

LESSON 6

Eelgrass Bed

Grades 4 to 7

Objectives

- To identify some of the many animals that live in an eelgrass bed.
- To understand the difference between a land plant (eelgrass) and seaweed (bull kelp).
- To explain how some animals use camouflage and mimicry to protect themselves, using pipefish as the example.

Materials

Fresh eelgrass, magnifying glasses, turkey baster, oregano, container for water, opalescent cellophane, glue sticks.

Video: *Estuary* by National Film Board of Canada (Order number C 0179 174)

Video: *See How They Grow: Sea Animals* for footage of a pipefish, hermit crab, ray, and cuttlefish (available from www.chapters.indigo.ca)

Book: *The Life of the Seashore* by William H. Amos

Book: *Nature Facts: Fishes* by Len Cacutt
Pacific Coast Information Cards that come with the book *Beach Explorations* by Gloria Snively, or pictures of predators – sand sole, great blue heron, river otter, glaucous-winged gull, tidepool sculpin, Dungeness crab, crow, raven and brant.

Book: *Whelks to Whales* by Rick Harbo.

Book: *The Sea Slug* by Patricia Kite.

Concepts

- Eelgrass is a land (vascular) plant and not a seaweed.
- Eelgrass beds provide food and shelter and are nurseries for a variety of animals.
- Animals that live in eelgrass beds have different ways to protect themselves.

- Eelgrass beds are a very important part of shoreline habitats.

Activities

1. Introduction to eelgrass beds

Show the video *Estuary* – this 11 minute film contains some excellent footage of ducks feeding underwater and other creatures living in and on the eelgrass.

Show the video *See How They Grow: Sea Animals*, focusing on the pipefish section.

Discuss with students what they noticed about eelgrass habitat:

- the wide variety of animals;
- that it's a nursery for some animals; and
- ways that some creatures camouflage/protect themselves, etc.

What do you notice about pipefish?

A: They are well camouflaged when in eelgrass. Their body shape and colour help disguise them.

What do pipefish do to protect themselves?

A: They lie vertically in the water so that they look like eelgrass.

Review what predator and prey animals are. Can you think of any ocean predators? Prey?

2. Being Observant - *Change 3 Things* activity

The teacher can start by demonstrating how to play the game. Ask the class to look at you carefully. They need to be very observant. You will then leave the room briefly and *change 3 things* on yourself. For example, you could put your watch on the other arm, take out an earring, roll up your sleeves etc. Return to the room and ask students to guess what the 3 changes are.

Pair up the students and ask partners to face one another. They must look carefully at each other. Then students stand back to back with their partner and *change 3 things* on themselves. They then turn around and face



each other again and guess what has changed. Tell students that they need to be very observant and notice details. This can also be a good activity to do before going out on a field trip.

Activity Stations

Set up the 5 stations around the classroom. Students will split into 5 groups, rotating to each station, and answer questions with their worksheets at each station. Ask students to be observant! – Look at the eelgrass and other objects at each station with attention to detail. Students will be sketching some of what they see.

Station 1. Eelgrass

Materials: fresh eelgrass, magnifying glasses

Card: Examine the eelgrass with the magnifying glass. Draw a close-up picture of eelgrass.

Why do so many animals like to live on eelgrass?

A: It is a source of food and the leaves and roots make good homes for some animals. It is also a good place to hide from predators.

Station 2. Visiting Predators

Materials: Pacific Coast Information Cards (from *Beach Explorations* by Gloria Snively) or pictures of predators – sand sole, great blue heron, river otter, glaucous-winged gull, tidepool sculpin, Dungeness crab, crow, raven and brant

Card: Draw one of the predators that visits eelgrass beds.

Check the *Information cards*. Which animal eats eelgrass?

A: Brant

Station 3. Burrowers

Materials: Picture of eelgrass bed – side view including under the sand (in *Beach Explorations* by Gloria Snively page 248), *Pacific Coast Information cards* of animals in eelgrass beds including those that bury in the

sand (clam worm, horse clam, Dungeness crab, red rock crab, etc) and fish that use eelgrass (sculpin, pipefish, juvenile salmon, herring, etc.)

Card: Some animals bury under the sand. Draw two of them. Label each drawing. Name two fish that use eelgrass habitat?

Station 4. Nudibranchs

Materials: pictures of an opalescent nudibranch and hydroids in *Whelks to Whales* by Rick Harbo, opalescent cellophane, paper, pencil, gluestick

Card: Look at the opalescent nudibranch and the hydroids that it eats. Draw the nudibranch and glue the cellophane over top of it. Hydroids are like tiny sea anemones. Draw them.

Look in a book about sea slugs to find out more about them (*The Sea Slug* by Patricia Kite is recommended).

Station 5. Pipefish

Materials: turkey baster, oregano (or any dried spice), container for water, pictures of pipefish, pipefish information (from *Pacific Coast Information cards* or *Nature Fact: Fishes*).

Card: Pipefish are in the same family as sea horses. Draw a pipefish. How do they eat? How do they protect themselves from predators? To answer these questions, read more about these fascinating fishes.

A: Pipefish eat by sucking up shrimp, etc. in their mouths like a tiny vacuum cleaner. They protect themselves from predators by lying vertically in the water so that they look like a piece of eelgrass. They are the same colour and shape as eelgrass as well.

Fill the container with water and sprinkle the spice into it. Get students to try picking up as much of the spice as possible using the turkey baster to get an idea of how a pipefish eats.

This is similar to the way pipefish eat. They don't have sharp teeth so they have to suck in their food through their tubular mouths.

Conclusion

Discuss what students found out at each station:

Station 1. Eelgrass

Notice that there may be tiny tube snail shells and bryozoans on the eelgrass. There may also be eggs from snails or herring. Notice that the roots are a little different than land plants. Ask how students think the roots help to stabilize sandy or muddy bottom?

Compare the eelgrass to bull kelp (dried or fresh specimen). Notice that the bull kelp does not have roots – instead it has a holdfast. The holdfast attaches the seaweed to the bottom of the ocean but does not bring in nutrients. Bull kelp also has an air bladder so it can float and use the sun's energy to make food. Talk about what sorts of animals would live amongst the eelgrass roots and blades – snails, isopods, nudibranchs, amphipods, etc.

Station 2. Visiting Predators

What did you notice about visiting predators?

A: They come to eat and do not necessarily live in the eelgrass bed all the time.

Station 3. Burrowers

Some animals live under the sand. The eelgrass helps hold the sand in place so it doesn't shift around as much. These animals are safer underground but there are still predators that catch them.

Station 4. Nudibranchs

Otherwise known as sea slugs, the name 'nudibranch' means naked gills. Some have a clever way to protect themselves. They eat the nematocysts (stinging cells) from sea anemones then use the nematocysts to protect themselves. Notice the back of the opalescent nudibranch looks like an anemone's tentacles.

Station 5 – Pipefish

Discuss how pipefish eat and protect themselves.