Akutaq: Alutiiq Ice Cream

Grade: 2nd- 12th
Time: Weeklong unit (time varies for each day).
Lesson Description: Explore traditional Alutiiq subsistence practices by making Akutaq – Alutiiq Ice Cream.

Photo: Salmonberries by Patrick Saltonstall

Kit Includes:

- Akutaq (Alutiiq Ice Cream) recipe cards.
- Book: Berry Magic by Teri Sloat (Day One)

Materials Needed:

- Berry buckets (Day Two)
- First Aid Kit (Day Two)
- Strainers (Day Three)
- Large bowls (Day Five)
- Electric mixer(s) (Day Five)
- Spatula(s) (Day Five)
- Measuring cups & spoons (Day Five)
- Serving bowls and spoons (Day Five)
- Printed Recipe for each group (Day Five)

Alutiiq Vocabulary	Art Elements	Art Principles	Content Connections
Suumacirpet – Subsistence Alagnaq – Berry Inartaq – Basket Nunaquluni, Alagnarsurluni – Berry Picking	☐Line ☒Shape ☒Color ☐Value ☒Texture ☒Space/Perspective	☐Pattern ☐Rhythm/ Movement ☒Proportion/ Scale ☒Balance ☐Unity ☒Emphasis	AK Cultural Standard AK Reading Standards

Objectives and Assessment Criteria:

Students will learn…

- To demonstrate comprehension by explaining their berry picking experience through a narrative story.
- Be able to demonstrate a stronger knowledge of traditional subsistence lifestyle by identifying various cultural events practiced by the Alutiiq people.

Cultural Relevance:

Kodiak's Alutiiq people harvest seventeen varieties of berries, which are used for food, medicine, and natural dyes. Salmonberries are collected in the largest quantities, although crowberries, lowbush cranberries, and early blueberries are other favorites. Berry picking begins in late June and continues well into the fall. People often wait to pick certain varieties till October or November, when they have been sweetened by a frost.

Groups of related women and children typically work together to gather berries. Men may accompany the pickers to provide protection from bears or hunt nearby. While picking, women teach their children to respect berry patches. Over-picking, breaking branches, stepping on plants, or eating too many berries are considered poor etiquette.

In the past, families collected up to fifty pounds of berries for winter use. They preserved this fruit in seal oil and stored the mixture in dried seal stomachs. Today, some Alutiiq people continue to use oil as a berry preservative, placing their fruit in jars of cooking oil. Others freeze their berries. Traditional Alutiiq ice cream, known as *akutaq*, is made from berries mixed with fish eggs, seal oil, and the bulbs of the Kamchatka lily. Modern versions include sugar or mashed potatoes.

AK Standards Addressed:

Cultural Standard B. cultural knowledge as part of a living and constantly adapting system that is grounded in the past.

Cultural Standard C. uses local language and cultural knowledge as a foundation for the rest of the curriculum.

Alaska State Standards:
RI.2.1 – Reading for information.
W.2.3 – Narrative Writing

Create:

<u>Day One:</u> Introduction to Subsistence Practices

- What is subsistence? Allow time for thinking and responses, answers should include hunting, fishing, berry picking, and gardening.
- Does anyone have family members, or do they hunt, fish, berry pick, grow vegetables? Those are all forms of subsistence.
- Why was and is subsistence important to the people of Alaska? Answers can include recognizing that there has not always been a grocery store down the road, or restaurants to eat out at.
- Introduce traditional subsistence practices such as salmon processing, whale hunting and uses, harvesting local plants, and berry picking.
- Conclude the day's lesson by reading Berry Magic and preparing for the berry picking field trip (remind the class to dress for the weather).
- Provide each student with a take home note/invitation explaining the lesson, field trip and needed ingredients. Be sure to include specific dates of the field trip, when

ingredients are needed at school, and when they are encouraged to join the class to make Akutaq.

Day Two: Berry Picking Field Trip

- Review field trip rules and safety information and take a school first aid kit.
- Confirm what kind of berries are going to be harvested (salmonberries or blueberries, this will depend on the time of year).
- Discuss where the berries can be found and why (blueberries like the shade of larger trees and salmonberries ripen in the sun).
- Be sure students have berry buckets and any other items they may need.
- Once you arrive back from the field trip be sure to store the berries in the refrigerator until the following day.

Day Three: Cleaning Berries and Writing Narrative

- Students will rinse, sort, and prepare berries for making ice cream, (pick out any leaves, sticks, or unripe berries) and return them to the refrigerator until Friday.
- Provide students time to create a short narrative of their berry picking experience.
- Write key words in English and Alutiiq on the board. Click the link to the Alutiiq Museum Alutiiq Word of the Week Archive to listen to the pronunciations of the words as well as more information.
- Allow students to share their stories with the class of their berry picking experience.

Day Four: Ingredient Check and Assign Jobs

- Ensure that all needed ingredients have been collected and that there is enough to make adequate ice cream for the class.
- Gather and clean all tools needed for making the ice cream.
- Assign groups, either by allowing students to choose or picking name.
- Each group should then decide who is going to do what part, measuring, mixing, clean up, etc.

Day Five: Making Akutaq

- Review the steps of following a recipe (provide each group with a written copy as well as displaying it in the board).
- Instruct students on the use of electric mixers, an adult needs to be present during this process (teacher, paraprofessional, or parent volunteer).
- Allow students to proceed while monitoring their progress. Provide assistance when needed.
- When Akutaq is completed provide bowls and spoons and enjoy the product of subsistence.

Modification:

- Allow students to express their likes/dislikes of the Akutaq.
- How does it compare to the ice cream they buy at the store?

- Would they like it better with different berries or other ingredients added?
- Provide a copy of the recipe for those who wish to take one home. (Attached)
- Open-ended questions about other forms of subsistence they would like to experience.
- Have an alternative for students who have allergies.
- Provide extra support for those with physical limitations. If a student is unable to reach berries on bushes, bring a few branches to the student. Help students who may not be able to measure and mix and provide visuals of the different steps taken during each process.
- ELL students may need recipe cards translated into their native language.

Close and Assessment:

- Work areas should be properly cleaned, and dishes collected to be washed.
- Items brought from home; berry buckets, electric mixers, extra ingredients should be returned.
- Thank volunteers that helped with the process.
- Students successfully made Akutaq and tasted it, giving their opinions on the flavor and how it compares to what they have considered ice cream.
- Students completed and shared a narrative story of the process taken to pick and prepare the berries.

Additional Resources:

- Alutiiq Word of the Week: Berry
- Alutiiq Word of the Week: Basket
- Alutiiq Word of the Week: Berry Picking
- Alutiiq Word of the Week: Subsistence

Akutaq: Alutiiq Ice Cream

Ingredients:

- 2 or 3 Tbsps. of oil
- 1/2 to 1 cup of shortening (e.g., Crisco)
- 2 cups of sugar
- 2 quarts to a gallon of berries (your choice)
- 1/4 cup of lemon juice
- 1 cup or less of orange juice

Directions:

1.Blend oil and shortening with an electric mixer.
2.Add the sugar (one cup at a time) and juice until fluffy – about 5 minutes or more.
3.Add berries last using a spatula to combine with the shortening mixture.

Piturnik'gcikina! – Enjoy your food!

Alutiiq Museum & Archaeological Repository
215 Mission Rd, Suite 101, Kodiak, AK 99615, (844) 425-8844; alutiiqmuseum.org

Making Yarrow Salve

Grade: 6-12
Time: 2-5 Days
Lesson Description: Students will learn about the medicinal purposes and importance of plants in Alutiiq society and make yarrow salve.

Photo: Yarrow leaf on Mayflower Beach in Kodiak. 2021

Kit Includes:

- Naut'staarpet — Our Plants A Kodiak Alutiiq Plantlore
- Alutiiq Plant Worksheets
- Kodiak Medicinal Plants Activity
- Yarrow Salve Questions During and After the Lab
- Native Plants/Salve Making Chemistry Extension Activity
- Plant Information Cards
- Online Plant Gallery
- Kodiak Alutiiq Spring Plants by the Native Educators of the Alutiiq Region

Materials Needed:

- Single burner hot plate
- Cooking pot (1.5-2 Quart) no lid needed.
- Wooden spoon
- Silicone spatula for scraping contents of the pot.
- 1 cup measuring cup.
- 1 quart size glass jar and lid
- 1 hot mitt
- Plant based oil (olive, grape seed, etc.)
- Yarrow plant material – (previously prepared into smaller pieces for easy handling)
- Data table
- Ruler and Calculator
- Small funnel
- Colander
- Cheesecloth
- 1/8 cup measuring utensil.
- Beeswax
- Containers for finished salve
- Prepared labels
- Latex gloves
- Access to cold water, if needed

Alutiiq Vocabulary	Art Elements	Art Principles	Content Connections:
Qanganangguaq — Yarrow Naut'staat — Plants Maasaq — Salve Imangcarluku — Poultice Caayuq — Tea Mingurluku — Rub Wainiik — Steam Bath Switch Kenilluku — Soak/Steep	☐Line ☐Shape ☒Color ☐Value ☒Texture ☒Space/ Perspective	☐Pattern ☐Rhythm/ Movement ☒Proportion/ Scale ☒Balance ☒Unity ☒Emphasis	AK Cultural Standards AK Science Standards

Objectives and Assessment Criteria:

Students will learn…

- How Alutiiq people used and harvested plants for medicinal purposes.
- To make yarrow salve and what yarrow salve was used for traditionally.
- To explore the plant resources available and discover the various plants and their uses.

6-8 AK Science Standards Addressed:

SB1.1
SB3.1
SD3.2 7th
SB3.1 7th
SB3.2
SA3
SF1.1-SF3.1

Cultural Relevance:

Healers were believed to have spiritual powers. In addition to learning skills from older women, they were imbued with special knowledge. They simply knew how to diagnose and treat illness—a divine gift. Women worked with their hands to locate sickness and used herbs, steam baths, and touch as therapies. For centuries, Alutiiq healers have been distilling the essence of plants for medicinal purposes. Remedies for colds and coughs are particularly plentiful. Cranberry leaves, spruce cones, rose hips, nettle leaves, Labrador tea leaves, and even the inner bark of the devil's club root can be boiled to treat congestion. Northern yarrow (Achillea borealis), also known as squirrel's tail, is a hardy, medium-sized herb that thrives in open habitats throughout the Kodiak Archipelago. This member of the sunflower family has frilly grey-green leaves that are slightly hairy. In late summer, the plant produces clumps of small, white, or pale pink flowerets. Yarrow has many medicinal applications. Alutiiq people commonly use it as a steam bath switch or add it to poultices to relieve aches and pains. Warmed, wet leaves or crushed roots can be applied directly to an afflicted area or wrapped in a moistened cloth. Northern yarrow can also help to cure external infections such as sores, cuts, or in some cases toothaches. Tea can also be made from either fresh or dried yarrow leaves, steeped, or boiled. The tea

is said to relieve cramps and gas, increase appetite, and alleviate the symptoms of a cold. You can also repel mosquitoes by rubbing the plant on your skin or clothing.

Create:

- Share the cultural relevance section and the importance of plants to the Alutiiq people for medicinal purposes with your students.
- Have the students explore the various plant resources and links provided.
- Once the students have explored the different plant resources, give them the Alutiiq Plant Worksheet to complete. This can be completed in groups or individually.
- Once they have completed the worksheet have a class discussion about the medicinal plant uses in Alutiiq society and review the answers.
- Have the students explore and use the Kodiak Alutiiq Spring Plants by the Native Educators of the Alutiiq Region: http://alutiiqeducation.org/files/resource_pdf/Spring%20Plants%20color.pdf to complete the Kodiak Medicinal Plants activity.
- Once the students have successfully completed the Kodiak medicinal Plants activity, have a discussion on the various plants they used.
- When the students have an understanding about plants in Alutiiq society, proceed to making the yarrow salve.
- Students will follow the instructions and directions to make the salve and complete the questions during and after the lab. Students can also complete the Native Plants/Salve Making Chemistry Extension Activity after they have successfully made the salve.

Close and Assessment:

- Students understand the importance plants had in Alutiiq society.
- Students understand the process and how plants were used for medicinal purposes.
- Students have successfully completed the worksheets, questions and made yarrow salve.

Modification:

- Explore the plant resources as a whole class and complete the worksheets and questions together.
- Pick a specific plant and have the students record a list of the information such as, when it grows, how it is prepared, what it helps alleviate etc.
- Have the students pick two different plants and create a compare and contract chart based on the different elements.

Additional Resources:

- Alutiiq Word of the Week Archive: Plants — Naut'staat
- Alutiiq Word of the Week Archive: Yarrow — Qangananguaq
- Alutiiq Word of the Week Archive: Sick — Qenaluni
- Alutiiq Word of the Week Archive: Tea — Caayuq
- Alutiiq Word of the Week Archive: Woman — Arnaq

Alutiiq Plant Worksheet

1. What did the Alutiiq people use as medicine before modern medicine?

_____

2. What does “medicinal” mean? _____

3. Which parts of the plant were used? _____

4. What season were medicinal plants harvested?

_____

5. Who was responsible for the harvesting? _____

6. Who was responsible for processing (making) the medicines?

_____

7. What ways did the Alutiiq people use the plants for medicinal purposes?

_____

8. How are the ways of the Alutiiq medicine similar to modern medical procedures and medicines?

_____

Alutiiq Plant Worksheet — Answer Key

1. What did the Alutiiq people use as medicine before modern medicine?

Plants were a central source of medicine.

2. What does "medicinal" mean?

Medicinal (of a substance or plant) having healing properties — Definition from Oxford Languages

3. Which parts of the plant were used?

Leaves, stems, roots, flower, fruit. The whole plant.

4. What season were medicinal plants harvested?

Alutiiq people harvest plants throughout the year.

5. Who was responsible for the harvesting?

All members of Alutiiq communities participated in plant collecting, although men and women harvest different species. Women collect plants primarily for food and medicine.

6. Who was responsible for processing (making) the medicines?

Women were responsible as the healers in society. They would manufacture herbal medicines and tend to the sick.

7. What ways did the Alutiiq people use the plants for medicinal purposes?

Salve, Poultice, Tea, Rub, Steam Bath Switch, Soak/Steep etc.

8. How are the ways of the Alutiiq medicine similar to modern medical procedures and medicines?

We use salves, poultices, tea, rubs, bath scrubber, and soak/steep medicines today.

Kodiak Medicinal Plants Activity

Use the Kodiak Alutiiq Spring Plants by the Native Educators of the Alutiiq Region to complete the activity below.

Common Name: _____ Scientific Name: _____ Alutiiq Name: _____

Where it can be found (Habitat)	Description
Medicinal Purposes	Sketch (search for better pictures to make an accurate sketch)

Common Name: _____ Scientific Name: _____ Alutiiq Name: _____

Where it can be found (Habitat)	Description
Medicinal Purposes	Sketch (search for better pictures to make an accurate sketch)

Common Name: _____ Scientific Name: _____ Alutiiq Name: _____

Where it can be found (Habitat)	Description
Medicinal Purposes	Sketch (search for better pictures to make an accurate sketch)

Common Name: _____ Scientific Name: _____ Alutiiq Name: _____

Where it can be found (Habitat)	Description
Medicinal Purposes	Sketch (search for better pictures to make an accurate sketch)

Making Alutiiq Salve – Questions and Information for During and After the Lab

1. What type of mixture is the oil before it is poured into the pot? homozygous or heterozygous

2. What type of mixture is in the pot when the oil and plant is poured in?

3. Olive oil is primarily composed of the compound oleic acid. Its chemical formula is $C_{18}H_{34}O_2$. List each element and the number of atoms of each element:

4. Sometimes the chemical formula is written: $CH_3(CH_2)_7CH=CH(CH_2)_7COOH$. Is it the same as $C_{18}H_{34}O_2$? _____ Explain: _____

_____

Time	Observations (color, transparency, viscosity, odor…)

6. Find the height of the container your salve will be put in: _____

7. Find the radius of the container your salve will be put in: _____

8. Calculate the volume of your container. Don't forget units! $V = \pi r^2 h$:_____

- You added wax to the oil infused with yarrow. Waxes are a class of chemical compounds that are plastic (malleable) near ambient temperatures. They are also a type of lipid. Characteristically, they melt above 45 °C (113 °F) to give a low viscosity liquid. Waxes are

insoluble in water but soluble in other solvents. All waxes are organic compounds, both synthetic and naturally occurring.

1. Define the following terms that were used above:

Chemical compound:

Ambient temperature:

Malleable:

Lipid:

Viscosity:

Insoluble:

Solvent:

2. What is the difference between synthetic and naturally occurring?

3. The approximate chemical formula of beeswax (a natural wax produced by individual honeybees) is $C_{15}H_{31}COOC_{30}H_{61}$ List each element and the number of atoms of each element:

_____

_____

Sketch of olive oil compound (oleic acid)	Sketch of wax compound.

Making Yarrow Salve in the Classroom Day 1:

The yarrow plant is gathered during the summer months from June through September (not from one location, but rather from many to avoid over harvest) and dried in an area with plenty of circulation. Drying may be done outdoors on a clothesline, or indoors where is there is plenty of ventilation. Drying is best done by making small 'bouquets' of the plant, tying cotton string around the stems, and hanging upside down after gently shaking each bouquet (to remove bugs or dirt). Plants may dry for extended periods of time. Once dry, they may be stored for extended time in a cotton bag (pillowcase works great) in a cool, dry location.

For easier handling by students, the dried plant should be clipped into about two-inch pieces. This may be done by students prior to further processing. The plant should be handled with care and with clean, dry hands (or hands covered in food safe latex gloves) and clean scissors.

(Note: Students with allergies to dust, grass or other plant material may need to take care in handling the raw plant or avoid it all together.)

Materials needed at each station Day One:

- Single burner hot plate
- Cooking pot (1.5-2 Quart) no lid needed.
- Wooden spoon
- Silicone spatula for scraping contents of the pot.
- 1 cup measuring cup.
- 1 quart size glass jar and lid
- 1 hot mitt
- Plant based oil (olive, grape seed, etc.)
- Yarrow plant material – (previously prepared into smaller pieces for easy handling)
- Data table
- Ruler and Calculator

Directions:

1. Measure 1 cup of plant material and put it into the cooking pot.
2. Measure 1 level cup of oil and pour into cooking pot on top of plant.
3. Mix gently with wooden spoon.
4. Place cooking pot on top of burner
5. Turn the burner to low heat.
6. Cook oil and plant, mixing often. Pay attention to consistency of oil (should begin to get thinner as it is heated) and the color and odor of the plant and mixture as a whole.
7. Burner may need to be heated to medium high to high
8. Continue cooking until a change is noticed in the odor of the plant.
9. Be careful not to burn the plant mixture.
10. When cooking is completed, turn off the burner then remove cooking pot.
11. Let the plant and oil mixture cool.
12. Gently pour the contents into a glass jar. Let cool to room temperature before putting a lid on it.
13. Leave the lab area as you found it.

Making Yarrow Salve in the Classroom Day 2:

Materials needed at each station Day Two:

- Previously prepared oil and plant mixture in jar
- Single burner hot plate
- Cooking pot (1.5-2 Quart) no lid needed.
- Wooden spoon
- Silicone spatula for scraping contents of the jar and pot.
- Small funnel
- Colander
- Cheesecloth
- 1 hot mitt
- 1 cup measuring cup.
- 1/8 cup measuring utensil.
- Beeswax
- Containers for finished salve
- Prepared labels
- Latex gloves
- Access to cold water, if needed

Directions:

1. Remove plant material from the oil. To do this, prepare the cooking pot, scraper, and colander for use and one or two students with latex gloves on two hands.
2. Line the colander with cheesecloth, allowing the edges of the cloth to hang over the sides of the colander.
3. Pour the plant/oil mixture through colander and cheesecloth into the cooking pot. Use the scraper to completely empty the glass container.
4. Once the majority of the oil has passed through, the students with gloves on gently gather the edges of the cheesecloth together and squeeze the plant mass to ensure that you are capturing as much of the plant infused oil as possible.
5. Set aside the cheesecloth with the plant material. Do not discard at this time. This plant is eventually returned to the outdoors where it was harvested from or to an area that produces yarrow.
6. Place a cooking pot with plant infused oil onto the burner. Turn heat on to medium.
7. Add 1/8 cup of beeswax to the oil mixture.
8. When beeswax has completely melted, remove pot from burner.
    a. Safety note: This mixture is very hot and will stick to the body if it is spilled. If touched by the mixture, immediately immerse in cold water or allow cold water from faucet to pour over affected area of skin)
9. Using funnel, fill each salve container with oil mixture. Pour slowly and carefully, as the mixture is very hot. Leave it open. (Note: If oil mixture becomes too thick to pour accurately, reheat as needed.)
10. Allow oil mixture to cool to room temperature before applying lid with proper label.
11. Leave the lab area as you found it.

Labels:

Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises
Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises
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Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises
Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises	Yarrow Salve Uses Dry Skin, Rashes, Chapped Lips, and Bruises

Native Plants/Salve Making Chemistry Extension:

Assign each member of your group a job:

Researcher: _____ Recorder: _____

Researcher: _____ Task Master/Helper: _____

- Researchers – find information and make sure it is recorded correctly.
- Task Master/helper – keeps everyone on task, ensures directions are followed, helps with other jobs if necessary.
- Recorder – takes notes, writes, or types information.
- If there is a 5th group member, another researcher: _____

1. Choose a plant native to Kodiak (other than yarrow) that you could make something with.

2. Find or design a procedure to make what you choose.

3. Make a list of the materials and steps to making it.

4. Find a chemical formula for as many of the items in your materials list as possible.

5. Sketch a molecule of each formula you found.

Medicinal Plant Study

Grade: 3-5
Time: 30 min
Lesson Description: Students will explore medicinal uses for Kodiak plants.

Photo: Nina Olsen applies old salmonberry leaves to the hand of her daughter, Kathy Webber, Kodiak, December 1990. Kodiak Area Native Association Collection, Alutiiq Museum, AM4:188. Photograph by Priscilla Russell.

Kit Includes:

- Naut'staarpet — Our Plants A Kodiak Alutiiq Plantlore
- Plant Worksheets
- Plant Information Cards
- Online Plant Gallery

Materials Needed:

- Alutiiq Plants App (available in self-service for KIBSD and the App Store)

Alutiiq Vocabulary	Art Elements	Art Principles	Content Connections
Imangcarluku — Poultice Wainiik — Steam Bath Switch Kenilluku — Soak/Steep Taariq — Steam Bath Scrubber Caayuq —Tea Mingurluku — Rub Maasaq — Salve	☐Line ☐Shape ☒Color ☒Value ☐Texture ☒Space/ Perspective	☒Pattern ☐Rhythm/ Movement ☐ Proportion/Scale ☐Balance ☐Unity ☒Emphasis	Science Social Studies – Alaska Native People

Objectives and Assessment Criteria:

Students will learn…

- To use resources such as the Alutiiq Plants app, plant informational cards, and Naut'staarpet — Our Plants A Kodiak Alutiiq Plantlore book, to create a "first aid kit."
- How the Alutiiq people used plants for medicinal purposes.

Cultural Relevance:

Healers were believed to have spiritual powers. In addition to learning skills from older women, they were imbued with special knowledge. They simply knew how to diagnose and treat illness—a

divine gift. Women worked with their hands to locate sickness and used herbs, steam baths, and touch as therapies. For centuries, Alutiiq healers have been distilling the essence of plants for medicinal purposes. Remedies for colds and coughs are particularly plentiful. Cranberry leaves, spruce cones, rose hips, nettle leaves, Labrador tea leaves, and even the inner bark of the devil's club root can be boiled to treat congestion. Switching is a common practice in Alutiiq steam baths. In the soothing, wet heat, people slap themselves with flexible branches to promote good health. This practice improves circulation, relieves aches and pains, and can be used to treat illness and prepare a pregnant woman for delivery. For Alutiiq people, plants represent an abundant source of food and raw materials. Like other subsistence pursuits, plant harvesting, and use follow a predictable, seasonal rhythm in Alutiiq communities, from harvesting of tender spring greens to summer and fall berry picking, hauling wood for fuel, and manufacturing items from plant fibers.

Create:

- Explain to students that they will be creating a plant first aid kit based on Alutiiq plantlore.
- Introduce the activity and start a discussion about plants. Do you eat local plants? Pick berries in the summer? Share the cultural relevance section with your students and the preface from Naut'staarpet — Our Plants A Kodiak Alutiiq Plantlore to provide background knowledge for your students.
- In groups of (2-3) students will use the available resources to search for plants for each ailment. Students will then record the plant name along with the Alutiiq name and scientific name, draw an image of the plant, and describe the best way to prepare the plant for each given condition.

Close and Assessment:

- When students finish in their groups have them share their research and chosen plants with the whole class. Record student answers on a chart. Discuss with the class: were similar plants chosen? How about the preparation methods for the plant, are they similar or different? Why?
- Students understand Alutiiq plants and the traditional medicinal uses of plants in Alutiiq culture. Students created a successful "first aid kit."

Modification:

- Students can choose two medicinal plants and make a compare and contrast chart.
- Students can explore the online plant gallery on Alutiiq Plants.
- Explore the Alutiiq Plants App and learn more about the plants and their medicinal uses.
- Reach out to an Alutiiq Plantlore expert and go on an Alutiiq plant walk around the community to learn about the Alutiiq plants and their uses.

Additional Resources:

- Book: Wildflowers and Other Plant Life of the Kodiak Archipelago by Stacy Studebaker
- Alutiiq Museum's Word of the Week Archive: Plants

Burn	Name of plant: Alutiiq name: Scientific name:
Draw a sketch of the plant:	How would you prepare the plant to treat burns?

Sore Throat	Name of plant: Alutiiq name: Scientific name:
Draw a sketch of the plant:	How would you prepare the plant to treat a sore throat?

Sprains	Name of plant: Alutiiq name: Scientific name:
Draw a sketch of the plant:	How would you prepare the plant to treat a sprain?

Fever	Name of plant: Alutiiq name: Scientific name:
Draw a sketch of the plant:	How would you prepare the plant to treat a fever?

Toothache	Name of plant: Alutiiq name: Scientific name:
Draw a sketch of the plant:	How would you prepare the plant to treat a toothache?

Answer Key

(Note: There are multiple correct answers, research the resources as well)

Single Delight, Shy Maiden (Locally Star of Bethlehem) — Ikignganaq (Moneses uniflora (L.)

- People use single delight tea to treat an array of illnesses, including pleurisy, pneumonia, tuberculosis, sore throat, and stomach disorders. The tea can also be used as a wash for wounds, sores, rashes, bunions, or corns.

Northern Yarrow (Locally Squirrel's Tail) — Qanganangguaq (Achillea millefoliulm L.)

- The leafy stems are used as a steam bath switch and/or a poultice to treat aches and pains, sores, cuts, boils, abscesses, toothaches, and broken bones.

Nettle; Stinging Nettle (Locally Stingers) — Uqaayanaq (Urtica dioica L.)

- People also use nettle roots to relieve toothaches and tooth infections.

Angelica — Uriisaq (Angelica lucida L.)

- The inner part of the stem and the leaves are rubbed on the skin to heal rashes, sores, pimples, cuts, dry skin, and other skin problems. People also rub angelica stems on swollen injured areas and over broken bones.
- Angelica is highly valued as a steam bath switch and used to relieve aches, pains, and sore muscles.

Common Wormwood (Locally Silver Leaf) — Caik (Artemisia tilesii Ledeb.)

- People drink wormwood tea for heart and stomach problems, sore throats, and aches and pains including headaches.

Licorice Fern — Qaataq (Polypodium glycyrrhiza D. C. Eaton= Polypodium vulgare L.)

- Alutiiq people use licorice fern fronds to relieve severe arthritis and to treat broken bones and sprains.

Sitka Spruce— Napaq (Picea sitchensis (Bong.)

- Spruce bud tea can treat coughs, pneumonia, and other respiratory problems.

Balsam Cottonwood, Balsam Poplar — Ciquq (Populus balsamifera L.)

- People added ash from cottonwood bark ash to snuff (iqmik) and used to treat tooth aches.

Sitka Alder, Mountain Alder — Uqgwik (Alnus viridus Vill.)

- People gargle alder cone tea for sore throats and laryngitis.

Narrow-Lead Labrador Tea, Hudson Bay tea — Atsaqutarpak; Nunallaq Caayuq (Rhododendron tomentosum Harmaja = Ledum palustre L.)

- Alutiiq people recommend narrow-leaf Labrador tea for lung and throat ailments, including colds, coughs, and tuberculosis, as a gargle for sore throats, to relieve asthma, to treat a fever, and to cleanse the blood.

Alutiiq Graphic Arts: Painting with Plants

Grade: 4th-12th
Time: 2 Days
Lesson Description: There are many forms of Alutiiq art. This lesson explores the ways Alutiiq people made and used pigments for paint and dye.

Photo: Plant Dyes from a Munartet Workhop in 2019.

Kit Includes:

- Pigment Worksheet
- Igaruacirpet- Our Way of Making Designs Book

Materials Needed:

- Crockpots (alternatively a saucepan + hotplates or an electric kettle will work)
- Water
- Yellow Onion Skins (from about 5 onions)
- Spinach (1 can)
- Blueberries (3 cups) or Beets (3-4 Chopped)
- Paint Brushes
- Mesh strainer
- White Paper
- Jars to hold dye.

Vocabulary	Alutiiq Vocabulary	Art Elements	Art Principles	Content Connections
Pigment Chlorophyll Carotenoids Flavonoids Anthocyanins	*Tan'ertuq/Tamlertuq* — It is black. *Kawirtuq* — It is red. *Qatertuq/Qat'rtuq* — It is white. *Cungagtuq*— It is blue.	☐Line ☐Shape ☒Color ☐Value ☒Texture ☒Space/ Perspective	☐Pattern ☐Rhythm/ Movement ☐Proportion/ Scale ☒Balance ☐Unity ☐Emphasis	Science Art

Objectives and Assessment Criteria:

Students will learn...

- To identify the naturally occurring major pigments in fruits and vegetables: chlorophyll, carotenoids, and flavonoids.
- How to use the major pigments to create natural dyes or watercolors.
- To understand the significance of painting in Alutiiq society.

Cultural Relevance:

In classical Alutiiq society, graphic arts had many functions. Careful decoration adds beauty to objects. This helped to show respect for the plants and animals that provided for people and ensure future prosperity. Pictures also preserved history. Like books, they created a physical record of the past, recording events and stories. Some images were also family symbols. Imagine that a hunter killed two seals with one harpoon strike. This very lucky event might be symbolized in paintings on his household implements. When people saw the painted tools, they would be reminded of the hunter's skill and good fortune, and know the objects belong to his family. The picture preserved a story, celebrated the hunter's talent, and expressed ownership.

Painted images, including geometric designs, animals, human figures, boats, celestial bodies, and spirits were the final decorative touches on many objects. Alutiiq people painted pictures on wooden objects–hats, paddles, arrows, bows, boxes, masks, and many other implements. They also pecked pictures on boulders, etched designs into stone and bone weaponry, and created images through weaving and embroidery. Before the availability of commercially made pigments, Kodiak artists created paints and dyes from plants and minerals. Artists extracted colors from hemlock bark, grasses, and berries, or created colorful powders by crushing red shale, iron oxide, copper oxide, and charcoal with a mortar and pestle, and mixing the resulting powder with a binder of oil or blood. Artists applied paint to objects with their fingers, a small stick, or possibly a paintbrush made with animal hair.

Create:

- Share with the students the significance of Alutiiq paintings and how Alutiiq artists made pigments. Refer to the cultural relevance section above and Chapter 4 of the book Igaruacirpet–Our Way of Making Designs (pages 105-116).
- Begin a discussion by asking students where they think plants get their color. Have students identify different colored plants we eat, write a list of the plants mentioned on the board. Explain that plant pigments form the colors. Introduce the names of the three major pigments: chlorophyll which produces green pigments, carotenoids which produce yellow, orange, red and pink pigments, and flavonoids. Explain that there are two types of flavonoids: yellow flavonoids and anthocyanins which produce the red, blue, and purple pigments you see in plants.
- Share the definitions to the terms below:
    - Pigment: A substance that imparts a color to a material.
    - Chlorophyll: Green pigment in plants (important to photosynthesis), fat-soluble
    - Carotenoids: Yellow, orange, and red pigments, fat-soluble
    - Yellow Flavonoids: Yellow pigments, water-soluble.
    - Anthocyanins: Also, flavonoids, purple to red pigments, water-soluble.
- Hand out the pigment worksheets. Have students work in groups to chart the list of colored edible plants by the pigments they produce (e.g., Green leafy vegetables such as spinach and lettuce would go into the chlorophyll section, carrots in carotenoids, etc.). This can also be done as a class.
- To make dye:

1. Add 3 cups of fresh or frozen blueberries to a saucepan and cover with about a ½ cup of water. Simmer for several hours, add water if needed. Remove from heat and let cool, strain the blueberry skins, and pour the liquid into a glass jar.
2. Repeat step 1 with onionskins (from 5 onions) and spinach (use cooked or canned spinach for best pigmentation).
3. Once the dyes have cooled, students use the watercolors to paint an image.

- Discuss with the class any observations they have made about the plant watercolors. How well were they able to paint with them? Were any of the colors more pigmented?

Close and Assessment:

- Students have completed the pigment worksheet and watercolor painting.
- Students can identify the naturally occurring major pigments in fruits and vegetables: chlorophyll, carotenoids, and flavonoids.
- Students understand the use of pigments to create dyes or paint.
- Students understand the significance of painting in Alutiiq society.

Modification:

- Instead of using the dyes as watercolor paint, dye fabric squares, string, eggshells, or even porcupine quills. (Note: Protein fibers such as wool will dye easier than cellulose fibers such as cotton or linen, but both can be used).
- Collect local plants and experiment with making dyes with them. Have the students make predictions about the colors. Be sure to research plants in your area ahead of time and see which ones work best.
- This lesson can be used without the science element for younger classes and the dye can be made ahead of time.
- Take your class on a plant walk and have them chart the different plants and pigments they find.
- Use this lesson to incorporate and teach a photosynthesis unit.

Additional Resources:

- Visit the Alutiiq Museum's Word of the Week Archive to learn and hear the Alutiiq colors.
- Alkema, J., & Seager, S. L. (1982). The Chemical Pigments of Plants. *Journal of Chemical Education*, 59(3), 183-186.
- Naut'staarpet- Our plants A Kodiak Alutiiq Plantlore by Priscilla N. Russell
- For more information on plant pigments visit: WebExhibits: Causes of Color http://www.webexhibits.org/causesofcolor/7H.html

Pigment Worksheet

Alutiiq artists made pigments from the natural resources available such as plants and minerals. Create a list of colored edible plants by the pigments they produce.

Pigments:	Edible Plants:
Chlorophyll	Ex: Spinach
Carotenoids	Ex: Carrots
Flavonoids	
Anthocyanins	

Plantlore Art Cards

Kit Includes:

- Blank Plantlore Art Cards
- Sample Plantlore Art Cards

Materials Needed:

- Pencils
- Colored pencils, markers, and/or crayons

Alutiiq Vocabulary	Art Elements	Art Principles	Content Connections
Mun'arta — Artist Naut'staat — Plants	☒Line ☒Shape ☒Color ☒Value ☒Texture ☒Space/ Perspective	☒Pattern ☐Rhythm/ Movement ☒Proportion/ Scale ☒Balance ☐Unity ☒Emphasis	Social Studies Science

Create:

- Talk with your students about how they use plants in their daily life – plants that they eat, plants that are used medicinally, and plants that they notice but do not use. Talk about plants that they see in Kodiak versus plants that they see in other places, etc.

- Ask students to think about a plant that is meaningful to them. This can be a plant that they love to eat (ex. berries, fruits, vegetables, seaweed, etc.), a plant their family uses for medicine (ex. ginger, devil's club, calendula, etc.), or a plant they simply like. Let them decide which plant is important to them and have them draw their chosen plant on an art card.

- Have a class discussion about how plants are important for our lives. Have students share with a group of students how they chose their plant and why it is important to them before sharing with the whole class.

- If you have time, go on a nature walk with the class to help students get ideas of plants that they want to draw and remind them to observe the world around them.

Raw Material Matching Game

Grade: Any
Time: 20-30 minutes
Lesson Description: Students will learn the uses for raw materials in traditional Alutiiq society.

Kit Includes:

- Raw Material Matching Game Cards
- Plant Informational Cards
- Naut'staarpet — Our Plants A Kodiak Alutiiq Plantlore book
- Online Plant Gallery

Materials Needed:

- Alutiiq Plants App (available in self-service for KIBSD and the App Store)

Photo: Lucille Davis demonstrates how to apply angelica to a rash or sore. The plant is said to contain oils that revitalize the skin. AM4:83. Photograph by Pricilla Russell.

Alutiiq Vocabulary	Art Elements	Art Principles	Content Connections
Ciquq —Cotton Wood Qar'usiq; Qasrulek— Cedar Qasrulek, Uqgwik —Birch Uqgwik — Alder Napaq — Spruce Nimruyaq, Uqgwingcuk — Willow Uruq — Mosses Imanit — Beach Rye Culuguat Weg'et — Cotton Grass	☐Line ☐Shape ☐Color ☐Value ☐Texture ☒Space/ Perspective	☒Pattern ☐Rhythm/ Movement ☐Proportion/ Scale ☐Balance ☐Unity ☒Emphasis	Science Social Studies

Objectives and Assessment Criteria:

Students will learn...

- The uses for raw materials in traditional Alutiiq society.

Cultural Relevance:

Plants are an important source of raw materials. Plants once provided lumber, thread, and cordage, lashing material, weaving material, insulation, bedding, and even pigment for paint. Plants are also a central source of medicine. Healers use herbal remedies to treat everything from scrapes and

swellings to more serious illnesses like fever, arthritis, and respiratory problems. All members of Alutiiq communities participate in plant collecting, although men and women harvest different species. Men procure plants for raw material—particularly the wood used to fuel fires, smoke fish, and build houses. Women collect plants primarily for food and medicine. Berry picking and vegetable harvesting are activities often conducted by women and their children.

Kodiak Island is often called Alaska's Emerald Isle, a nickname that reflects its thick carpet of green summer plants. Abundant rain, mild temperatures, and long summer days combine to make the region's mountains and meadows exceptionally productive for plant growth. There are about 650 known species of vascular plants in the archipelago, and botanists continue to identify more. Kodiak's plant life reflects the island's natural and cultural histories. All of Kodiak's plants are available in neighboring regions of Alaska. To date, botanists have not found any plant species unique to Kodiak. This reflects Kodiak's proximity to the Alaska mainland. The Gulf of Alaska's strong and persistent winds introduce plant spores from neighboring regions, and birds bring seeds to Kodiak in their droppings. Over the millennia, people have also introduced plants, both inadvertently and on purpose. For example, prehistoric visitors from the Alaska mainland probably brought seeds stuck to their clothing and belongings.

Today artists search Kodiak's beaches, forests, and lumberyards for the perfect grain, but in the old days, before spruce trees colonized Kodiak, most wood came from the beach. Carvers gathered drift logs of Pacific yew, cedar, hemlock, and spruce from Kodiak's shores, and collected alder, dwarf birch, and cottonwood from hillside thickets.

Create:

- Discuss with students what raw materials are? Why would people use them? And what type of raw materials do we use in everyday life?
- Give students the matching game cards and have them pair up to complete the matching game. Inform the students about the different resources below to help them match the materials.
    - Naut'staarpet — Our Plants A Kodiak Alutiiq Plantlore book
    - Alutiiq Plants App
    - Plant Informational Cards
    - The online plant gallery

Close and Assessment:

- Students have successfully matched the raw materials to the correct uses.
- Understand what raw materials are.
- Understand the different raw materials used for different things in Alutiiq society.

Modification:

- Have the students explore the online plant gallery to learn about the different raw materials and how Alutiiq people used them.
- Pass around the natural material samples in the Plantlore education box. Have the students touch the samples and ask the students what they think the material is used to make.

Additional Resources:

- Alutiiq Word of the Week Archive: Bark — Qelltek
- Alutiiq Word of the Week Archive: Plants — Naut'staat
- Alutiiq Word of the Week Archive: Driftwood — Pukilaaq, Kapilaq, Tep'aq (small, medium, full log)
- Alutiiq Word of the Week Archive: Moss — Uruq
- Alutiiq Word of the Week Archive: Red Cedar — Qar'usiq
- Alutiiq Word of the Week Archive: Tree — Uqgwik (deciduous), Napaq (spruce)

Balsam Cottonwood, Balsam Poplar

Cottonwood — Ciquq

1.

This was used to carve toys, gaming pieces, plates, net floats, labrets, animal figures, and maskettes.

Cedar

Cedar — Qar'usiq; Qasrulek

2.

This was used in building houses and boats.

Alutiiq Museum & Archaeological Repository
215 Mission Rd, Suite 101, Kodiak, AK 99615, (844) 425-8844; alutiiqmuseum.org

Kenai Birch

Birch — Qasrulek, Uqgwik

3.

This was used to make a variety of tools, including wedges, mauls, bowls, oars, and hammer and axe handles.

Sitka Alder, Mountain Alder

Alder — Uqgwik

4.

This flexible wood was used to make the rib of kayaks, snowshoes, temporary shelters, and game pieces.

Alutiiq Museum & Archaeological Repository
215 Mission Rd, Suite 101, Kodiak, AK 99615, (844) 425-8844; alutiiqmuseum.org

Sitka Spruce

Spruce — Napaq

5.

The roots were harvested and processed to make weaving material. The branches would be piled to make bedding.

Willow

Willow — Nimruyaq, Uqgwingcuk

6.

This wood is soft. They would only burn this for warmth and to smoke fish if no other wood was available.

Alutiiq Museum & Archaeological Repository
215 Mission Rd, Suite 101, Kodiak, AK 99615, (844) 425-8844; alutiiqmuseum.org

Mosses

Mosses — Uruq

7.

This was washed and dried for use in diapering babies and for toilet paper.

Beach Rye, Beach Grass, Lyme Grass

Beach Rye — Imanit; Tapernat

8.

This was used to weave mats, mittens, socks, cups, backpacks and other items.

Alutiiq Museum & Archaeological Repository
215 Mission Rd, Suite 101, Kodiak, AK 99615, (844) 425-8844; alutiiqmuseum.org

Cotton Grass

Cotton Grass — Culuguat Weg'et

9.

This was twisted to make a wick for a stone oil lamp.

Answer Key

1. Balsam Cottonwood
2. Cedar
3. Kenai Birch
4. Sitka Alder, Mountain Alder
5. Sitka Spruce

Answer Key

6. Willow
7. Mosses
8. Beach Rye, Beach Grass, Lyme Grass
9. Cotton Grass

Alutiiq Museum & Archaeological Repository
215 Mission Rd, Suite 101, Kodiak, AK 99615, (844) 425-8844; alutiiqmuseum.org

Alutiiq Seasonal Cycle Lesson Plan

Grade: 3rd-5th
Time: 3 – 5 days
Lesson Description: Students will learn about the different plants and animals Alutiiq people harvest throughout the year, the tools and techniques used to harvest them, and the ways Alutiiq people preserved and stored food.

Photo: Alutiiq Subsistence Cycle Activity

Kit Includes:

- Plant gallery: https://alutiiqmuseum.org/alutiiq-people/subsistence/plant-gallery/
- *Naut'staarpet*—Our Plants (book)
- Subsistence calendar worksheet

Materials Needed:

- White paper plates
- Markers or colored pencils
- Brad fasteners
- Glue sticks (optional)
- Internet access

Alutiiq Vocabulary	Art Elements	Art Principles	Content Connections
Suumacirpet—Subsistence *Alagnaq*—Berry *Suit'kaaq*—Flower *Pisurta*—Hunter *Iqallugsurluni*—Fishing	☒Line ☒Shape ☒Color ☒Value ☒Texture ☒Space/ Perspective	☒Pattern ☐Rhythm/ Movement ☒Proportion/ Scale ☒Balance ☐Unity ☒Emphasis	AK Cultural Standards AK Art Standards AK Science Standards

Objectives and Assessment Criteria:

Students will learn…

- About the different local plants and animals harvested in a year.
- The different harvesting tools and techniques used by Alutiiq people in the past and present.
- The ways Alutiiq people preserved and stored food.

Cultural Relevance:

There is no easy way to translate the word subsistence into the Alutiiq language. Westerners often think of subsistence as the process of obtaining and eating wild foods, an

alternative to buying groceries. This definition, however, fails to capture the complexities of living off the land.

To the Alutiiq people, subsistence is life. Collecting wild foods is not simply an economic activity, but a central component of social and spiritual life. Through hunting, fishing, and gathering, Alutiiq people experience and express their Native identity. They explore their deep and enduring connection to the land. They care for their families and communities. They celebrate and sustain life.

To Alutiiq people, subsistence is also a birthright, a way of living passed down from ancestors that has sustained countless generations. As one Alutiiq leader puts it, "it's being who you are." While not a literal translation of the word subsistence, *suumacirpet*, "our way of living," expresses these many connections.

Create:

Day 1:

- Ask students if they go berry picking, fishing, hunting, or foraging for wild resources in Kodiak. Ex: hunting or fishing for food, collecting plants for medicine, gathering wood for a fire, etc.
    - At what time of the year or season do they gather different subsistence items?
    - Who did they go with? Friends, family, Elders?
    - What did they learn about the different plants and animals? Who did they learn from?
    - What do they do with the items they collected? Make a healing salve, eat a fish, share with others?
- Read the Cultural Relevance section about subsistence to your students.
- Explain to your students that they will be researching and learning about the different subsistence items available throughout the year.
- Provide students with internet access or print the handouts for your class in advance.
    - *Uksuq*—An Alutiiq Year Traditions Handout
https://alutiiqmuseum.org/wp-content/uploads/2024/01/AlutiiqYear2022.pdf
    - *Cisllaaq*—Calendar Traditions Handout
https://alutiiqmuseum.org/wp-content/uploads/2024/01/Calendar2022.pdf
- Have a classroom discussion with your students about what they learned about the subsistence items harvested each month of the year.
- Remind the class that it is very important to be 100% certain you are identifying the correct items before eating or touching things when harvesting wild resources.
- Provide students with a blank piece of paper and ask them to create a KLW chart. Have students define subsistence and create a table as shown below.
Define subsistence:

What I know?	What I want to know?	What I learned?

- Once completed, the students will hand this in before they leave the classroom.

Day 2:

- Review subsistence with your students before introducing the activity.
- Provide students with the subsistence calendar worksheet attached to this lesson. Students can work individually or in groups.
- Ask students to complete the worksheet filling out each section using various resources.
    - Plant Gallery: https://alutiiqmuseum.org/alutiiq-people/subsistence/plant-gallery/
    - Book: *Naut'staarpet*—Our Plants by Priscilla Russell

    - Alutiiq Plants App. Free app for Android and iOS. Available on app stores.
    - *Naut'staat Alutiit'stun*—Plants in Alutiiq Society: https://alutiiqmuseum.org/wp-content/uploads/2024/01/PlantsInSociety2022.pdf
- Once the students have completed the subsistence calendar worksheet, have them share their finds with the class. While they share, record the answers on the board, creating a classroom list. An answer key to this activity is provided to assist the students.
- It is important to note that there are laws that regulate subsistence. Certain laws regulate seasons that people can collect and hunt. Subsistence may also be different in each village. Different villages may follow different subsistence schedules.

Day 3:

- Using the completed worksheet, ask students, how would subsistence change through the year? How would a meal in the summer differ from a meal in the winter?
- Explain to the students that they will be creating a subsistence wheel dividing the twelve months of the year. For each month they will include plants and animals harvested.
- Provide the students with white paper plates.
- You will notice there are two options for the attached diagrams. One option has different sections that can be completed more in depth. Students can organize different sections such as land in the outer circle, ocean in the middle circle, and plants in the center circle. The other option is having the students not divide the sections and include all the plants and animals together. A third option is having your students draw their own sections with plants and animals not using the diagrams provided. Choose the option that works best for your students.
- Once decided, either provide students with the attached diagram to cut and glue onto the paper plate or have the students draw twelve sections.
- When they have made twelve sections, have students label each month in Alutiiq and English.
- Next, have the students draw the different plants and animals available in each month, or color, cut, and glue the animals and plants in the monthly sections.
- Once the chart is complete, have the students cut out the arrow. Then use a hole punch in the middle of the paper plate to insert a brad with the arrow.
- Display the wheels in the classroom where they are accessible.
- Each month, have the students move the arrow to the next section to show the subsistence available.

Day 4:

- Once the subsistence wheels are complete, transition into the harvesting tools and techniques people use today. Ask students what tools and techniques people use today for harvesting and gathering. Examples: Fishing rods, nets, berry pickers, shovels, and skiffs.
- Have students research the tools, techniques, and harvesting traditions. Discuss the similarities and differences between them.
- To assist students, show them how to navigate the resources below. You can also assign students different tools and techniques suggested below to help them focus their research.
    - Harvesting Traditions: https://alutiiqmuseum.org/alutiiq-people/subsistence/#traditions
    - Identifying Ancestral Tools: https://alutiiqmuseum.org/museum/collections/alutiiq-technological-inventory/
    - Coloring *Iqalluut*—Fish Publication: https://alutiiqmuseum.org/wp-content/uploads/2024/01/ColoringFish.pdf
    - Example compare and contrasting:

        - Root digger vs. Gardening shovel
        - Hand-picking vs. Berry picker
        - Woven basket vs. Plastic bucket
        - Greywacke stone anchor vs. Metal Anchor
        - Kayak vs. Skiff
        - Fishing net made from nettle fiber and porpoise sinew vs. Fishing net made from nylon and plastic
- Have students share their finds with the class. You can also have students record the similarities and differences on a Venn Diagram highlighting specific tools.

Day 5:

- Once students understand the different tools, techniques, and harvesting traditions, introduce food preservation.
- Ask the students how they store food—e.g., in a refrigerator, cabinets, cans, jars, bags, etc. Have a classroom conversation. Explain to students that people did not have refrigerators or metal cans a long time ago.
- Have the students explore different resources to learn how people preserved and stored food. Visit the Alutiiq Museum's website to see videos of Elder's talking about harvesting and preserving foods.
    - https://alutiiqmuseum.org/alutiiq-people/subsistence/wild-foods-videos/
- You can also print these Word of the Week lessons in advance and provide them to your students.
    - Alutiiq Word of the Week: Pit, hole in the ground—*Laakaq* https://alutiiqmuseum.org/collection/Detail/word/837
    - Alutiiq Word of the Week: Seal Stomach—*Isuwim Suqaa* https://alutiiqmuseum.org/collection/Detail/word/439
    - Alutiiq Word of the Week: Fish Rack—*Initaq* https://alutiiqmuseum.org/collection/Detail/word/233
    - Alutiiq Word of the Week: Hang (to)—*Iniluku* https://alutiiqmuseum.org/collection/Detail/word/831
    - Alutiiq Word of the Week: Floor—*Nateq* https://alutiiqmuseum.org/collection/Detail/word/238
    - Alutiiq Word of the Week: Basket—*Inartaq* https://alutiiqmuseum.org/collection/Detail/word/77
    - Alutiiq Word of the Week: Fermented oil, berry pulp & vegetables—*Tugluq* https://alutiiqmuseum.org/collection/Detail/word/608
- Once students have explored the resources about food preservation and storage, have a classroom discussion. What were the most important ways to preserve food in the past? How are these different or similar to how we preserve food today?

Close and Assessment:

- Students learned about the different local plants and animals harvested in a year.
- Students successfully completed the subsistence worksheet and cycle wheel.
- Students learned about the tools and techniques used for harvesting in the past and the present.
- Students learned the ways Alutiiq people preserved and stored food.

Modification:

- Go on a guided plant walk with an Alutiiq plantlore expert during each season. Have your students' journal about the different plants they see and learn about.
- Take a fieldtrip to the Alutiiq Museum to see the different harvesting tools and food preservation items in the museum's collections.
- Create a large classroom seasonal cycle wheel. Have the students either draw or color and cut out animals and plants to add to the wheel. You can laminate the wheel and attach the different subsistence items using Velcro. Indicating the different subsistence items found in each month. This could be reused each year, with different students completing the activity.
- Each day you can have students make a KWL (What I know, what I want to know, and what I learned) chart to hand in at the end of each lesson to assess the students' understanding of the topic.

Additional Resources:

- Alutiiq Word of the Week: Berry—*Alagnaq*
  https://alutiiqmuseum.org/collection/Detail/word/120
- Alutiiq Word of the Week: Berry Picking—*Nunaquluni, Alagnarsurluni*
  https://alutiiqmuseum.org/collection/Detail/word/121
- Alutiiq Word of the Week: Plants—*Naut'staat*
  https://alutiiqmuseum.org/collection/Detail/word/393
- Alutiiq Word of the Week: Eggs—*Manit*
  https://alutiiqmuseum.org/collection/Detail/word/218
- Alutiiq Word of the Week: Flower—*Suit'kaaq*
  https://alutiiqmuseum.org/collection/Detail/word/239
- Alutiiq Word of the Week: Jam—*WaRiinyaq*
  https://alutiiqmuseum.org/collection/Detail/word/849
- Alutiiq Word of the Week: Spices—*Piturni'isuutet*
  https://alutiiqmuseum.org/collection/Detail/word/652
- Alutiiq Word of the Week: Summer—*Kiak*
  https://alutiiqmuseum.org/collection/Detail/word/490
- Alutiiq Word of the Week: Winter—*Uksuq*
  https://alutiiqmuseum.org/collection/Detail/word/547
- Alutiiq Word of the Week: Spring—*Ugnerkaq*
  https://alutiiqmuseum.org/collection/Detail/word/472
- Alutiiq Word of the Week: Fall, Autumn—*Uksuaq*
  https://alutiiqmuseum.org/collection/Detail/word/225
- Alutiiq Word of the Week: Year—*Uksuq, Kiak* (during Russian times)
  https://alutiiqmuseum.org/collection/Detail/word/553

Name:_____ Date: _____

Subsistence Calendar Worksheet

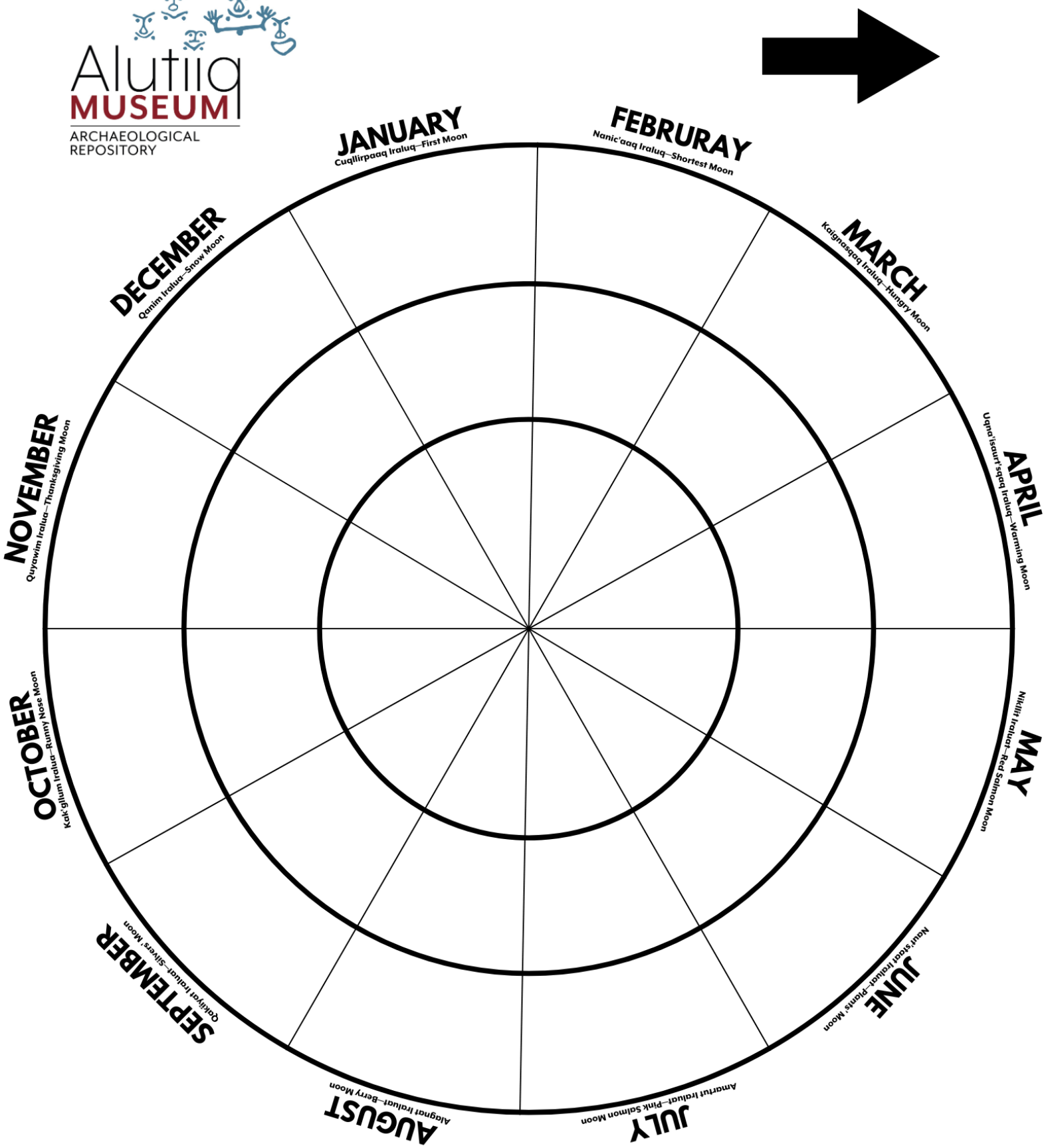
Uksuq, Kiak—Year	*Naut'staat*—Plants	*Nuna*—Land	*Imaq*—Ocean
Cuqllirpaaq Iraluq— First Moon January			
Nanic'aaq Iraluq— Shortest Moon February			
Kaignasqaq Iraluq— Hungry Moon March			
Uqna'isaurt'sqaq Iraluq— *Warming Moon* April			
Nikllit Iraluat— Red Salmon Moon May			
Naut'staat Iraluat— Plants' Moon June			
Amartut Iraluat— Pink Salmon Moon July			
Alagnat Iraluat— Berry Moon August			
Qakiiyat Iraluat— Silvers' Moon September			
Kak'gllum Iralua— Runny Nose Moon October			
Quyawim Iralua— Thanksgiving Moon November			
Qanim Iralua— Snow Moon December			

Answer Key: Calendar Worksheet

Uksuq, Kiak—Year	*Naut'staat*—Plants	*Nuna*—Land	*Imaq*—Ocean
Cuqllirpaaq Iraluq— First Moon January	*Pukilaaq, Tep'aq* (small, full log)—Driftwood	*Kaugya'aq*—Fox *Qateryuk, Qat'ryuk*—Ptarmigan *Saqul'aaq*—Duck *Lagiq*—Goose	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Amutaq*—Cod
Nanic'aaq Iraluq— Shortest Moon February	*Pukilaaq, Tep'aq* (small, full log)—Driftwood	*Kaugya'aq*—Fox *Qateryuk, Qat'ryuk*—Ptarmigan	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Amutaq*—Cod
Kaignasqaq Iraluq— Hungry Moon March	*Pukilaaq, Tep'aq* (small, full log)—Driftwood	*Qateryuk, Qat'ryuk*—Ptarmigan *Manit*—Eggs	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Amutaq*—Cod *Anciq*—Trout
Uqna'isaurt'sqaq Iraluq— Warming Moon April	*Pukilaaq, Tep'aq* (small, full log)—Driftwood *Naut'staat*—Plants	*Taquka'aq*—Bear *Manit*—Eggs	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Anciq*—Trout *Iqalluk*—Salmon *Ar'uq, Arwaq*—Whale
Nikllit Iraluat— Red Salmon Moon May	*Pukilaaq, Tep'aq* (small, full log)—Driftwood *Naut'staat*—Plants *Nimruyaq*—Willow	*Taquka'aq*—Bear *Manit*—Eggs	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Anciq*—Trout *Iqalluk*—Salmon *Ar'uq, Arwaq*—Whale
Naut'staat Iraluat— Plants' Moon June	*Pukilaaq, Tep'aq* (small, full log)—Driftwood *Alagnat*—Berries *Akagwik*—Cloudberry locally Moss Berry *Alagnaq*—Salmonberry *Naut'staat*—Plants	*Taquka'aq*—Bear *Manit*—Eggs	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Anciq*—Trout *Iqalluk*—Salmon *Ar'uq, Arwaq*—Whale
Amartut Iraluat— Pink Salmon Moon July	*Pukilaaq, Tep'aq* (small, full log)—Driftwood *Alagnat*—Berries *Alagnaq*—Salmonberry *Naut'staat*—Plants *Uqqwik*—Sitka Alder, Mountain Alder	*Taquka'aq*—Bear	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Anciq*—Trout *Iqalluk*—Salmon *Ar'uq, Arwaq*—Whale
Alagnat Iraluat— Berry Moon August	*Pukilaaq, Tep'aq* (small, full log)—Driftwood *Alagnat*—Berries *Cuaq*—Alpine Blueberries/Bog Blueberry *Augyaq*—Crowberry/Blackberry *Kenegtaq*—Low Bush Cranberry *Alagnaq*—Salmonberry *Naut'staat*—Plants	*Tuntuq*—Deer	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Anciq*—Trout *Iqalluk*—Salmon *Ar'uq, Arwaq*—Whale
Qakiiyat Iraluat— Silvers' Moon September	*Pukilaaq, Tep'aq* (small, full log)—Driftwood *Alagnat*—Berries *Cuaq*—Alpine Blueberries/Bog Blueberry *Augyaq*—Crowberry/Blackberry *Kenegtaq*—Low Bush Cranberry *Naut'staat*—Plants	*Taquka'aq*—Bear *Saqul'aaq*—Duck *Lagiq*—Goose *Kaugya'aq*—Fox *Tuntuq*—Deer	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Anciq*—Trout *Iqalluk*—Salmon *Ar'uq, Arwaq*—Whale
Kak'gllum Iralua— Runny Nose Moon October	*Pukilaaq, Tep'aq* (small, full log)—Driftwood *Alagnat*—Berries *Naut'staat*—Plants *Shnipiishniik, Cipau'iniik*—rose; *Qelempaq*—rose hip—Nootka Rose	*Taquka'aq*—Bear *Saqul'aaq*—Duck *Lagiq*—Goose *Kaugya'aq*—Fox *Tuntuq*—Deer	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Anciq*—Trout *Iqalluk*—Salmon
Quyawim Iralua— *Thanksgiving Moon* November	*Pukilaaq, Tep'aq* (small, full log)—Driftwood *Naut'staat*—Plants *Shnipiishniik, Cipau'iniik*—rose; *Qelempaq*—rose hip—Nootka Rose	*Taquka'aq*—Bear *Saqul'aaq*—Duck *Lagiq*—Goose *Kaugya'aq*—Fox *Tuntuq*—Deer	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Anciq*—Trout *Iqalluk*—Salmon
Qanim Iralua— Snow Moon December	*Pukilaaq, Tep'aq* (small, full log)—Driftwood	*Saqul'aaq*—Duck *Lagiq*—Goose *Qateryuk, Qat'ryuk*—Ptarmigan *Kaugya'aq*—Fox *Tuntuq*—Deer	*Wiinaq*—Sea Lion *Isuwiq*—Seal *Salalek*—Shellfish *Amutaq*—Cod

NAME: _____ DATE: _____

Alutiiq MUSEUM
ARCHAEOLOGICAL REPOSITORY



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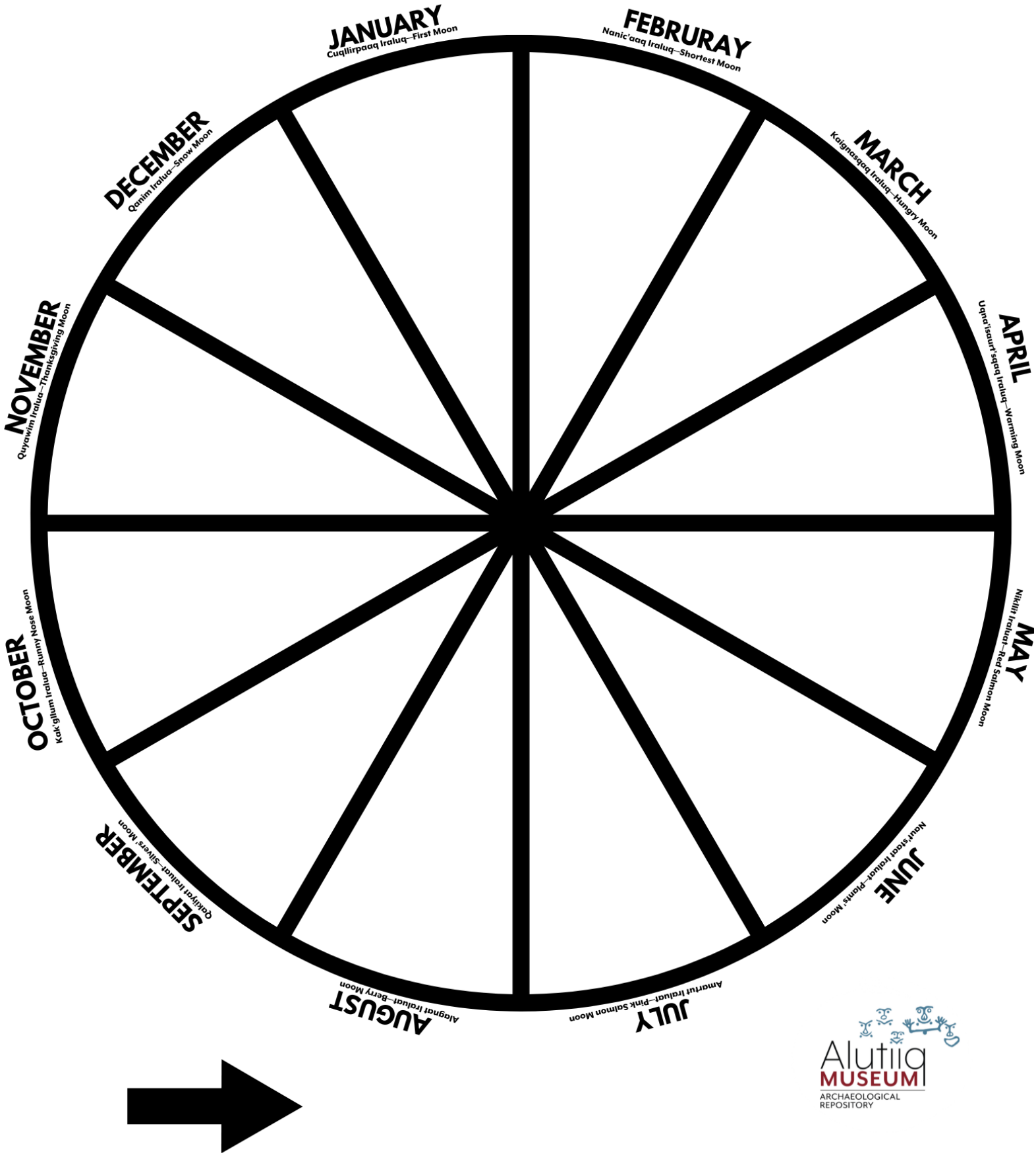

Alutiiq MUSEUM
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Subsistence Cycle

Tuntuq—Deer

Iqalluk—Salmon

Amutaq—Cod

Cuawat—Blueberries

Qateryuk, Qat'ryuk—Ptarmigan

Alagnat—Salmonberries

Lagiq—Goose

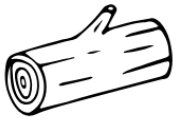
Isuwiq—Seal

Ar'uq, Arwaq — Whale

Manit—Eggs

Salalek—Shellfish

Kenegtaq—Low Bush Cranberry



Pukilaaq, Tep'aq (small, full log)—Driftwood

Saqul'aaq—Duck

Qelempaq—Rose Hip

Wiinaq—Sea Lion

Anciq—Trout

Laagaq—Chocolate Lily

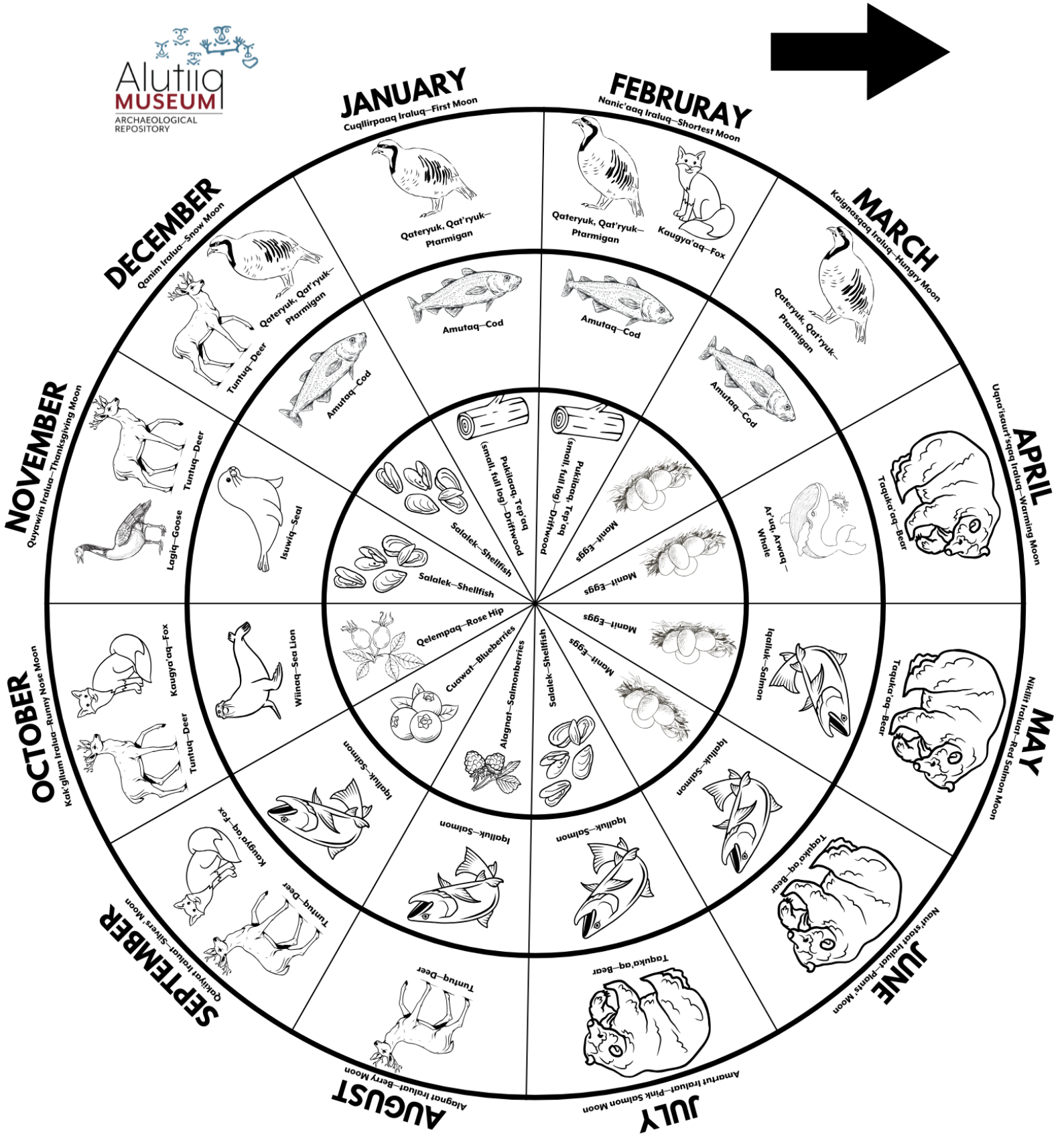
Taquka'aq—Bear

Kaugya'aq—Fox

Alutiiq MUSEUM
ARCHAEOLOGICAL REPOSITORY

NAME: _____ DATE: _____

Example Subsistence Cycle Wheel



Qayat Igait—Kayak Designs & Making Pigment

Kodiak Alutiiq *Qayat*—Kayaks and Maritime Traditions

Grade: Upper Elementary School (Grades 4 & 5)
Time: 5 Days
Lesson Description: Students learn about Alutiiq *qayat*—kayaks, explore *qayaq—kayak* decoration, and create their own pigments to paint personalized decorations.

Image: Kayak Designs. Drawing by Chloe Ivanoff, *Unigkuat* Kodiak Alutiiq Legends.

Alutiiq Vocabulary*	**Art Elements**	**Art Principles**	**Content Connections**
Qayaq—Kayak *Qayat*—Kayaks *Igait*—Design *Salaq*—Clam shell *Aigaq*—Human hand *Agyaq*—Star *Kianiq*—Charcoal *Tan'erluni* (N)/*Tamlerluni* (S)—Black *KRaasirluni*—Paint, Color *Kawisqaq*—Red *Qatesqaq* (N), *Qat'sqaq* (S)—White *Cungaq, Cungasqaq*—Blue/Green *Qayanguaq*—Single-hatched Qayaq	☒Line ☒Shape ☒Color ☒Value ☒Texture ☒Space/ Perspective	☒Pattern ☒Rhythm/ Movement ☒Proportion/ Scale ☒Balance ☒Unity ☒Emphasis	AK Science Standards AK Art Standards AK Cultural Standards

*(N)=northern way of speaking Kodiak Alutiiq, (S)=southern way of speaking Kodiak Alutiiq

Kit Includes:

- *Unigkuat* Kodiak Alutiiq Legends book – *Qayat Igait*—Kayak Designs story
- *Qayat Igait*—Kayak Designs Template for Painting

Materials Needed:

- Charcoal from a fireplace or fire pit, or charcoal briquettes from the store
- Grinding rocks or mortar & pestle
- Paper plates and small paper cups
- Paintbrushes & water
- Measuring spoons (¼, ½, & 1 teaspoons)
- Eye droppers or other tools to dispense small amounts of water
- Pencils & watercolor paper
- Various binding agents – Wesson oil, coconut oil, honey

Extension activity materials:

- Artificial gut skin (sausage casings)

Objectives and Assessment Criteria:

Students will learn…

- About Alutiiq *qayat* and their decoration,
- How to use natural materials to make black pigment,
- How adding varying amounts of liquids to pigments can make paint of different consistencies

Alaska State Standards:

Science Standards

- 5-PS1-2 Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. [Clarification Statement: Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances.] [Assessment Boundary: Assessment does not include distinguishing mass and weight.]
- 5-PS1-3 Make observations and measurements to identify materials based on their properties. [Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.] [Assessment Boundary: Assessment does not include density or distinguishing mass and weight.]
- 5-PS1-4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances. [Clarifying Statement: Share finding from the investigation.]

Art Standards

- Anchor Standard #1: Generate and conceptualize artistic ideas and work.
- Anchor Standard #2: Organize and develop artistic ideas and work.
- Anchor Standard #7: Recognize and analyze artistic work, including those from diverse cultural traditions.
- Anchor Standard #11: Relate artistic ideas and works with societal, cultural, and historical context to deepen understanding.

Cultural Standards

- A. Culturally knowledgeable students are well grounded in the cultural heritage and traditions of their community.
- D. Culturally knowledgeable students are able to engage effectively in learning activities that are based on traditional ways of knowing and learning.
- E. Culturally knowledgeable students demonstrate an awareness and appreciation of the relationships and processes of interaction of all elements in the world around them.

Cultural Relevance:

Qayaq Use

For thousands of years the *qayaq* was one of the most important tools in Alutiiq communities. Carefully crafted and well-maintained boats were a lifeline and allowed Alutiiq ancestors to harvest fish and sea mammals, travel and trade great distances, and carry families and supplies.

Qayaq Shape

The Alutiiq managed the dangerous waters of the Gulf of Alaska with the specialized design of their *qayat*. An upturned bow cuts through the waves, and a flexible wooden frame helped the boat slip through rough waters. A well-oiled sea mammal hide covered the frame like a glove and was held on with waterproof stitching. *Qayat* could have one, two, or three hatches. A *qayanguaq*—single-hatched *qayaq* was the most common. People used these boats daily for traveling, fishing, and hunting fast animals like porpoises and whales.

Special Designs

Alutiiq people painted designs on many traditional objects. Sometimes they painted themselves, decorating their skin with tattoos and body paint. Specialized *qayaq* tools like paddles and bailers, and hunting and fishing gear used while in a qayaq were often decorated with beautifully painted designs. These designs could be spiritually powerful. An Alutiiq legend from 1872, *Qayat Igait*—Kayak Designs, shares how people began to paint their *qayaq* covers with special images.

"...he built a qayaq—kayak with one hatch and painted one side of the qayaq red and the other side black. On the cover of the qayaq, he painted the following images. On the front left, he painted a large clam salaq—shell, on the front right, a human aigaq—hand, on the back left, an agyaq—star, and on the other side, a qayaq. He repeated the same figures on his float and the palm of his hands."

(Full legend available in Unigkuat - Kodiak Alutiiq Legends and attached to this lesson plan)

Why did paddlers add designs to their qayat? The images were symbols of helping spirits, powerful ancestors, or important accomplishments in the hunter's life. The symbols provided support for hunters as they pursued animals in windy waters. Alutiiq people often used circles on hunting gear. These images represented both an eye and a passageway. Vision is important for hunters and the circle image suggests the ability to see and find animals. The circle is also a passageway into other worlds, like the sea world where animal spirits live.

Traditional Colors

Black, white, red, and blue/green are the central colors recognized in the Alutiiq language. They are also the most common colors in Alutiiq artwork. Alutiiq people made black paint from a variety of raw materials.

Black Paint

Before the availability of commercially manufactured pigments, the Alutiiq people created paints from plants and minerals. Sometimes they ground charcoal and mixed it with oil or blood to make black paint. Another way to make black pigment was by collecting a specific stone from cliff faces, or it could be produced from copper ore. Artists ground these materials into fine powders using stones, and then stored them in small skin bags. To make paint, they mixed the powder with a binder of water, blood, oil, or even fish eggs.

Artists applied paint to objects with their fingers, a small stick, or a paintbrush made with animal hair. Archaeologists studying late prehistoric village sites have found small, decorated handles with a tiny knob on one end. Bristles may have been tied to these delicate knobs for fine painting.

Create:

Day 1

- Ask students if they have ever seen or been in a *qayaq* before. What are the features of the boat (e.g., low to the water, long and narrow, designed to be paddled). Follow up by asking students if they have seen or been in an Alutiiq-style *qayaq*. What do they think might be the features of an Alutiiq qayaq?
- Share the video:
    - *Alutiiq Consultants on Kayak Collaboration* (Peabody Museum of Archaeology & Ethnology) [YouTube: 4:30] https://www.youtube.com/watch?v=ETPHuyK1CnY
- Share the video:
    - *Uncovering Kayaking Traditions* (30:26), from the Alutiiq Museum's Fall Lecture series in 2016 - https://vimeo.com/185088462
    - How was the *qayaq* acquired? By whom?
    - What stitch was used to sew the *qayaq*?
    - What type of hair is sewn into the *qayaq*?
    - What was the seal gut/intestines used to make?
    - Why did men know how to sew?
- Ask students to share similarities and differences between *qayat* made today and traditional Alutiiq-style *qayat*. This can be done in groups with a comparative graph or as a whole class on the board. Here are some examples:
    - Many modern *qayat* are made by machines with materials like plastic, fiberglass, and carbon fiber. Alutiiq *qayat* are handmade out of wood, animal hides, and sinew.
    - Many modern *qayat* are made in standard sizes. Each Alutiiq *qayaq* was made to fit the proportions of its owner based on their body measurements.
    - The Alutiiq *qayaq* has a split bow for cutting through the waves. It is expertly designed for the windy waters around Kodiak.
    - Alutiiq people decorated their *qayat* with special symbols. Each one was unique.

Day 2

- Share with students that the Alutiiq people adorned their *qayat* to provide protection, luck, connection to animals, ancestors, spirits, and personalization. They sewed items into the seams – like beads and hair. They painted designs on the cover. They stored amulets (personal charms) inside.
- Read the legend *Qayat Igaa'it*—Kayak Designs aloud to the class (attached to this lesson plan). Ask the students to describe the symbols the Alutiiq hunter painted on his *qayaq* and what they represented.
- Share examples of Alutiiq designs from the *Painted Elements from Alutiiq and Unangax̂ Hats* handout—attached to this lesson plan.
- Have the students imagine their own *qayaq* designs. What symbols would they use to represent themselves?

- Have students work individually with a piece of white paper and a pencil to draw 4 symbols they would paint on their own *qayaq*—these symbols could represent themselves, their family, an important event, or the activities their *qayaq* would be used for.
- Have students label each symbol with a sentence about its meaning. What does the symbol represent and why is it important?
- Have students present their symbols to their table group or the class.

Day 3

- Explain that Alutiiq artists had to make paint. They couldn't buy paint from a store like we do today.
- Traditionally the Alutiiq people would make black paint from materials available from the land. Have students brainstorm different things in nature that could be used to make the color black.
- Share the different resources with the students along with the Cultural Relevance sections on Traditional Colors and Black Paint.
  - *Alutiit Kraas'kait* Alutiiq Colors handout: https://alutiiqmuseum.org/wpcontent/uploads/2024/01/Colors2022.pdf
  - Alutiiq Word of the Week:
    - Charcoal—*Kianiq:* https://alutiiqmuseum.org/collection/Detail/word/148
    - Black—*Tan'erluni (N), Tamlerluni (S):* https://alutiiqmuseum.org/collection/Detail/word/125
    - Paint, Color—Kraasirluni https://alutiiqmuseum.org/collection/Detail/word/383
- Inform students they will be making black paints. They will experiment with adding different amounts of water to charcoal powder to make a watercolor paint. Then they will experiment by adding fatty binding agents to their charcoal powder. They will use these paints to make a charcoal powder paint sampler to paint Alutiiq designs on a paper *qayaq*.
- Have students carefully grind lumps of charcoal in a mortar and pestle or with a rock on a paper plate. Collect the ground charcoal on a paper plate and store it in a zip-lock bag labeled with each student's name.
  - Remind students to be gentle and careful when grinding. This can be a messy process. The more they grind up the charcoal, the less gritty their paint will be.

Day 4

- Return the ground charcoal to each student.
- Hand out small paper cups and paintbrushes. Make watercolor paints with ground charcoal and water. Experiment by adding just a little water (¼ teaspoon) vs. a lot of water (1 teaspoon) to (1 teaspoon) of ground charcoal.
- Students will start making their charcoal powder paint sampler. Direct them to paint a line for each watercolor paint experiment. Further experiment with applying the paint using a brush vs. using your fingers.

- Have the students take notes in pencil onto the sampler explaining each kind of paint.

- Have students create another set of black pigments by mixing a small amount of ground charcoal with a fat (ex: Wesson oil or coconut oil) or try mixing the same amount with honey. If the oil or honey are too stiff, warm them up first.
- Have students paint these pigments onto their Charcoal Powder Paint Sampler, adding labels in pencil.

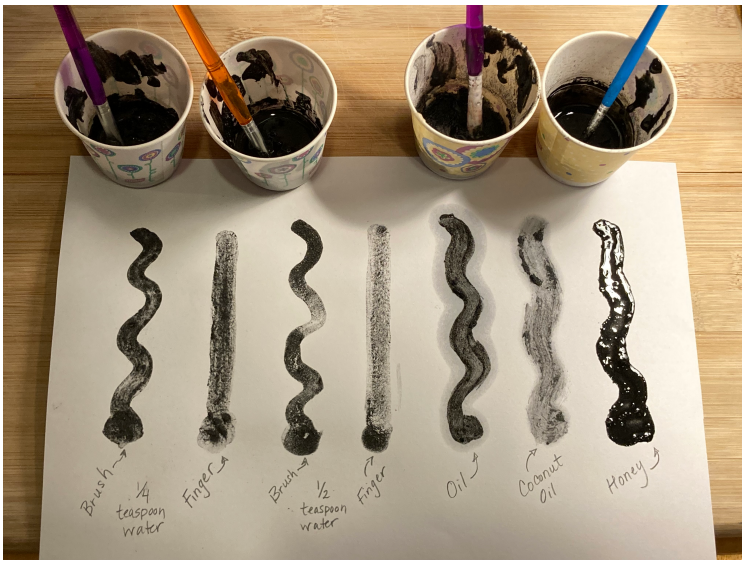


Photo: Charcoal powder paint sampler with water, oil, coconut oil, and honey applied with brushes and by fingers.

- Have students select their favorite pigment (watercolor or fat-based) to paint their personal symbols on a *qayaq* drawing (template attached).

Close and Assessment:

- Students learned about Alutiiq *qayat* and the ways hunters painted symbols.
- Students designed their own symbols inspired by Alutiiq graphic arts.
- Students created a charcoal powder paint sampler.
- Students painted their personal symbols on the *qayaq* outline.
- Students can identify ways of making black paint from natural materials.

Modifications:

- Students can bring in a variety of natural materials to try and create other black pigments. Try grinding local minerals, rocks, and soils. Use the same method

outlined above to create different shades. Then, create a sampler on watercolor paper noting the variables in pencil.

- Students can experiment with adding charcoal powder to other binding agents like fish eggs or oil.
- Students could try painting on artificial gut skin. You can use sausage casing sheets available from online retailers.
- Students can experiment with which paint sticks best to the gut skin? Water-based pigment or fat-based? Record how long it takes the pigments to dry on the gut. Once dry, are these paints water soluble?

Photo: Paint on artificial gut/sausage casing sheet, water-based pigment (left), oil, coconut oil, and honey-based pigments (top to bottom).

Additional Resources:

- Video: How to forage for Natural Pigments! [Jyotsna Pippal: YouTube] (4:36) https://youtu.be/-TTEjbK-YhQ?si=g80WwpRq2nLna3mG
- *Igaruacirpet*—Our Way of Making Designs book developed by the Alutiiq Museum–Chapter 4, Painting
- Alutiiq Arts: Carving: https://alutiiqmuseum.org/alutiiq-people/art/arts-blog/carving/
- *Keligcipet* — Carving Traditions: https://alutiiqmuseum.org/wp-content/uploads/2023/10/CarvingTraditions2022.pdf
- *Percipet* — Bending Traditions: https://alutiiqmuseum.org/wp-content/uploads/2023/12/BendingTraditions2022-copy.pdf
- Alutiiq Arts: Graphic Arts: https://alutiiqmuseum.org/alutiiq-people/art/arts-blog/graphic-arts/
- *Namiutat*—Graphic Arts: https://alutiiqmuseum.org/wp-content/uploads/2023/10/GraphicArts2022.pdf
- Amutat Database: Kayak: https://alutiiqmuseum.org/collection/Search/amutatObjects?search=kayak&view=images&l=all

- Alutiiq Word of the Week Archive: Kayak—*Qayaq*
  https://alutiiqmuseum.org/collection/Detail/word/303
- Alutiiq Word of the Week Archive: Prow, Bow—*Qayam cuunga*
  https://alutiiqmuseum.org/collection/Detail/word/563
- Alutiiq Word of the Week Archive: Measure—*Uspelluku*
  https://alutiiqmuseum.org/collection/Detail/word/665
- Alutiiq Word of the Week Archive: Two-hatched Kayak—*Qayarpak*
  https://alutiiqmuseum.org/collection/Detail/word/601

Quyanaa—Thank you.
This lesson plan was produced with generous support from a Maritime Heritage grant from the Alaska Office of History and Archaeology and the National Park Service.

Qayat Igaa'it
Kayak Designs

Once near a cape at the entrance to a bay, there lived a marine animal about the size of a cat that would capsize all the ***angyat*—open skin boats** that went around the cape. The Alutiiq people considered this place very dangerous and stayed far away from the cape, not daring to come close. One day, a young Alutiiq man decided to kill the animal. To do this, he built a ***qayaq*—kayak** with one hatch and painted one side of the *qayaq* red and the other side black. On the cover of the *qayaq*, he painted the following images.

On the front left, he painted a large clam ***salaq*—shell**, on the front right, a human ***aigaq*—hand**, on the back left, an ***agyaq*—star**, and on the other side, a *qayaq*. He repeated the same figures on his float and the palm of his hands. Then he took a spear with which he had killed five men and left without telling anyone about his plans. In the place where the animal was supposed to be, he heard a sort of whispering, then a lapping. Then he saw the animal moving toward his *qayaq*. "Against me," he said, "you cannot do anything." Then he showed the large clam *salaq* and said, "You see this figure, the *salaq*? It is the power of the sea, which can seize you." Showing the human *aigaq*, he said, "You see this *aigaq*, it is the power of man, who can seize you." Now while displaying the *agyaq*, "You see this *agyaq*, it shows you the power from higher up, which can also seize you." And finally showing the *qayaq*, "You see the *qayaq*, it shows you how it can contain you."

While he was speaking, the animal was circling the *qayaq*. The Alutiiq man grabbed the spear with which he had killed five men, and throwing it, killed the animal. He took the animal's body to the shore and spent the night there. When he returned to the village, everybody thought he was dead. He did not tell anyone that he had killed the beast at first. Then he asked who in the village would go with him toward the cape. When everyone refused, he decided to tell them he had killed the animal.

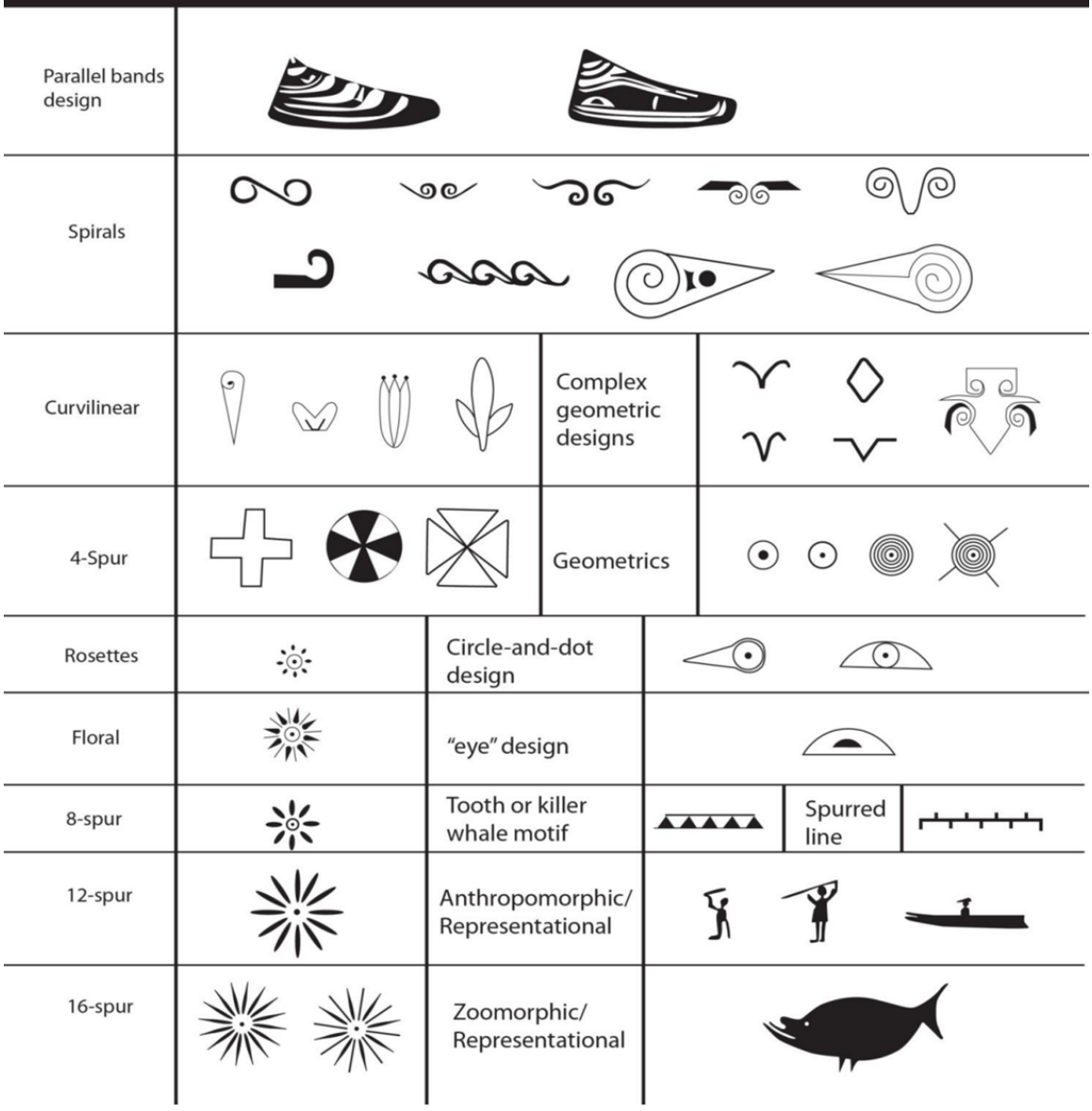
To remember this event, people paint figures on the *qayaq* to protect them if they meet a monster at sea.

Adapted from an Afognak Island legend told to Alphonse Pinart by Nikkepon Celeznoff in 1872, from a translation by Céline Wallace. Pinart Papers, Bancroft Library, University of California Berkeley. See also, Koniag, Inc. (2008:63).

Alutiiq MUSEUM
ARCHAEOLOGICAL REPOSITORY

Painted Elements from Alutiiq and Unangax̂ Hats

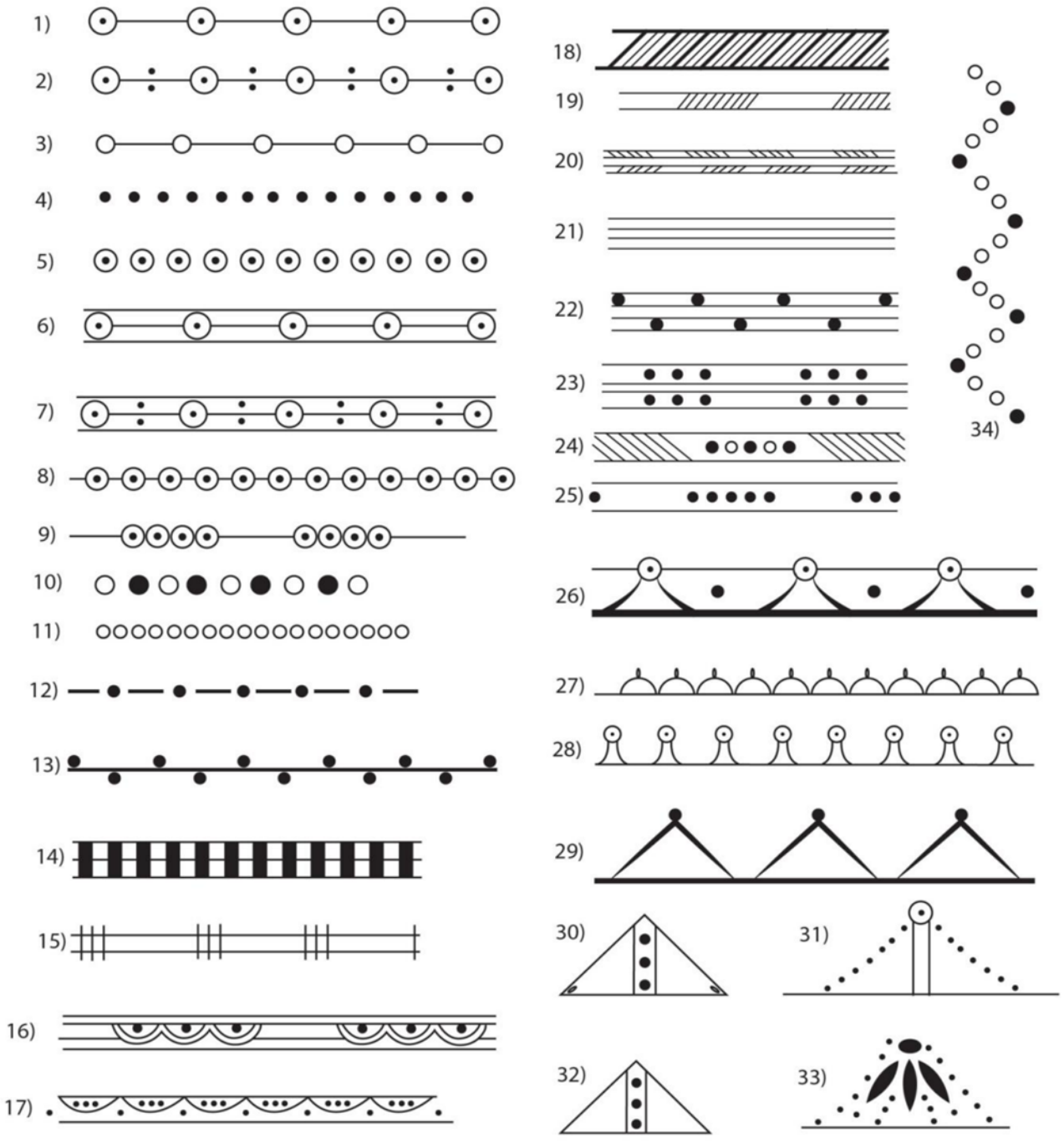
From: Glory Remembered Wooden Headgear of Alaska's Sea Mammal Hunters, Lydia T. Black, 1991, Alaska State Museum, Juneau.



Alutiiq MUSEUM
ARCHAEOLOGICAL REPOSITORY

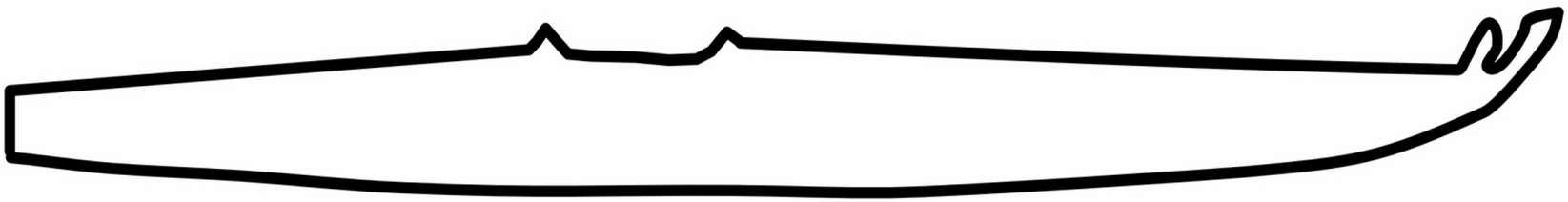
Painted Elements from Alutiiq and Unangax̂ Hats

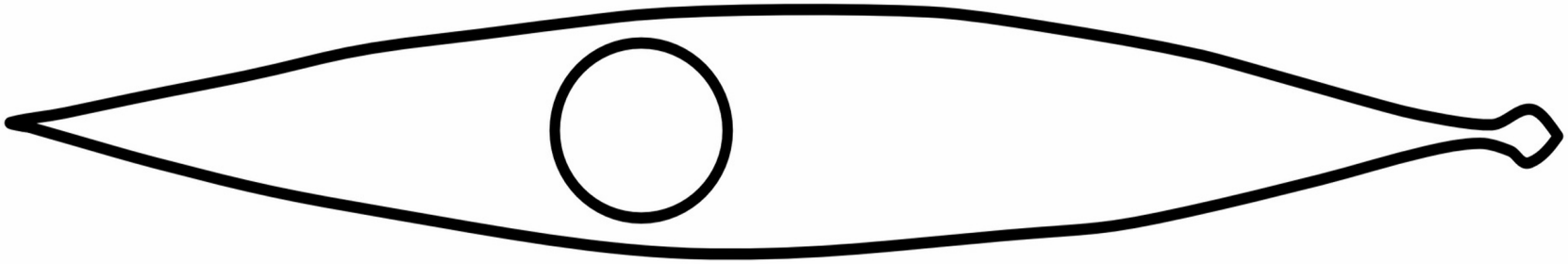
From: Aleut Hunting Headgear and its Ornamentation, S. V. Ivanov, 1930, Proceedings of the Twenty-third International Congress of Americanists.



Qayat Igait—Kayak Designs

Template for Painting





Subsistence Lesson Plan

Grade: 6th-8th
Time: 2 days
Lesson Description: Students will learn seasonal harvesting, the tools and techniques used, and the ways Alutiiq people preserved and stored food.

Photo: Salmon hanging in Herman Squartsoff's smoke house.

Kit Includes:

- *Imaken Ima'ut*—from the Past to the Future (book)
- Subsistence worksheet

Materials Needed:

- Internet access

Alutiiq Vocabulary	Art Elements	Art Principles	Content Connections
Suumacirpet—Subsistence *Pisurta*—Hunter *Iqallugsurluni*—Fishing *Animal—Unguwallriaq* *Uksuq*—Year	☐Line ☐Shape ☐Color ☒Value ☐Texture ☒Space/ Perspective	☒Pattern ☐Rhythm/ Movement ☒Proportion/ Scale ☐Balance ☐Unity ☒Emphasis	AK Cultural Standards AK Art Standards AK Science Standards

Objectives and Assessment Criteria:

Students will learn…

- How and when animals were introduced to the Kodiak Archipelago.
- What season different subsistence is harvested.
- The different harvesting tools and techniques used by Alutiiq people in the past and present.
- The ways Alutiiq people preserved and stored food.

Cultural Relevance:

There is no easy way to translate the word subsistence into the Alutiiq language. Westerners often think of subsistence as the process of obtaining and eating wild foods, an alternative to buying groceries. This definition, however, fails to capture the complexities of living off the land.

To the Alutiiq people, subsistence is life. Collecting wild foods is not simply an economic activity, but a central component of social and spiritual life. Through hunting, fishing, and gathering, Alutiiq

people experience and express their Native identity. They explore their deep and enduring connection to the land. They care for their families and communities. They celebrate and sustain life.

To Alutiiq people, subsistence is also a birthright, a way of living passed down from ancestors that has sustained countless generations. As one Alutiiq leader puts it, "it's being who you are." While not a literal translation of the word subsistence, *suumacirpet*, "our way of living," expresses these many connections.

Create:

Day 1:

- Ask students if they go berry picking, fishing, hunting, or foraging for wild resources in Kodiak. Ex: hunting or fishing for food, collecting plants for medicine, gathering wood for a fire, etc.
    - At what time of the year or season do they gather different subsistence items?
    - Who did they go with? Friends, family, Elders?
    - What did they learn about the different plants and animals? Who did they learn from?
    - What do they do with the different items they collected? Make a healing salve, eat a fish, share with others?
- Read the Cultural Relevance section about subsistence to your students.
- Remind students that it is very important to be 100% certain you are identifying the correct items before eating or touching things when harvesting wild resources.
- Explain to your students that they will be researching and learning about the different subsistence items available throughout the year.
- Divide students into groups. Provide each group with a different subsistence category to research:
    1. Riverine/lake fish
    2. Marine fish
    3. Sea mammals
    4. Terrestrial birds (Birds on land, lakes, and rivers)
    5. Sea birds
    6. Land mammals
    7. Plants and Seaweed*

    *If students choose plants and seaweed, have them learn about introduced species, native species, and invasive species. Students should also understand the complexity around plant introductions. These are helpful resources for plants:
        - Online Plant Gallery: https://alutiiqmuseum.org/alutiiq-people/subsistence/plant-gallery/
        - *Naut'staat Alutiit'stun*—Plants in Alutiiq Society: https://alutiiqmuseum.org/wp-content/uploads/2024/01/PlantsInSociety2022.pdf
        - *Naut'staat Neq'rkaqlluki*—Plants as Food: https://alutiiqmuseum.org/wp-content/uploads/2024/01/PlantsAsFood.pdf
        - Plant Crafts: https://alutiiqmuseum.org/alutiiq-people/subsistence/plant-crafts/
- Provide students with the subsistence worksheet. Explain to your students that they will research what season the subsistence is harvested, what tools are used in the past and present, and how the subsistence harvests were preserved and stored.
- Provide students with internet access or print these handouts for your class in advance.
    - *Uksuq*—An Alutiiq Year Traditions Handout

https://alutiiqmuseum.org/wp-content/uploads/2024/01/AlutiiqYear2022.pdf
    - *Cisllaaq*—Calendar Traditions Handout

https://alutiiqmuseum.org/wp-content/uploads/2024/01/Calendar2022.pdf
    - Harvesting Traditions: https://alutiiqmuseum.org/alutiiq-people/subsistence/#traditions

    - Identifying Ancestral Tools: https://alutiiqmuseum.org/museum/collections/alutiiq-technological-inventory/
    - Visit the Alutiiq Museum's website to see videos of Elder's talking about harvesting and preserving foods: https://alutiiqmuseum.org/alutiiq-people/subsistence/wild-foods-videos/
    - Coloring *Iqalluut*—Fish Publication: https://alutiiqmuseum.org/wp-content/uploads/2024/01/ColoringFish.pdf
- You can also print these Word of the Week lessons in advance and provide them to your students.
    - Alutiiq Word of the Week: Pit, hole in the ground—*Laakaq* https://alutiiqmuseum.org/collection/Detail/word/837
    - Alutiiq Word of the Week: Seal Stomach—*Isuwim Suqaa* https://alutiiqmuseum.org/collection/Detail/word/439
    - Alutiiq Word of the Week: Fish Rack—*Initaq* https://alutiiqmuseum.org/collection/Detail/word/233
    - Alutiiq Word of the Week: Hang (to)—*Iniluku* https://alutiiqmuseum.org/collection/Detail/word/831
    - Alutiiq Word of the Week: Floor—*Nateq* https://alutiiqmuseum.org/collection/Detail/word/238
    - Alutiiq Word of the Week: Basket—*Inartaq* https://alutiiqmuseum.org/collection/Detail/word/77
    - Alutiiq Word of the Week: Fermented oil, berry pulp & vegetables—*Tugluq* https://alutiiqmuseum.org/collection/Detail/word/608
- Once students have explored the resources and completed the subsistence worksheet. Have a classroom discussion.
- It is important to note that there are laws that regulate subsistence. Certain laws regulate seasons that people can collect and hunt. Subsistence may also be different in each village. Different villages may follow different subsistence schedules.

Day 2:

- Ask students what animals are native to Kodiak Island.
    1. Brown Bear
    2. Red Fox
    3. River Otter
    4. Short-tailed Weasel
    5. Bats
    6. Tundra Vole
- Explain to students that some animals were introduced to Kodiak by people. They were intentionally brought to Kodiak to provide resources for the people who live here. Some introductions were successful, while others failed.
- Have students use the publication to learn about Kodiak's animal introductions. You can also provide students with the excerpt and table provided in the lesson plan.
    - Animal Introductions (Page 121) *Imaken Ima'ut*—From the Past to the Future (book)
- Have a classroom discussion on the uses these animals provide for subsistence. Ex: Deer for food. Once students learn about animal introductions and their use for subsistence, transition into another important topic: weather.
- It is important for students to recognize and understand how much the weather affects subsistence. If the weather is too hot or cold, it affects the food available for harvest. For example, plants will either not grow or will die too fast. Clams may carry toxins bad for human consumption due to a few factors, including changes to water temperature. This is known as Red Tide. Stormy weather can also prevent harvesters from going out on the water to hunt or fish.

- Discuss the importance subsistence has on communities and the many factors that contribute to sustainability. It is a way of life and people rely on the natural resources and food provided by the environment. If a resource is not available, that can impact a community. People and animals can go hungry or be forced to use other resources, move to a new area, trade with neighbors, etc.
- Respect for the land is another important aspect of harvesting in Alutiiq culture. Alutiiq people harvest respectfully, taking what they need. For example, if someone harvests from a salmonberry patch, they do not take all the berries. They will leave some for others and for animals.

Close and Assessment:

- Students learned how and when animals were introduced to Kodiak.
- Students successfully completed the subsistence worksheet.
- Students learned tools and techniques used for harvesting in the past and the present.
- Students learned the harvesting seasons and ways Alutiiq people preserved and stored food.

Modification:

- Have students compare and contrast the different harvesting tools and techniques used in the past and the present. Students can record their finds on a Venn diagram.
- Take a fieldtrip to the Alutiiq Museum to see the different harvesting tools and food preservation items in the museum's collections.

Additional Resources:

- Alutiiq Word of the Week: Berry—*Alagnaq*
  https://alutiiqmuseum.org/collection/Detail/word/120
- Alutiiq Word of the Week: Berry Picking—*Nunaquluni, Alagnarsurluni*
  https://alutiiqmuseum.org/collection/Detail/word/121
- Alutiiq Word of the Week: Plants—*Naut'staat*
  https://alutiiqmuseum.org/collection/Detail/word/393
- Alutiiq Word of the Week: Eggs—*Manit*
  https://alutiiqmuseum.org/collection/Detail/word/218
- Alutiiq Word of the Week: Jam—*WaRiinyaq*
  https://alutiiqmuseum.org/collection/Detail/word/849
- Alutiiq Word of the Week: Spices—*Piturni'isuutet*
  https://alutiiqmuseum.org/collection/Detail/word/652
- Alutiiq Word of the Week: Summer—*Kiak*
  https://alutiiqmuseum.org/collection/Detail/word/490
- Alutiiq Word of the Week: Winter—*Uksuq*
  https://alutiiqmuseum.org/collection/Detail/word/547
- Alutiiq Word of the Week: Spring—*Ugnerkaq*
  https://alutiiqmuseum.org/collection/Detail/word/472
- Alutiiq Word of the Week: Fall, Autumn—*Uksuaq*
  https://alutiiqmuseum.org/collection/Detail/word/225
- Alutiiq Word of the Week: Year—*Uksuq, Kiak* (during Russian times)
  https://alutiiqmuseum.org/collection/Detail/word/553

Name:_____ Date:_____

Subsistence Worksheet

Subsistence Category: _____

Past:

Subsistence Item:	Season of Harvest:	Tools & Techniques:	Preservation & Storage:

Present:

Subsistence Item:	Season of Harvest:	Tools & Techniques:	Preservation & Storage:

Box 5.2. Animal Introductions

"When you introduce a new species into a Native lifestyle, it's not like drinking a new soda pop or eating a new ice cream. It takes a long time."

An Afognak village resident on the introduction of elk. From Tennessen 2021:89.

Old Harbor Elders remember when *tuntut*—deer started to appear on the beaches surrounding Sitkalidak Strait (Figure 5.19). At first, people thought the animals were strange. Ungulates are not indigenous to Kodiak, but Alutiiq ancestors knew about caribou, moose, and goats. They traveled to the Alaska mainland for thousands of years to hunt these animals, and they traded for products like horn, hide, and antler. However, the little Sitka blacktail deer, released on Kodiak in the 1920s, looked out of place to Native hunters who were used to pursuing ducks, seals, and bears. But the Alutiiq are adaptable and as these new residents thrived, deer meat made its way to dinner tables. Today, deer is a favorite subsistence food, and most Alutiiq people don't remember a time before the animals were part of their annual harvesting traditions. For many families, deer meat has become a central food source, taking the place of the bear and sea lion meat that were once widely eaten.

Deer are among the most successful of Kodiak's animal introductions, but at least twenty other species were released in the archipelago over the last century (Table 5.2). Why? Biologists brought some animals to provide local economic opportunities. The U.S. government introduced a herd of reindeer to southern Kodiak as a food and income source for the people of Akhiok. To support trapping after the decline of the fur trade, beavers and other fur bearers were added to the Kodiak landscape. Martens and red squirrels were introduced together—martens for trapping and red squirrels to feed them. Other animals were intended for hunting. Deer and elk were released for subsistence harvesting. Mountain goats were added to Kodiak to develop trophy hunting opportunities for sportsmen.

For the most part, Alutiiq people welcomed the introductions and where appropriate adopted them for food and material. Today most of the new animals are seen as a part of the landscape and advantageous natural resources. Only a few animals are considered pests. People find red squirrels (Figure 5.20) annoying because they damage houses, and beavers create dams in salmon streams, making a mess of waterways and blocking fish runs.

Figure 5.19. Sitka blacktail deer on Sitkinak Island, 2021. AM997. Photo by Patrick Saltonstall.

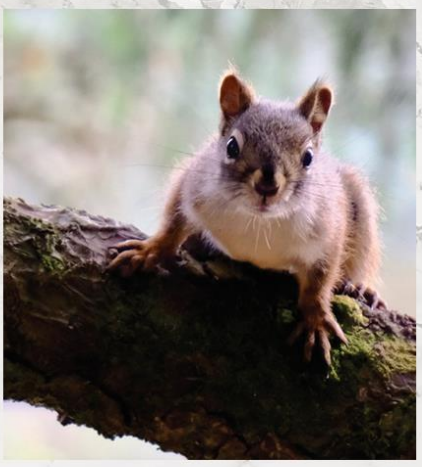


Figure 5.20. A red squirrel in a spruce tree, Kodiak Island, 2022. AM725. Photo by Patrick Saltonstall.

Table 5.2. Animals introduced to Kodiak in the twentieth century

Year Introduced	Animal	Outcome
1890s, 1924, 1934	Sitka Blacktail Deer *Odocoileus hemionus sitkensis*	Successful
1924	Reindeer *Rangifer tarandus*	Successful
1925, 1929	Beaver *Castor canadensis*	Successful
1925	Muskrat *Ondatra zibethicus*	Successful
1928–29	Roosevelt Elk *Cervus elaphus roosevelti*	Successful
1934	Snowshoe Hare *Lepus americanus*	Successful
1930s, 1970s	Raccoon *Procyon lotor*	Failed
1952	Mink *Neovison vison*	Failed
1952	Red Squirrel *Tamiasciurus hudsonicus*	Successful
1952	Marten *Martes americana*	Successful
1952–1953	Mountain Goat *Oreamnos americanus*	Successful
1957	Spruce Grouse *Falcipennis canadensis*	Failed
1962–1964	Blue Grouse *Dendragapus obscurus*	Failed
1964–1967	Dall Sheep *Ovis dalli*	Failed
1966–1967	Moose *Alces alces*	Failed
1973, 1975, 1986	Vancouver Canada Goose *Branta canadensis fulva*	Successful
1984	European Hog *Sus scrofa*	Failed
1980s; 2010s	Plains Bison *Bison bison*	Successful

Adapted from Tennessen 2012

Alutiiq Plant Journaling

Photo: *Uqgwik*—Sitka Alder Leaves

Kit Includes:

- Plant Gallery: https://alutiiqmuseum.org/alutiiq-people/subsistence/plant-gallery/
- *Naut'staarpet*—Our Plants publication

Materials Needed:

- Watercolor Paint (red, blue, green, white, black, gray, and brown)
- Watercolor Paper
- Pencil
- Paint Brush

Alutiiq Vocabulary	Art Elements	Art Principles	Content Connections
Mun'arta—Artist *Naut'staat*—Plants *KRaasirluni*—Paint, Color *Tan'erluni (N), Tamlerluni (S)*—Black *Kawisqaq*—Red *Qatesqaq (N), Qat'sqaq (S)*—White *Cungak, Cungasqaq*—*Blue/Green* *Cuyaq*—*Leaf*	☒Line ☒Shape ☒Color ☒Value ☒Texture ☒Space/ Perspective	☒Pattern ☐Rhythm/ Movement ☒Proportion/ Scale ☒Balance ☐Unity ☒Emphasis	AK Science Standards AK Art Standards AK Cultural Standards

Create:

- Talk with your students about how they use plants in their daily life – plants they eat, plants that are used medicinally, and plants that they notice. Talk about plants that they see in Kodiak versus plants that they see in other places.
- Have students explore the Naut'staarpet — Our Plants publication and/or online plant gallery: https://alutiiqmuseum.org/alutiiq-people/subsistence/plant-gallery/
- Have students pick a plant that they would like to journal and learn more about.
- You can also go on a plant walk and collect leaves with your students or print out images of the leaves for them to use.
- Provide the students with watercolor paint and paper. Have them paint all over the paper using brighter traditional Alutiiq colors. Red, blue, green, and white. Let it dry.
- Once the paper is dried, have students place the leaves on top of the paper and use a pencil to trace the shape of the leaves in detail.
- After tracing the leaves, use darker colors, black, gray, and brown, to paint around the leaves drawn in pencil. This will highlight the leaves. Do not paint inside the area of the traced leaves.
- After the students finish painting, let it dry again. Once dried, have the students write the Alutiiq name for the plant on their paper.
- Then have them use the publication and online plant gallery to learn more about the plant they journaled and write the traditional uses for the plant on the back of their paper.
- Once completed, have the students share what they have learned with the class.