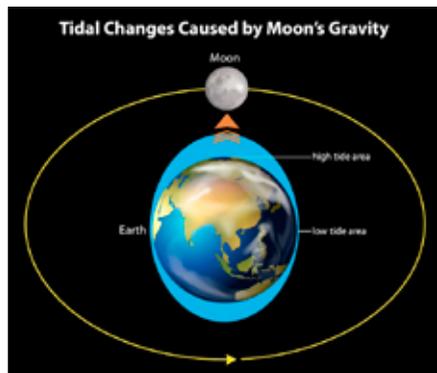


It was 9:30 A.M. when Mr. MacMath and the class from Central School reached the seashore. There, they met a **naturalist** named Marnie. Helping people discover nature was her job.

"I'm glad you came early," she said. "**Low tide** is at 9:45 today. You will be able to see much of the seashore."

Marnie explained that the level of the sea rises and falls in tides. After it rises—at **high tide**—much of the **shore** is underwater. After it falls—at low tide—much of the shore is exposed.





To their left, the students could see a flat, muddy shore. It lay between a calm sea and a grassy bank where a few trees grew. A river flowed into the sea, bringing more mud to the shore.

Ahead, stretched a steeper, rocky shore. It led to a wide point where winds and waves struck hard. All along the shore, the rocks glistened, still wet from the falling tide.



“Hey, check the **seaweed** on these rocks,” said Jay. “That’s **rockweed**. It pops.” Squeezing the swollen tips of some of the rockweed, he listened closely.

“That’s why rockweed is called pop weed,” said Marnie. “When you squeeze the tips, you squeeze tiny **air sacs** inside.”

“I’ve never heard of plants having air sacs,” said Lisa.

“Many kinds of seaweed do,” said Marnie. “The air helps hold their leaflike parts, called **blades**, up to the light. Like land plants, seaweed uses sunlight to make food—a kind of sugar—from water and air.”



rockweed air sacs

Fran pulled out her magnifying glass to check the rockweed up close. "Look at its little roots," she said. "Are they growing into the rock?"

"No seaweed has roots," said Marnie. "What you see is called a **holdfast**. It anchors the rockweed to the rock."

Fran took a second look. Then she let others use her magnifying glass. Adam ran ahead and grabbed some **bull kelp** that had washed ashore. "You don't need a magnifying glass to look at this," he said.



holdfast





“Wow,” said Lisa, joining him. “It’s long and thick—but hollow.” She peeked through one end. Laughing, Adam peeked through the other.



hollow bulb & stalk

“That bull kelp is another—much bigger—kind of seaweed,” said Marnie. “Its hollow **stalk** helps it bend with the waves. But stormy seas can snap off the stalk. Only the holdfast is left behind.”

“This *Seashore Field Guide* says that a holdfast stores food,” said Mr. MacMath. “New bull kelp can grow from the holdfast in spring.”

Marnie nodded. “Kelp also produces eggs to grow new kelp. So does that rockweed we saw.”

“Does seaweed come in many colours?” asked Adam.



“Mostly greens, browns and reds,” said Mr. MacMath. “But whatever the colour, seaweed is food for many animals—even after it has died. It also gives animals shelter and places to lay eggs or give birth.”

“When my grandma goes scuba diving, she sees whole forests of bull kelp,” said Fran. “She once watched a **seal** hunt for fish among the kelp.”

Pointing across the sea, Marnie said, “There’s a bird that uses seaweed another way—to line its nest.”

The class turned in time to see a cormorant dive. Without making a splash, it plunged into the water to catch a fish.



harbour seals



EVERGREEN ARBUTUS



On many shores in southern British Columbia, **arbutus** trees cling to cliffs. Their branches and trunks twist as they grow. They often lean to the sea.

In Canada, arbutus trees are unique. They have leaves year-round. All of Canada's other broadleaf trees shed their leaves each fall and winter.

Insects feed from the spring flowers of the arbutus. Later on, birds eat its berries. First Nations people strung the berries together to make necklaces. They made spoons from the branches of the arbutus.



arbutus bark



GRASS AT THE SEASHORE



Different kinds of grasses live in different kinds of ecosystems. **Saltgrass** is one kind that grows thickly on many seashores. And underwater grows a grasslike plant called **eelgrass**.

Eelgrass can grow more than a metre long. Its leaves are flat, and its flowers are tiny. Many animals, such as crabs and fish, live and feed among eelgrass. Some fish lay their eggs among it.

First Nations people made steam by burning damp eelgrass. They used the steam to bend wood for making cedar boxes.



Nature Notes

WHAT I DISCOVERED

1. The sea rises and falls in tides. It covers and uncovers the shore.
2. Rocks, mud, water and light are non-living parts of the shore.
3. Many kinds of seaweed contain air sacs.
4. Seaweed uses light to make food from air and water.
5. Seaweed has holdfasts—not roots—for anchors. New bull kelp grows from holdfasts. It also grows from eggs.
6. Many kinds of seaweed have hollow stalks that bend with the waves.
7. Animals use seaweed for food, shelter and places to lay eggs or give birth.
8. Cormorants line their nests with seaweed.

THINGS TO CHECK LATER

1. What causes the sea to rise and fall?
2. Does the sea always rise and fall the same amount?

