



LESSON 7

Gifts from the Sea

Grades 4 - 7

Objectives

- To identify what we eat and use from our local ocean environment.
- To identify foods that contain seaweed.
- To identify the parts of seaweed.
- To list ways the ocean affects students in their everyday lives.

Materials

Food products that do and do not contain seaweed, land plants to compare to seaweeds, posters of fish, pictures of seaweed and seaweed samples, charts to compare plant/algae and chart to check off what products have seaweed in them.

Concepts

- Many foods that we eat every day contain seaweed.
- We rely on the ocean for food and many other things.

Activities

1. Human use of the ocean

A. As a class, list ways you use the ocean for inspiration, recreation, transportation, food etc.

B. What do you eat that comes from the sea?
Brainstorm as a class.

C. Do any of you eat seaweed?
You may have had some for breakfast without even knowing it! Seaweed, or extracts from seaweed, are in many of our food items.

2. Seaweed

A seaweed is a type of plant that lives in the sea. Compare seaweeds and the land plants that we are familiar with.

A. How are seaweeds and land plants similar?
A: Both produce food from sunlight.

B. How are they different?

A: Seaweeds can be floppier than plants because they are supported by water. Seaweeds are moist and rubbery (eg rockweed secretes a slimy substance to keep it from drying out), don't flower, aren't necessarily green, and don't rely on holdfasts to get nutrients as plants rely on roots. Some seaweeds may also have air bladders.

C. Parts of a seaweed plant

Stipe – Equal to the stem of a plant and is very flexible so it won't break off easily in the waves.

Blades - Equal to the leaves of a plant and is the main part that produces energy from sunlight.

Holdfast – Equal to the roots of a plant, anchoring the seaweed to the ocean bottom; but unlike plant roots, they do not obtain nutrients. The holdfast produces a sticky glue to help the seaweed hold onto rocks.

Air bladders - Are like little floating balloons that keep the blades and stipes floating near the surface where there is more light so they can produce food.

D. Be seaweed!

Students act out being seaweed, standing in the water as the waves come in. The holdfast must keep the seaweed in one place even though the water moves the flexible stipe. The blades and air bladders should stay floating near the surface of the water.

What happens when the tide goes out? What does the seaweed do? *It lies on the ground. Animals can hide under it and stay moist.*

3. Foods that contain seaweed

Show students a variety of foods (or packages) and look at the ingredient list, separating foods that contain seaweed or seaweed extracts from those that do not. Seaweed extracts include carageenans and alginates.

While looking for seaweed, students can also look for other ingredients from the sea such as sea salt, whole seaweed or fish.

Discuss why students think seaweed is used in different food products. For example, it is often used as a thickener.

Examples of products or product containers that do contain seaweed:

- chocolate milk
- ice cream
- egg nog
- evaporated milk
- japanese miso soup
- instant pudding mix
- pet food
- candy
- cereal
- soap
- nori (sushi wrap)

Also bring some items that do not contain seaweed. Save the empty packages after you have finished with them to use again.

Discuss the items that contain seaweed that students didn't know about.

4. How are things taken from the sea? (for older grades)

Brainstorm some items that are taken from the sea. Examples include seaweed, fish, fish eggs, abalone, sea urchins, sea cucumbers, oil, gravel, salt, etc.

- Are they renewable resources? What does renewable mean?
- What are different ways fish are caught?
- How are invertebrates fished?
- How is seaweed collected?

5. Seaweed Song

Sing the seaweed song together (included in resource materials).

Conclusion

Discuss ways in which the ocean is part of our everyday lives.

Extension

- Continue to look for items at home that contain seaweed. Students may get a parent to help.
- Bring the *Seaweed Song* home to sing.