. All animals eat plants or other animals, and all are potential prey for other predators. The food web begins with the sun, the energy source that plants including kelp, use to grow. Phytoplankton also uses the sun's energy to grow and is consumed by zooplankton and filter feeders like mussels. Kelp is eaten by sea urchins and abalone, which may be eaten by sea otters. Rock crabs also eat seaweeds, hermit crabs and scavenge dead fishes. The sea otter may be eaten by a shark or a killer whale. Sea otters and shorebirds eat the crabs. The web is interwoven and animals are enmeshed in it.

What is a keystone species?

A "keystone species" means that if the species were removed from an area, the entire ecosystem changes. Sea otters are a keystone species in the kelp forests. If these furry marine mammals no longer live in a kelp forest, sea urchin populations can explode. Unchecked sea urchin populations overgraze the kelp forests, leaving large "urchin barrens" devoid of life in their wake.