

Lesson Guide: Seaweed

Vocabulary:

- Seaweed
- Harvest
- Tide
- Nutrients
- Kelp

Engage:

- **Before showing** the Black Seaweed power point presentation, ask students the following:
 - Have you ever seen seaweed before? If so, what did it look like?
 - Have you ever tried eating seaweed before? If so, what did it taste like?
- Show students power point presentation: ‘Laak’ásk: The Black Seaweed’, while reading the slide notes to reveal information about black seaweed to students.
- Show students these videos for a more in-depth introduction to seaweed and importance of kelp forests:
 - [Kelp Forest, National Geographic](#)
 - [Kelp: Hidden Treasure of the Salish Sea | Changing Seas](#)
 - [Harvesting Seaweed 101](#)

Explore and Explain:

- **Activity 1: Indigenous Language Vocabulary**
 - Students use a worksheet to learn five key vocabulary terms about seaweed. Students then write the closest term from their own language or research the Tlingit term (or other Indigenous language) to find Indigenous language terms that closely match the word/s.
 - This activity builds academic vocabulary, strengthens language connections, and helps students understand how cultural knowledge and meaning are embedded in words.
- **Activity 2: Seaweed Senses Observation**
 - Students safely observe dried seaweed using sight, smell, and touch. Students record observations about color, texture, smell, shape, and ask questions about what they notice.
 - This activity builds scientific observation skills, encourages curiosity, and helps students use descriptive language while exploring a real ocean food source.

Elaborate:

- **Activity 3: Where Does Seaweed Grow? Ocean Zone Map**
 - Students create and label a cross-section shoreline showing where seaweed grows, including the beach, tide pools, intertidal zone, and kelp forest. Students add animals that depend on seaweed and complete reflection sentences.
 - This activity builds understanding of marine habitats and helps students recognize that seaweed supports many living things in connected ocean ecosystems.

- **Activity 4: Activity 4: Seaweed in My Food?**
 - Students investigate foods that may contain seaweed ingredients such as nori, carrageenan, agar, or kelp powder. Students identify foods, discuss nutrients found in seaweed, and research examples from restaurants or grocery products.
 - This activity builds food literacy and nutrition awareness while helping students understand that seaweed is part of many everyday foods and food systems.

Evaluate:

- **Activity 5: The Harvest Rule Every Child Learns**
 - Students review the traditional Tlingit harvest rules from the Black Seaweed presentation and complete an activity identifying which harvesting actions protect seaweed and ocean life. Students reflect on how people can care for nature and share resources responsibly.
 - This activity builds understanding of sustainability, stewardship, and Traditional Ecological Knowledge by showing how cultural harvesting practices support healthy ecosystems and communities.
- **Activity 6: Design your own 'Harvest Rule' poster showing how people can care for ocean habitats**
 - Students design a poster that illustrates one important harvest rule they believe helps protect seaweed and ocean habitats, using drawings and sentences to show responsible choices people can make in nature.
 - Students explain how their rule connects to what they learned about seaweed, marine ecosystems, food systems, and traditional harvesting practices, showing that caring for the ocean helps support healthy communities and environments.

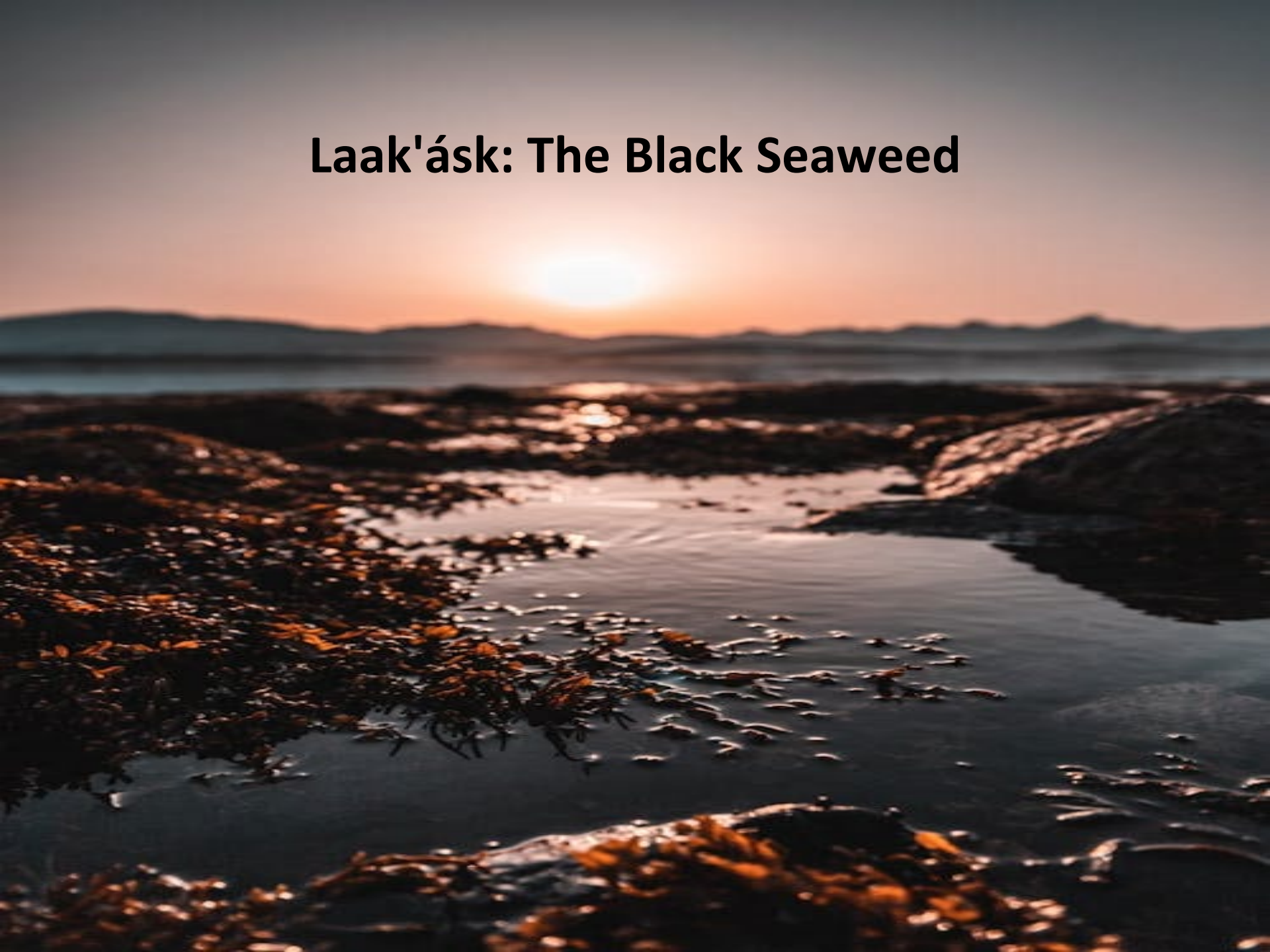
Suggested Lesson Activities:

- Indigenous Language Vocabulary
- Seaweed Senses Observation
- Where Does Seaweed Grow? Ocean Zone Map
- Seaweed in My Food?
- The Harvest Rule Every Child Learns
- Design your own 'Harvest Rule' poster showing how people can care for ocean habitats

Additional Educator Resources:

- [Farming Kelp the Heiltsuk Way](#)
- [Advancing regenerative kelp practices for coastal communities present and future](#)
- [B.C. scientists have developed a technique to restore kelp forests for future generations](#)
- [By cultivating seaweed, Indigenous communities restore connection to the ocean](#)
- [Seaweed Harvester Information, Maine Seaweed Council](#)
- [Indigenous knowledge of key ecological processes confers resilience to a small-scale kelp fishery](#)
- [Students connect with tradition and language at Hoonah culture camp](#)

Laak'ásk: The Black Seaweed





Laak'ásk grows near Sitka, Hoonah, Ketchikan, and Chichagof Island.

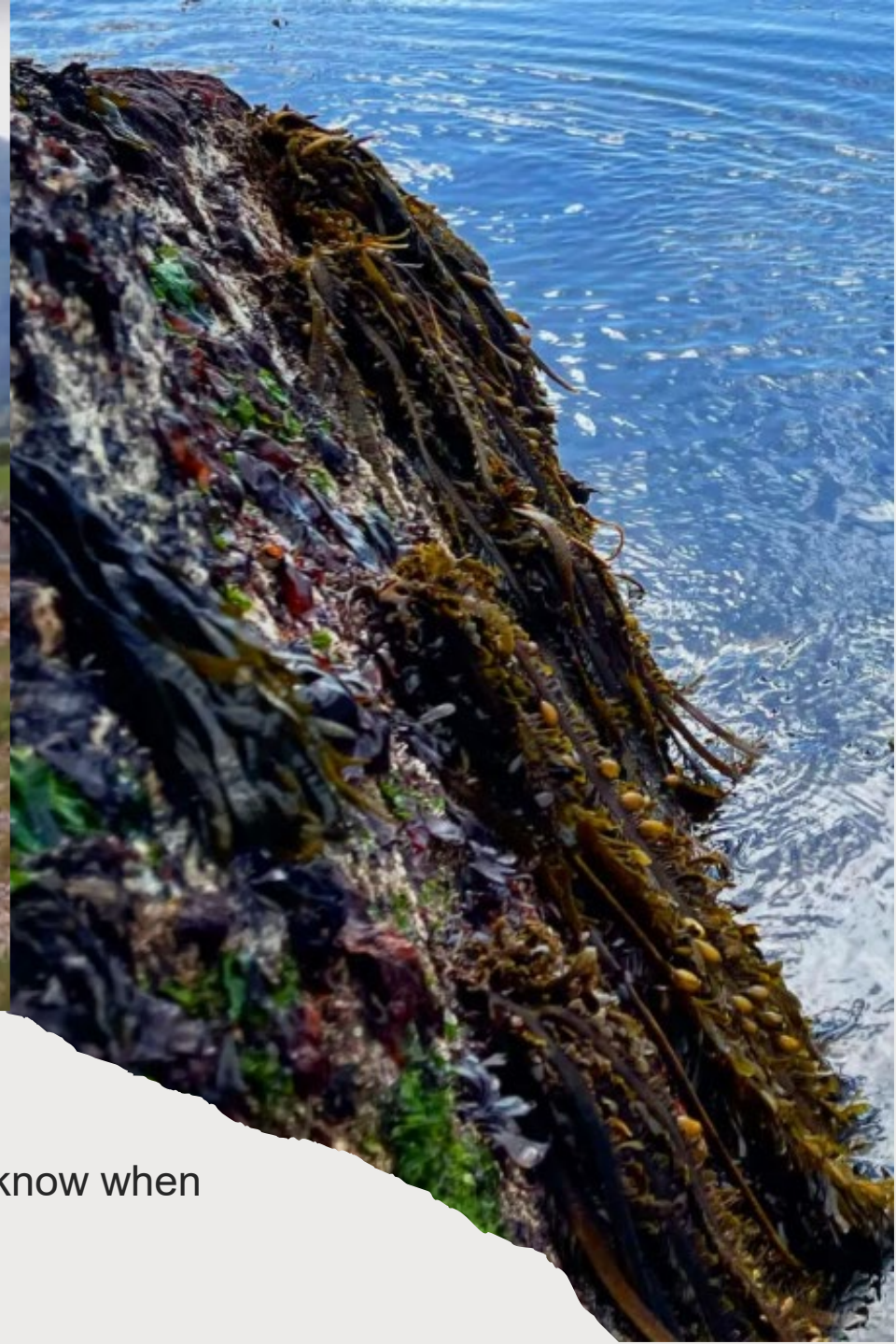




**black
seaweed**

(Pyropia abbottae)

**A stretchy seaweed grows on rocks where the ocean meets the land.
When dried, it turns black and crunchy.**



Harvest Time!

Families watch nature and minus tides to know when to harvest.



Drying in the Sun

Fresh seaweed is washed and dried until it turns black and crispy.



Tlingit Popcorn Cultural Connection

Laak'ásk as "Tlingit Popcorn": In Tlingit culture, black seaweed (*Pyropia abbotiae*) is affectionately referred to as "Tlingit Popcorn" because of its brittle texture when dried and its addictive, salty crunch when eaten raw as a snack.

Harvesting Tradition: The seaweed is harvested by hand during the early spring minus tides, typically in May. Traditional ecological protocols dictate partial harvesting to ensure the seaweed grows back sustainably.

The "Salt" Blend: Indigenous harvesters dry the elastic ribbons in the sun or in ovens until completely crisp. They then process the black seaweed into a micro-powder to act as a natural, umami-rich salt replacement

Taste: Naturally briny, deeply savory, and packed with complex umami.

Nutritional Value: It provides an excellent, low-sodium alternative to table salt that is naturally loaded with vitamins, minerals, and iodine.

Versatility: While traditionally eaten plain or added to salmon soups, the modern "popcorn salt" variation is a popular seasoning for actual corn popcorn, rice dishes, salads, and roasted fish.

*Additionally, contemporarily it can be ground with salt and dried nettles and used as a popcorn seasoning.



Learning Together

Youth still learn these traditions through culture camps and community harvests.

A group of people are gathered on a rocky coastline, likely participating in a field study or community science project. The scene is set against a backdrop of a large body of water, distant mountains, and a cloudy sky. The foreground is dominated by dark, mossy rocks. Several individuals are visible, some standing and talking, others crouching or kneeling, possibly collecting samples or observing the environment. The overall atmosphere is one of collaborative scientific inquiry in a natural setting.

Protecting the Ocean

Communities and scientists work together to understand changes in the ocean.

The Harvest Rule Every Child Learns

Tlingit harvesters follow rules that have been passed down for generations.

- **Never take all the seaweed from one rock. Leave some behind for the crabs, the snails, and other creatures that live there.**
- **Never leave a rock completely bare of seaweed — that harms the habitat**
- **Leave the lower base of the seaweed (called the holdfast) attached to the rock so it can grow back.**
- **Take only what you can use and process.**
- **Always share your harvest with elders who cannot come to the shore themselves.**

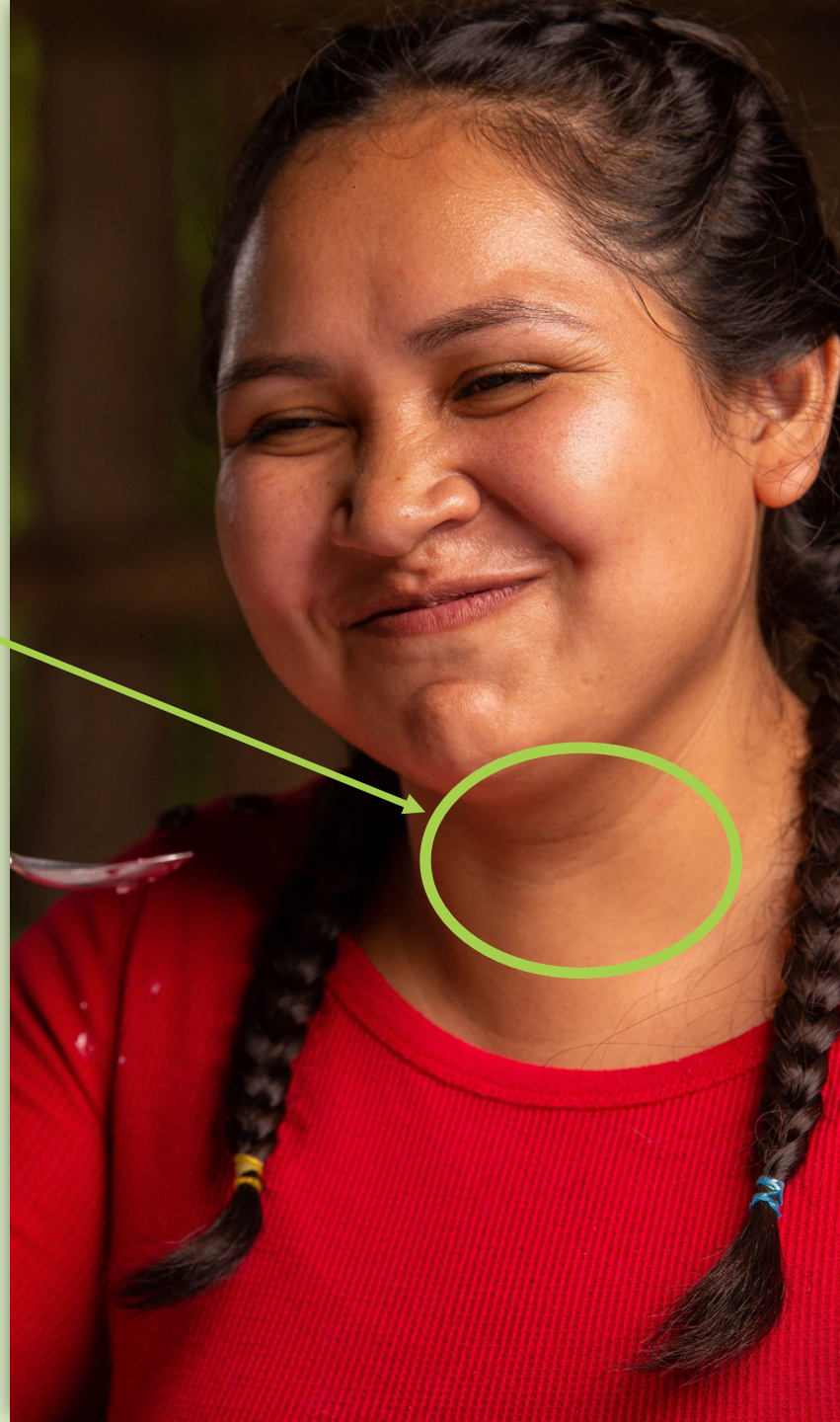


Ways the Tlingit Use Laak'ask

- Eaten plain as a crunchy snack
- Chopped and added to soups and stews
- Mixed with fish eggs (herring roe)
- Dipped in clam juice and minced clams, then dried again
- Served at potlatch ceremonies in carved wooden dishes, served as a great honor
- Given as gifts to elders and traded with other communities

Why Laak'ásk Is Good for Your Body

- Iodine= Throat Health
Tlingit people chewed black seaweed to prevent goiter, a swelling in the throat caused by low iodine
- Iron= Healthy Blood
- Vit. A & C= Immunity
Helps Your Body Fight Cold and Flu!
- Traditionally it also was used, medicinally to soothe stomach troubles





What We Can Learn From the Tlingit and Seaweed



Tribes like the Tlingit, Haida, Coast Salish, and Kwakwaka'wakw are working hard to help seaweed grow back and keep the ocean healthy.

Gunalchéesh — the Tlingit word for "Thank You."

It is how Tlingit people end their harvest, giving thanks to the sea.

Laak'ásk: The Black Seaweed

A Note: *This is not a made-up story. It is based on real facts about real people. The Tlingit (say: KLINK-it) are one of the Indigenous peoples of Southeast Alaska. They have lived along the coast of the Pacific Ocean for thousands and thousands of years, long before there were schools, grocery stores, or even the United States. One of their most important and beloved foods is a seaweed they call Laak'ásk (say: laak-ask). Laak'ásk means "black seaweed" in the Tlingit language. This story uses real Tlingit words and real facts from researchers and community members. Tlingit elders have shared this knowledge so that others, including you, can learn and appreciate it.*

Ask Students:

- Have you ever seen seaweed before? What does it look like?
- Have you ever tried eating seaweed before? What did it taste like?

What Is Laak'ásk?

Along the rocky shores of Southeast Alaska, places like Chichagof Island, Ketchikan, Hoonah, and Sitka, a small, thin seaweed grows on the rocks where the ocean meets the land. It is about as long as your forearm, and it is elastic and stretchy, almost like a rubber band, when it is ready to be picked.

Its color when it is fresh and wet is greenish. But something amazing happens when it dries in the sun: it turns completely black and becomes crunchy, like a chip. That is why it is called black seaweed, called "Laak'ásk" in Tlingit. In the Haida language it is called "Sgi'w" (say: sgyoo). In the Tsimshian (Sm'algyax) language it is called "La'axsk."

When the Tlingit Harvest Laak'ásk

The Tlingit know that Laak'ásk is ready to harvest in the early spring, most usually in April and May. The Tlingit don't just look at a calendar. They watch for signs in nature. When certain plants start blooming, when the herring begin to spawn in the water, and when the tides pull back low enough to expose the rocks, the people know: it is time.

This special very-low tide is called a "minus tide" because the water goes lower than its normal low point. Families come down to the shore with baskets. They move carefully on the slippery rocks, bending to clip or pull the seaweed off.

How the Tlingit Dry and Eat Laak'ásk

After harvesting, families bring the fresh seaweed home. They wash it and spread it out in the sun on large flat sheets or lay it on tables and cloths. It dries slowly in the sun and wind. Some people dry it right away; others let it soak overnight first to make it softer.

When it is dry, it becomes dark black and crispy. The Tlingit people sometimes call it "Tlingit Popcorn" because it is a favorite snack! But it is also used in many other ways:

Tlingit Youth Learn to Harvest Today

This tradition is still alive. In 2018, young Tlingit people participated in a traditional black seaweed harvesting and processing event at the Haa Toó Yeéi Yatee Tlingit Culture Camp on Chichagof Island, Alaska. The camp teaches young people the language, songs, and skills their ancestors have practiced for thousands of years.

Lifelong Tlingit harvester Irene Dundas has harvested Laak'ásk in the Ketchikan area her whole life. She says black seaweed is one of the most important traditional foods her community has. Recently, she noticed that some of the seaweed looked strange, with a different shape and color than usual. She reported this to the Sealaska Heritage Institute, the organization that works to protect Tlingit, Haida, and Tsimshian cultures. Scientists and community members are now working together to find out if the ocean is changing and what that means for the seaweed.

The Harvest Rule Every Child Learns

Tlingit harvesters follow rules that have been passed down for generations. Here are the most important ones:

- Never take all the seaweed from one rock. Leave some behind for the crabs, the snails, and other creatures that live there.
- Never leave a rock completely bare of seaweed — that harms the habitat.
- Leave the lower base of the seaweed (called the holdfast) attached to the rock so it can grow back.
- Take only what you can use and process.
- Always share your harvest with elders who cannot come to the shore themselves.

Ways the Tlingit Use Laak'ásk

- Eaten plain as a crunchy snack
- Chopped and added to soups and stews
- Mixed with fish eggs (herring roe)
- Dipped in clam juice and minced clams, then dried again
- Served at potlatch ceremonies in carved wooden dishes — a great honor
- Given as gifts to elders and traded with other communities

Why Laak'ásk Is Good for Your Body

- High in iodine — which keeps your thyroid healthy. Tlingit people chewed black seaweed to prevent goiter, a swelling in the throat caused by low iodine
- Contains iron — which helps your blood carry oxygen
- Full of vitamins A and C
- Used to soothe stomach troubles

What We Can Learn from the Tlingit and Seaweed

- The Tlingit have taken care of their seaweed beaches for thousands of years by following careful harvest rules, sharing with their community, and watching nature closely. Scientists and researchers are now discovering that many of these rules are exactly right — and that we all have something important to learn from them.

Gunalchéesh — the Tlingit word for "Thank You."

It is how Tlingit people end their harvest, giving thanks to the sea.

Source: HIA Environmental / Hoonah Indian Association Traditional Coastal Resource Assessment (2020); Sealaska Heritage Institute (2022); Sealaska Heritage Institute, "Seaweed Concerns Prompt Native Groups, Scientists to Meet" (2022); HIA Environmental Assessment (2020), Southeast Alaska Harvest for Your Health Traditional Foods Guide (SEARHC); The Cordova Times (2023); Patagonia Stories: Shared Stewardship (2022), Native Village of Eyak Traditional Harvest Guidelines; The Cordova Times, "Native Voices: Traditional Uses for Seaweed" (2023)

Name: _____

Date: _____

Activity 1: Seaweed Vocabulary and Indigenous Language Re-write

Directions: In the first column, write the word in English. In the second column, write it in your own Native language. Ask a community member, elder, or classmate, or research the term.

Vocabulary Word	English Definition	Indigenous Language Rewrite
Seaweed	A plant-like living thing that grows in the ocean	
Harvest	To gather food from nature or a garden	
Tide	The daily rise and fall of ocean water	
Nutrients	Good things in food that help our bodies grow and be healthy	
Kelp	A very tall type of seaweed that grows in big underwater forests	

Write sentences below (or 1-2 paragraphs), using each of the vocabulary words.

1. _____

2. _____

3. _____

4. _____

5. _____

Name: _____

Date: _____

Activity 2: Seaweed Senses Observation

What I Notice About Seaweed:

Use your senses (**not taste**, unless your teacher says it's safe!). Draw and write what you notice.

Color: _____

Texture (how does it feel?): _____

Smell: _____

Shape: _____

Draw a picture of the seaweed you observed in the box below.



What's one thing that surprises you about seaweed?

What's one question you still have about seaweed? _____

Name: _____

Date: _____

Activity 3: Where Does Seaweed Grow? Ocean Zone Map

Directions: Draw and color a cross-section of the ocean shoreline, labeling where seaweed grows (intertidal zone, subtidal zone, kelp forest).

- Label: Beach / Tide Pools / Underwater Forest (Kelp Forest)
- Draw at least two animals that live near (or in) the seaweed.
- Complete two sentences below about seaweed.



Seaweed is important because _____
_____.

Seaweed is healthy because _____
_____.

Name: _____

Date: _____

Activity 4: Seaweed in My Food?

Many common foods contain seaweed ingredients! Learn whether they contain seaweed or not and learn about basic nutrients.

Seaweed in Our Food:

- Seaweed is used to make carrageenan and agar, which are found in ice cream, pudding, and some yogurts
- Nori (dried seaweed) wraps sushi rolls
- Kelp powder is used in some soups and seasonings
- Seaweed is one of the best natural sources of iodine, which our thyroid needs to work properly
- It also contains iron, calcium, fiber, and vitamins A, C, and K

Circle the foods below that you think might contain seaweed ingredients:

Ice Cream	Sushi Roll	Carrot	Pudding
Yogurt	Apple	Soup Mix	Seaweed Snack

Research! Learn and write about which foods use seaweed as an ingredient in the space below. Search online: “Top 10 restaurant food items that utilize seaweed”, “Top grocery store foods with seaweed”, etc.

Example: Burger King uses seaweed extract (carrageenan) as a fat-replacer and binder to maintain the moisture and texture of plant-based burger patties and processed chicken nuggets.

1.

2.

3.

Name: _____

Date: _____

Activity 5: K-3 Activity: Harvest Helper or Habitat Harm?

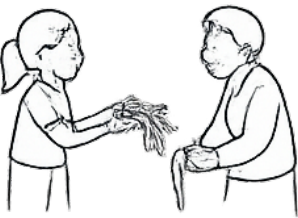
Directions: Circle or color the pictures/actions that show caring for seaweed and the ocean.



Leaving some seaweed behind



Taking only what you need



Sharing with elders



Removing all seaweed from a rock



Leaving the holdfast attached



Leaving rocks bare

Draw one way you can care for nature or share with your community.

Name: _____

Date: _____

Activity 5: Grades 3–5 Activity: Black Seaweed Harvest Detective

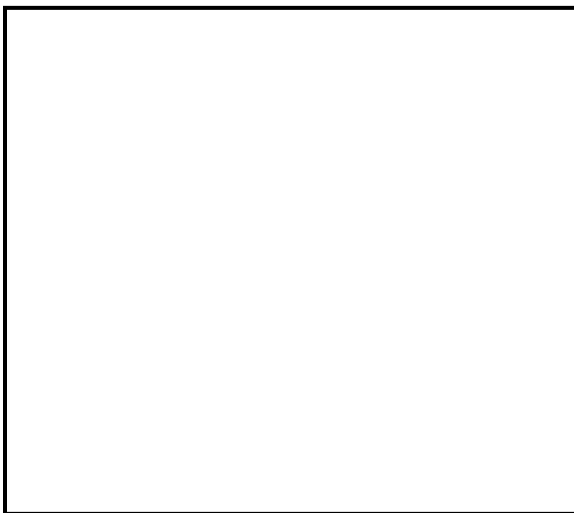
Directions: Use the Black Seaweed presentation to answer questions and complete the chart.

1. Where does Laak'ask grow?

2. What is a minus tide?

3. Why do harvesters leave the holdfast attached?

4. Draw and label two actions that show caring for seaweed and the ocean, when harvesting.



Name: _____

Date: _____

Activity 6: Design your own 'Harvest Rule' Poster

Directions: On this paper or on a separate large sheet, create a poster showing how people can respect and care for ocean habitats, while harvesting seaweed.