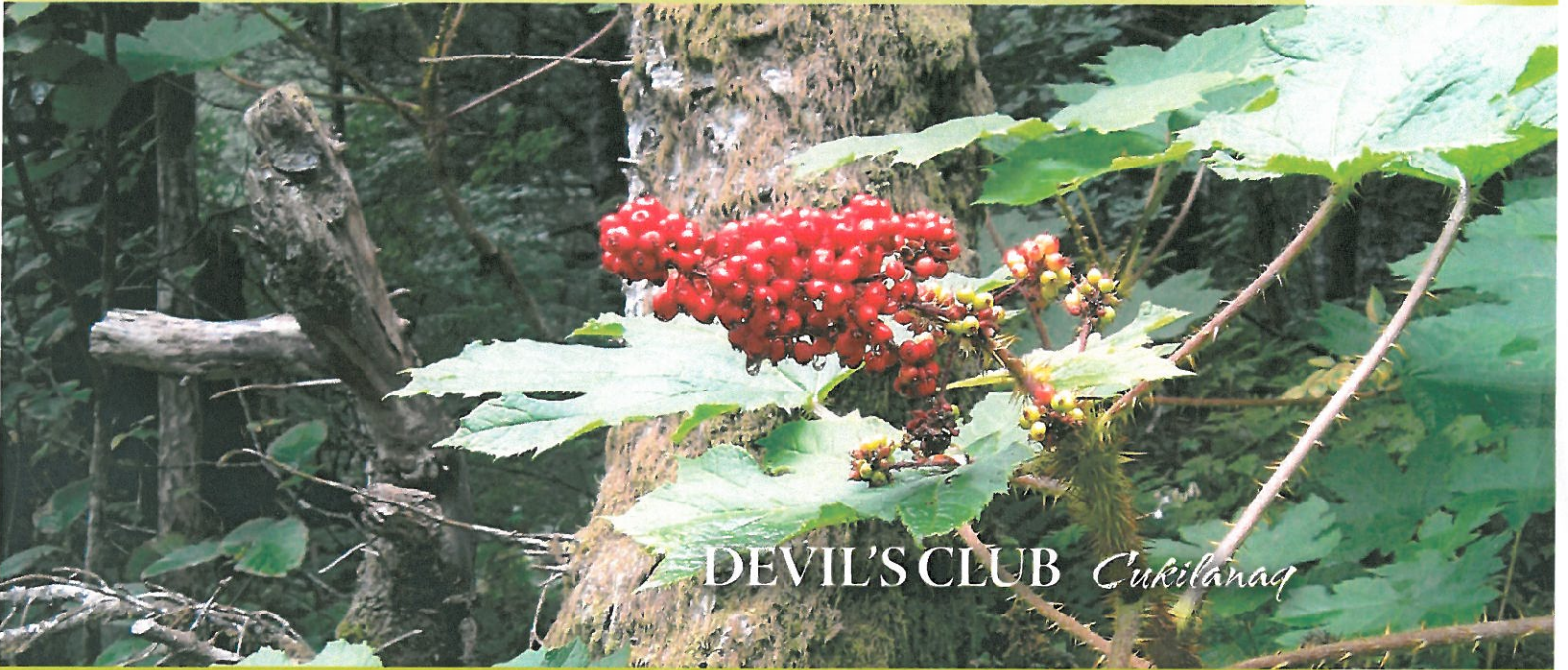


# The Healing Power of Alaska's Plants



DEVIL'S CLUB *Cuckilanaq*

## EXHIBIT GUIDE



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# **Healing Power of Alaska Plants**

## **A Chugach Heritage Kit**

**Developed by:  
Frances Bennett and Sandra Angaiak**

## **Rationale**

Sugpiaq/Alutiiq healers have a long history of using plants as medicine. Their knowledge includes more than the names of the plants and the conditions for which they are used. The healer's knowledge includes the location of plant resources, part of the plant used as medicine, time of the year plants are to be gathered, method of preparing traditional medicines, and ways to preserve and store both the plant and medicines made. Traditionally, the people have depended upon plants to heal their bodies, minds, and spirits.

A young person learned to use plants by going out with a knowledgeable and trusted Elder or Recognized Expert. The culture's ties to plants and healing are woven into each community. Knowledge of plant and healing has been shared by observation and stories from an Elder or Recognized Expert such as an experienced herbal practitioner within the cultural setting. Herbs are part of healing.

As the primary producers in every food chain, plants are the foundation for life on Earth. Plants provide food, shelter, and oxygen. Plants clean the air, provide a variety of useful products to humans, heal our bodies, and make the world more beautiful. Learning more about individual plants deepens our understanding of the interconnections between people, plants, and the environment.

### Safety Notes:

Instructors should emphasize that all medicines, including traditional medicines, should only be taken when prescribed by a doctor or trusted adult. Many plants in this northern environment look alike. Some of the look-alikes pose extreme danger — for example, yarrow and water hemlock look similar. Yarrow is a traditional medicinal plant while water hemlock is a deadly poison. Plants should only be collected with the oversight of an Elder or Recognized Expert who has thorough knowledge of the subject.

## **Background**

In this Health and Wellness unit, students will explore local plants which will be collected, identified, and used. Students will learn to respect the land around them and appreciate the natural resources. Students will be taking short field trips during this unit to gather plants and plant materials. Teachers may want a digital camera to use during lessons. The unit is designed to take two weeks to complete, though this unit can be ongoing as student and Elders collect plants seasonally and prepare traditional medicines from these plants. Each lesson should take about 30 minutes. By participating in this unit, students should acquire the following understanding:

- Many medicines come from plants.
- Protecting medicinal plants is important for preserving possible sources of medicines.
- Plants are vital to human survival.
- Plants contain chemicals that can be used as medicines.

- Native medicinal plants are threatened by habitat loss, over harvesting, and use of chemicals.

The unit can be added as a cultural component to standard curriculum units on medicines or the study of plants.

### **Enrichment**

Develop a school herbal garden that would provide a good growing environment for medicinal plants and edible herbs. In villages and larger communities with plant societies, adults and students can work together to plan and develop the garden.

### **Materials**

- Crowell, Aron, Amy F. Steffian, and Gordon L. Pullar. 2001, *Looking Both Ways, Heritage and Identity of the Alutiiq People*. Fairbanks, AK, University of Alaska
- Garibaldi, Ann. 1999, *Medicinal Flora of the Alaska Natives*, Anchorage, AK, Alaska Natural Heritage Program
- Heller, Christine. 1993, *Wild Edible and Poisonous Plants of Alaska*, Fairbanks, AK
- Partnow, Patricia H. *Making History Alutiiq/Sugpiaq Life on the Alaska Peninsula*
- Russell, Priscilla. 1991, *English Bay and Port Graham Alutiiq Plantlore*, Homer, AK, Pratt Museum
- Schofield, Janice J. 1993, *Alaska's Wild Plants* Anchorage, AK, Alaska Northwest Books
- Shield, Sophie, Feona Sawden, and Seraphim Ukatish. 1999, *Nupugut*, Anchorage, AK, Chugachmiut, Inc.
- Viereck, Eleanor G. 1987, *Alaska's Wilderness Medicines*, Anchorage, AK, Alaska, Northwest Books

### **Websites:**

- <http://www.alaskaoutdoorjournal.com/Departments/Recipes/Jams/fireweedjelly.html>
- <http://www.northstar.k12.ak.us>
- [www.uga.edu/~botgarden](http://www.uga.edu/~botgarden)
- [www.botanical.com](http://www.botanical.com)
- [http://t230.com/poison\\_plants.htm](http://t230.com/poison_plants.htm)



# **Level 1 Kindergarten to Third Grade**

# Parts of Plants

**Grade:** K-3

**Estimated Time:** 30-90 minutes

## Standards

### Background

Most plants have the same basic components, root, stem, leaf, reproductive organs, even though they may look different. Use worksheets, books and live plants to discuss and describe the different parts of plants. Depending on the level of the classroom, more detailed anatomy vocabulary may be used (e.g., flower anatomy).

### Objectives

Students will identify the names of basic plant parts: Flower, fruit, stem, leaf, root and seed in both English and Sugcestun and will be able to explain their functions. If your students are familiar with basic plant anatomy then move forward with parts of the leaf, or plant descriptors like inflorescence (flower cluster descriptions) or corolla (petal arrangements), types of leaves, leaf margins, leaf arrangement. Some of the more scientific names and descriptors may not have a Sugcestun word, but have an elder teach them when you can.

### Vocabulary

Sugcestun:

English: Seed, root, stem, leaf, flower, fruit.

### Materials/Resources

Paper

Glue/tape

Scissors

Ziploc™

Cups

Soil

Seeds

Worksheets (Plant, Tree, and Flower Anatomy: fill in the blank, matching and puzzle)

Books found in library, science curriculum

Elder or Recognized Expert

### Teacher Preparation

Find a book appropriate to your classroom to read about plant anatomy.

Plan with LEC and an elder to teach the Sugcestun names of plant parts.

Have students plant seeds before the exhibit comes to the village so the students may learn from their own plants.

### Activity Procedure

1. Read the book you have chosen to your class. Discuss the different parts of plants and their functions with students.

2. If students have planted their own plants, have them identify the parts of their plant.
3. Have the Elder teach the Sugcestun names of the plant parts.
4. Have your students draw or collect parts of plants from their own plant to make their own plant anatomy book. There are a number of ways to put the book together, but having the plant parts taped or glued onto a piece of paper then put into Ziploc™ bags that are stapled together may be the easiest way to ensure the plant parts stay with the book.
5. Use worksheets as necessary
6. Other fun activities can be made with this:
  - a. Put a packet of flash cards on each student's desk, name the plant part or their use and have the students pick up the puzzle piece they think matches and putting it on their forehead before comparing with other students to see the correct answer.
  - b. Allow students to cut out and color plant part puzzles using the plant anatomy worksheet and drawing puzzle lines on it.
  - c. Have students each choose a plant part and place themselves on the floor to make the shape of the plant (pictures of this would be fun, especially if the elder was helping the kids).



# Plants We Use

**Grade:** K-3

**Estimated Time:** 90 minutes

## Standards

### Objectives

Students will collect plants with an Elder or Recognized Expert and identify the names of the plants and the parts learned in K-3 #1 in both English and Sugcestun.

### Vocabulary

Sugcestun:

English: Seed, root, stem, leaf, flower, fruit, bark, (names of local plants near school appropriate for K-3 to gather)

### Materials/Resources

- Shield, Sophie, et al. *Nupuket*, pages 52-53 and 42-43
- Udry, Janice M. *A Tree Is Nice (K-1)*, or *Kids Herb Book*
- *Nupuket* posters or flashcards  
Numbers: 107 to 111, 118, 119, 120 to 122, 192, 195, 214, 221, 289 to 291, 293 on a bulletin board and a second set on a table for the Assessment
- Ziploc™ bags
- Digital camera
- Heavy paper

### Teacher Preparation

- Check with the LEC at least four weeks before Heritage Kit comes to school to see what kinds of plants will be available for gathering and which Elder or Recognized Expert may be available to assist. Pre-determine the kinds of plants that will be collected and the places that the class will go.
- Contact parents to give them information on plants that will be collected and used and find out if there are allergies or sensitivities that their child may have.
- If using *Nupuket* posters, have students from upper grades color them to make them more interesting.

### Activity Procedure

1. Read *A Tree Is Nice* (or other book that is appropriate for the class) and discuss:
  - all of the ways how the tree in the story was used
  - who used the tree
  - ways trees are used in the community.

2. Look out the classroom window or walk a short distance from the school to look at all the different kinds of trees in the local environment. Take samples of leaves and bark to be used for mural or display.
3. Prepare students for the field trip. Introduce the Elder or Recognized Expert and talk about what will happen. Give the Elder or Recognized Expert time to explain how to show respect for the environment.
4. Take photos of Elder or Recognized Expert working with students in the field.
5. Upon return to the classroom, use some of the collected plants in plant posters which show root, stem, leaf, and flower and the different names (English and Sugcestun) of the plants collected.



# Seed Charts

**Grade: K-3**

**Estimated Time:**

**Standards**

**Background**

As they work, kids often get a chance to see different kinds of seeds, but it can be hard to remember which ones end up becoming what. Here's a "full plate" activity that lets your kid connect seeds with grown plants while practicing reading and writing skills, too. And when the plate is complete, your students will have a handy chart to refer to, season after season!

**Objectives**

Students will learn to identify and classify different types of seeds.

**Vocabulary**

Sugcestun:

English: seed, names of plants that seeds grow into

**Materials/Resources**

- Plain white paper plate
- Ruler
- Tacky Glue
- Markers, crayons, colored pencils
- 8 kinds of seeds: there are a number of seeds for plants traditionally used for medicinal purposes available for purchase or you may want to go collect seeds with an Elder or Recognized Expert if they are available. If not, marigold, bean, pea, sunflower, apple, watermelon, radish, Swiss chard, and spinach provide a great variety of seeds.
- Photos of plants for which there are seeds

**Teacher Preparation**

Ask the LEC to coordinate an Elder visit.

**Activity Procedure**

1. Start by using your ruler to draw a firm black line across the diameter of your plate four times, so that you divide it first into halves, then into quarters, and then into eighths.
2. In each segment, invite your child to place a seed she likes, and glue it down near the bottom of the slice, close to the plate's center. Right above the seed, have the student draw or paste a picture of what the plant or flower looks like when the seed has grown.
3. Around the outside edge, help your child write (or dictate so that you can write) the name of the plant. Have the elder or recognized expert teach the Sugcestun name for the seeds. When they're done, the student will have a "seed wheel" to use as a reference for their garden for seasons to come.

# Leaf Anatomy

**Grade:** K-3 (can be upgraded to 4-8)

**Estimated Time:** 45-90 minutes depending on if leaves are collected already or if an Elder or Recognized Expert leads a field trip to collect leaves

## Standards

### Background

Leaves come in many shapes and sizes and are one of the main ways that plants are identified. Leaves are very important to plant life because they produce and store energy (food) for plants and they even “breathe” for plants. Depending on the level of your classroom simple leaf anatomy may be discussed or you may want to introduce the multitude of descriptors for leaf morphology.

### Objectives

Students will be able to identify the different parts of a leaf, will understand that leaves are one of the ways different plants are identified, produce and store energy and “breathe” for the plant.

### Vocabulary

Suggestun:

English: leaf, breathe, energy, photosynthesis, shape, margin, potentially descriptors for shape and margin, names of plants from which leaves were collected depending on class.

### Materials/Resources

- Plain white paper
- Crayons or chalk
- Pencils
- Leaves of various sorts
- Worksheets
- Flash cards
- Small pictures of plants that were/are going to be collected

### Teacher Preparation

Plan with LEC and an elder to take the field trip.

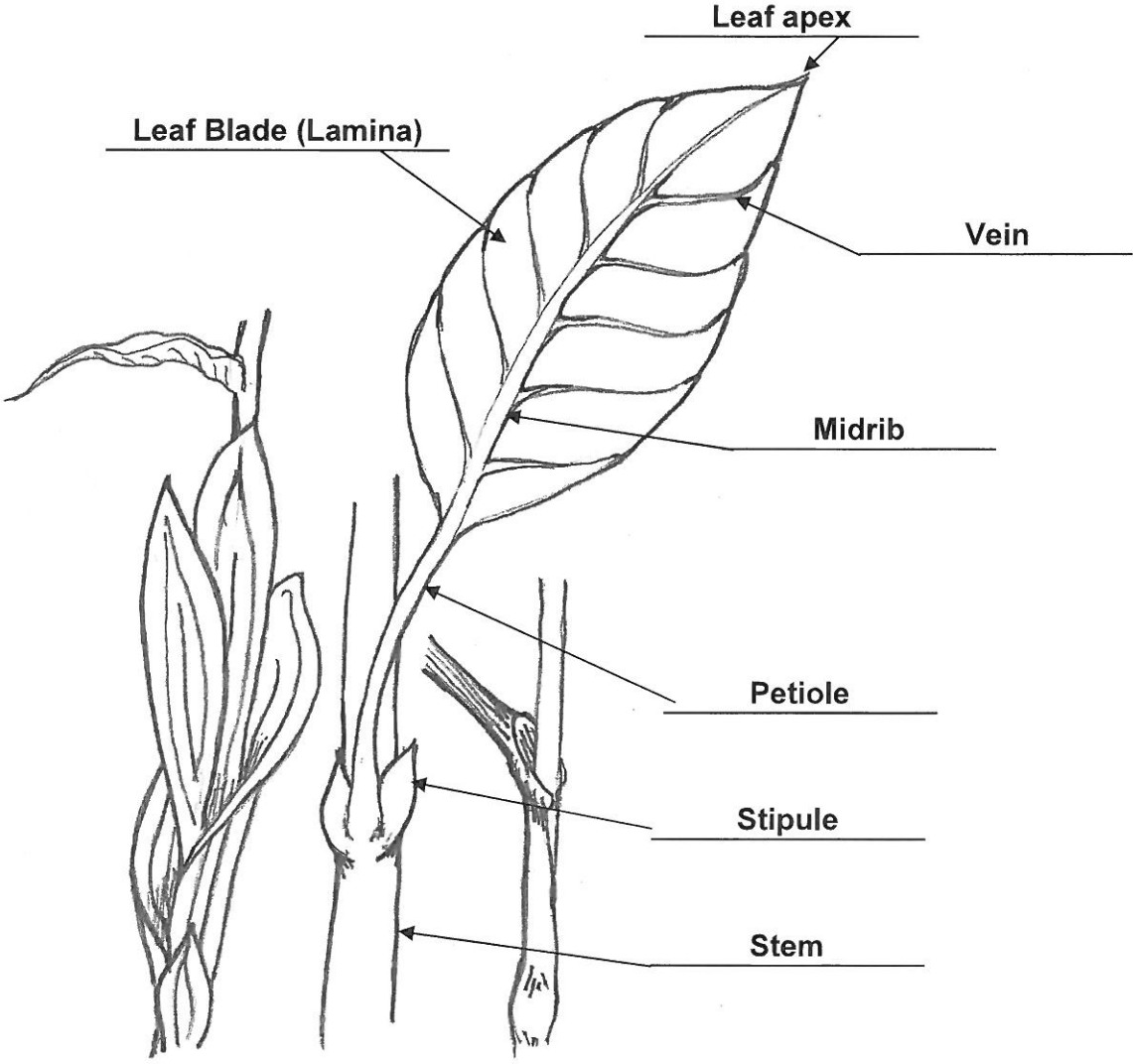
### Activity Procedure

Depending on the level of your classroom there are a number of activities that may be appropriate:

1. Have students work in pairs or small groups. Ask them to examine their leaves and sort them into groups. They get to decide what criteria they will use to sort the plants. Ask them
  - a. What are some of the differences?
  - b. What do the leaves have in common?
  - c. Do the leaves have teeth?
  - d. Do they have hairs? Where?

- e. What do the leaves feel like?
  - f. Who found the biggest leaf? The narrowest leaf? The smallest leaf?
  - g. Can they trace the veins on their leaves with their fingers?
  - h. Have them compare leaves to needles.
2. Discuss leaf anatomy (and morphology if appropriate). Teach the names of the parts of leaves (including their shapes and edges if appropriate) in English. Have an Elder or Recognized Expert teach the Sugcestun names of the parts of leaves, shapes and edges.
3. Have students label the parts of leaves, shapes and edges on a worksheet.
4. Take a field trip to gather leaves with an Elder or Recognized Expert and learn their English and Sugcestun names, then bring them back to the classroom.
5. While in the field ask the students more questions about how the leaves grew:
  - a. Where on the branch do they grow?
  - b. How are they attached?
  - c. Do the leaves grow far apart from each other, close together or in clumps?
  - d. If the leaves are needle-like, how many needles are in each cluster?
  - e. Are all of the clusters the same length?
  - f. Do all leaves on the tree match exactly?
6. Continue exploring the plants
  - a. Are one plant's leaves larger than another?
  - b. If leaves on one plant grow a certain way, is that similar to another plant?
  - c. What is similar or different about these two plants?
7. When the students return to the classroom here are some activities to do:
  - a. Have the students press the leaves, do rubbings or prints or put together a collage or mobile of all of the different leaf shapes they were able to find (use leaf morphology sheet). Have the students label their leaf rubbing or print with the names of the parts (and if appropriate shape and edge) or have them identify on their mobile or collage the leaf parts, shapes and edges.

# Leaf Anatomy



# Some Plants are Dangerous

**Grade:** K-3

**Estimated Time:**

**Standards**

Skills for a Healthy Life (A3)

**Background**

Water hemlock and baneberry are two common plants in South Central Alaska that are very poisonous. Water hemlock is the plant that was used to kill Socrates and ingestion of as few as 6 Baneberries has been known to cause death of a small child (Pratt 1991). Both of these poisonous plants look similar to other plants that are used regularly for traditional medicinal purposes as well as for food. Water hemlock can be confused with cow parsnip, wild celery or even devil's club. Baneberry can be confused with high bush cranberries elder berries or red currants. Distinguishing between the plants is difficult according to Heller (1993) the only way to positively separate water hemlock from non-poisonous plants is to cut open the roots. Having an Elder or Recognized Expert for this activity is very important.

**Objectives**

Students will learn to identify plants that are dangerous and distinguish between them and similar looking non-poisonous plants. This will increase their comprehension of the world around them and help them stay safe.

**Vocabulary**

Sugcestun: \_\_\_\_\_, \_\_\_\_\_, cukilanarpak, qalakuak, \_\_\_\_\_, kawirqaq qunisiq, \_\_\_\_\_....

English: Cow parsnip, wild celery, devil's club, high bush cranberries, elder berries, red currants, water hemlock, baneberry, poison, poisonous, danger, dangerous,

**Materials/Resources**

- Enlarged photographs of local plants that are considered dangerous or harmful (could be more than just water hemlock and baneberry).
- Detail photographs of leaves, stems, flowers, and berries
- Enlarged photographs of other plants from around the community

**Teacher Preparation**

- Work with an Elder or Recognized Expert and the Local Education Coordinator to gather pictures of plants that are considered dangerous in different ways.
- Make 8.5" x 11" or larger "posters" showing the plant in its usual environment and smaller 3" x 5" cards showing details. These should be printed in full color.
- For the permission slips for the field trip, make sure the plants you will be collecting are described so any student's allergies may be taken into consideration.

**Activity Procedure**

1. Teach the words "poison," "poisonous," "danger," and "dangerous." Give the definition for each word.



2. Have an Elder or Recognized Expert lead a field trip to identify plants that are dangerous. Describe the plants' environment. Samples of wild celery and devil's club may be taken back to the classroom. Do not collect or even touch water hemlock and baneberry while children are present.
3. Using plant samples or photographs of wild celery and devil's club begin a discussion to identify the dangers. Look at leaves and flowers to find differences and similarities.
4. Have an Elder or Recognized Expert explain how the wild celery and devil's club plants are traditionally used.
5. Show pictures of the two poisonous plants. Discuss what a child should do if they happen to find either plant nearby.
6. Compare the pictures of leaves, flowers, and berries of the two plants with plants that are similar.

# Where Plants Grow (Habitat)

**Grade:** K-3

**Estimated Time:** 30 minutes

## Standards

### Background

Plants, like other living things, need certain things to grow. All plants need food, water and sunlight. They just need them in different amounts. For example, a cactus will grow well in the desert where it is very hot, dry and has a lot of sunlight and tundra plants grow in very wet areas where it is cold much of the year. If someone tried to plant a cactus in the middle of the tundra it would die because there would not be enough heat and too much water. The same with tundra plants; if someone tried to plant them in the desert they would wither up and die because it would be too hot and dry. One interesting fact is that many of Alaska's trees are specially adapted to the light cycle we have with long summer days and long winter nights that make it difficult for other species to grow in Alaska.

### Objectives

Students will learn about the different locations that plants grow (sun, shade, wet areas, and dry soils) and identify local places that fit those descriptions

### Vocabulary

English: habitat, sun, shade, wet, dry, soil, hot, cold, temperature, desert, wetlands, forest, rainforest, grasslands, tundra, ocean, alpine, sub-alpine, lowlands

### Materials/Resources

- Crayons or colored pencils
- White construction paper, 1 sheet per student
- Magazines, nature calendars and other print resources with photographs of oceans, forest, wetland, grassland, and tundra environments.

### Activity Procedure

1. Talk about the word habitat. What does it mean? What are the different habitats around the community and what distinguishes each from the others?
2. What kinds of plants do the students already know grow in different habitats around the community? Some may be easy, kelp grows in the ocean, trees grow in the forest, and different berries grow on the tundra. Are there different habitats around the school? Can the students identify them?
3. Identify features of green plants that allow them to live and thrive in their particular habitats.
4. Explain what will happen if a habitat changes over time (if the students have driven to Anchorage they may have seen the dead trees in between Portage and Girdwood. When the 1964 earthquake hit Alaska that piece of land fell lower than it was before and the salt water from the ocean was able to reach and kill the trees.)
5. Write the words WETLAND, FOREST, GRASSLAND, and TUNDRA on the board. Continue discussing these habitats. Talk about what kinds of plants and animals grow in

each of these habitats. Once the students have a good understanding of each of the habitats, have them draw a picture of which one of those habitats they would like to visit most. Ask the students why they chose the habitat they drew and why they put particular plants and animals in their pictures.

6. If you have time, take a walk around the community and discuss the different habitats around it.
7. When you get back to the classroom, label the pictures and post them on the wall.

# Plant Medicine 1

**Grade:** K-3

**Estimated Time:** 30-90 minutes

## Standards

## Background

## Objectives

Students will discuss medicine, learn basic safety around medicines and, with an Elder or Recognized Expert, collect and identify medicinal plants in both English and Sugt'stun

## Vocabulary

English: root, stem, leaf, flower, other plant anatomy learned so far. The name of the plant(s) that is (are) being collected.

## Materials/Resources

- Russell, Priscilla. *English Bay and Port Graham Alutiiq Plant Lore*
- Garibaldi, Ann. *Medicinal Flora of the Alaska Natives*  
Focus on page 15, devil's club; page 24, Labrador tea; page 57, high-bush cranberry; page 61, Northern yarrow; page 104, single delight; page 136, horsetail; page 173, Sitka spruce; and page 176, wormwood.
- Schofield, Janice J. *Alaska's Wild Plants, A Guide to Alaska's Edible Harvest*, Anchorage, AK Alaska, Northwest Books, Focus on page 67, rose
- Plant posters from photographs taken during the "Plants We Use" lesson
- Ziploc™ bags
- Digital camera

## Teacher Preparation

Work with the chosen Elder or Recognized Expert to identify the plants that will be gathered for this lesson and the general location that the plants will be found. Be sure to obtain parent permission for children to sample the medicines that will be made, and to gather information on any allergies their children may have.

## Activity Procedure

1. Have a class discussion on feeling bad and taking medicine. Allow each child an opportunity to tell about a medicine they have taken and why they took it. Identify the person who gave the medicine to them and reinforce the idea that medicine should only be taken when given by a trusted adult.
2. Reinforce any plant vocabulary taught especially "root," "stem," "leaf," and "flower."
3. Introduce the Elder who will be the guide for this field trip and share the rules for respectfully participating in the plant collection.
4. Carefully collect the plant parts that will be used and put them in Ziploc™ bags for storage.
5. Upon returning to the classroom, clean plant materials.
6. Compare the plants collected with the photographs taken during the "Plants we use" lesson. Name as many of the plants as possible.

7. Prepare children for the next lesson by telling them that they will be making medicines.
8. Store plant materials in a cool, dark place.

# Plant Medicine 2

**Grade:** K-3

**Estimated Time:** 30 minutes to 1 hour

## Standards

## Background

## Objectives

Students will prepare and sample medicine using plants collected in “Plant Medicine 1”

## Vocabulary

Sugcestun:

English: names of plants to be used

## Materials/Resources

- Plant materials gathered during “Plant Medicine 1” lesson
- Pots, pans, and spoons
- A source of heat to boil water
- Small paper cups – two for each child in class
- Photographs from Lesson One
- Digital camera to record the process of making medicine
- Honey
- High-bush cranberry jam - if available

## Teacher Preparation

- Meet with the chosen Elder, knowledgeable teaching assistant and parent volunteers to be sure everyone understands the processes and has their responsibilities. This should include three health-related plant uses. For example, collect rose petals or spruce sap for a bandage; make a **mild** yarrow or cranberry tea which can be used as a skin wash for burn, rash, or infection.
- Ask a volunteer to take pictures of the processes used to make the medicine.

## Activity Procedure

1. Review and discuss the activities from “Plant Medicine 1” lesson by renaming the plants that have been collected.
2. Have the Elder or Recognized Expert prepare the medicines. During this process, ask the Elder to explain the procedure for making the medicines step by step.
3. Have children sample the finished products. Be sure to review rules for taking and using medicines safely. Remind students to accept medicines only from trusted adults.

# Volume: How big is your hand?

**Grade:** K-3

**Estimated Time:** 30 minutes

## Standards

### Background

How much is a “handful”? When working with traditional healers, elders or recognized experts in making traditional medicines they may or may not share measurements using modern measuring amounts (e.g., cup, teaspoon, liter, etc). For younger students the volume of their whole hand may be an appropriate measurement but as the students get older the actual amount in their hand will be what matters. As students grow, they will need to remember to “calibrate” their hand if they continue to use “handful” as a measurement. They will also need to talk with elders to see what other methods were used to ensure the medicines made were strong or weak enough to work and not cause harm.

### Objectives

Students will learn about volume, traditional ways of measurement and why measurement is important while making medicine.

### Vocabulary

Sugcestun:

English: size, hand-full, volume, measure,

### Materials/Resources

- Container large enough for most hands
- Erasable marker or masking tape

### Teacher Preparation

### Activity Procedure

1. Challenge the students to a fist off to find out whose fist is biggest! In math terms biggest is the largest by volume.
2. Fill the container about halfway with water. Mark the water level with erasable marker or masking tape.
3. Have students make a fist and dunk it in the water up to his wrist. Mark the water level on the container.
4. Ask him to remove fist from the water. The amount of water that was between the marks equals the space that the student's hand took up.
5. Who has a bigger fist? Who has the smallest one? To find out, have each student put his or her fist in the water. Mark the water level each time. The person who makes the water level rise the most has the biggest fist!





# Medicinal Plant Jeopardy

**Grade:** Adaptable for K-3, 4-8 and HS

**Estimated Time:** 30 minutes or more, depending upon participant enjoyment

## Standards

**Estimated Time:** 30 minutes or more, depending upon participant enjoyment

## Standards

### Background

Jeopardy is a fun creative way to help children learn vocabulary. It's simple and can work for a number of different areas. It may be even more fun if the students know more than their parents if they play this during the community demonstration.

### Objectives

Students will be able to use English and Sugcestun names of plants traditionally used for medicine and be able to identify them. Depending upon grade level, students will be able to categorize the medicinal plants into how they are used, where they are found (habitat) and the ailments for which they are used.

### Vocabulary

Sugcestun: As appropriate to each game

English: As appropriate to each game

### Materials/Resources

- Computer with internet access
- Whiteboard or PowerPoint projector

<http://www.superteachertools.com/jeopardy/usergames/Mar201112/game1301006518.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201114/game1302211354.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201114/game1302215136.php>

4-8

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302302733.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302307880.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201114/game1302312678.php>

HS

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302576869.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302575955.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302573475.php>

### Teacher Preparation

- Review all three games to prepare for teacher directed answers

### Activity Procedure

- Play the game, as the game is played, discuss the answers given and ask for additional information.

- Have fun

# Community Demonstration

**Grade:** K-3

**Estimated Time:** 30 minutes

## Standards

### Background

Sugpiaq culture traditionally was not written, so teaching was done through demonstration and words. Working on oral presentations may be scary to the students, but the earlier they start, the better it will be. Some students may only stand and show what they did, others may have a lot more to talk about, but they all will respond well to positive reinforcement from the adults present. A plan and practice of their presentation is important.

### Objectives

Students will display worksheets, leaf rubbings or pressed leaves, samples of other plant parts collected, and photos of collecting and preparing medicinal plants and share what they learned.

### Vocabulary

Sugcestun:

English:

### Materials/Resources

- Poster boards (or other display material)
- Ruler
- Tacky Glue or tape
- Markers, crayons, colored pencils
- Samples of work done in previous activities
- Photos

### Teacher Preparation

Work with other teachers, LEC and elders to pick a date for the community presentations.

### Activity Procedure

1. Have your students pick their favorite Medicinal Plants activity, hopefully there will be a number of students who have chosen different activities. If you think they are all going to pick one or two activities, have a limited number of slots to choose each activity.
2. Once they have chosen their activity, let the students know they will be working together with others who chose the same activity to present the information they learned at a community demonstration.
3. Each group will decide who will do what parts of the presentation. Give them all access to any of the work done by the class (e.g., worksheets, plant books, maps, pictures, Jeopardy game).
4. Some groups may want to elect one speaker; others may want to have multiple speakers. (e.g., for the Parts of Plants each student in the group may state the names of one plant part in English and Sugcestun and describe what that plant part does).
5. Some groups may want to draw or make new pieces of art for the presentation; others may be happy sharing what they have already done.

6. Some students may want to include the Elder or Recognized Expert with whom they worked and from whom they learned in the presentation (this would be especially important for the medicine making activity).
7. Practice the presentation in class and have a question and answer period afterwards.
8. Be sure to take pictures of your students sharing what they've learned. These will be great to include in thank-you notes to the Elder or Recognized Expert.



**Level 2**  
**4<sup>th</sup> through 8<sup>th</sup> Grade**

# Leaf and Plant Anatomy

**Grade:** 4-8

**Estimated Time:** 45-90 minutes depending on if leaves are collected already or if an Elder or Recognized Expert leads a field trip to collect leaves and plants

## Standards

### Background

Learning how to properly describe parts of plants is important when those parts are used to determine the type of plant, if it is poisonous or not, and may eventually be used for medicinal purposes.

### Objectives

Students will be able to identify the different parts of plants and leaves.

### Vocabulary

Sugcestun:

English: Roots, rhizome, flower, inflorescence, leaf, shape, margin, descriptors for inflorescence, shape and margin, stem petiole, branches, bark, inner bark, cambium, sapwood, heartwood, names of plants collected.

### Materials/Resources

- Plain white paper
- Crayons or markers
- Pencils
- Leaves and plant samples of various sorts
- Anatomy worksheets
- Make a display of a plant showing each of the parts in the anatomy worksheets
- Flash cards
- Small pictures of plants that were/are going to be collected
- 5 or 6 leaves from each medicinal plant individually laminated. One set of each of the leaves will have a number either written with sharpie or laminated in the sample with a sheet that has the names of each leaf identified by number.

### Teacher Preparation

Note that some of the English words may not be reproducible in Sugcestun, have the students (Elder) talk about this and decide how they will proceed. Prior to the trip ask the Elder to gather 5 or 6 of each type of leaf that is traditionally used in medicine so you may laminate them for different activities.

### Activity Procedure

Depending on the level of your classroom there are a number of activities that may be appropriate:

8. Discuss leaf and plant anatomy (and morphology).
  - a. Ask students to describe similarities and differences of leaves
    - i. Shape

- ii. margin (edges)
    - iii. attachment
  - b. Ask students to sort leaves into groups and then why they chose the groups into which they sorted the leaves
  - c. Ask the students to describe how the petiole to the branches
- 9. Teach the names in English and have an Elder or Recognized Expert teach the Sugcestun names.
- 10. Have students label the parts of plants and leaves on worksheets for future reference.
- 11. Take a field trip to gather leaves with an Elder or Recognized Expert and learn their English and Sugcestun names, then bring them back to the classroom. (unless they have already been collected)
- 12. After the students have learned the names of the leaves sufficiently and are able to identify them in both English and Sugcestun do at least one of the two following activities:
  - a. Leaf identification
    - i. In different areas of the classroom have one sample of each leaf posted on the wall (with a letter next to it that you determine) and a table with multiple samples of each leaf in the center of the room sorted in piles by number. You may want to tape the numbered leaves to the table so they are not taken by the students.
    - ii. Have students get into pairs and give each pair a list of the numbers of all of the sample leaves. Instruct them to take one leaf from the table at a time, remember its identifying number (they will need to be reminded of this because they are often very excited about being the first to identify all of the leaves), then search for the leaf's pair that is posted on the wall.
    - iii. When they find the pair to the leaf they have, they will put the letter from the wall next to the corresponding number on their list.
    - iv. After they have finished with the first leaf, replace it in the appropriate pile on the table and move on to another leaf.
    - v. Bonus points will be given for being able to write the name of the plant in English and Sugcestun.
  - b. Leaf hunt relay
    - i. Have students split into teams. Make sure there are enough samples of each type of leaf for each team (if you have 10 samples and 20 students that would be two teams).
    - ii. Go outside (if weather permits) and place the teams in a line next to each other
    - iii. A chair with a box containing a single sample of each of the leaves will be in a line on the other side of each of the teams.
    - iv. Explain that either you or the elder will say the name of the plant from which the leaf came and the first person in the team will run to the chair and find that leaf, then bring it back. Once the first person has passed the starting line and you or the Elder have let them know they have the correct leaf, the second person will run to the chair as you or the elder names the second plant. If the incorrect leaf was brought by a team member they



- v. must go back to the chair, replace the incorrect leaf and bring another (hopefully correct) leaf. This continues until all teams have finished.
13. Have the students press the leaves or plants, do rubbings or prints or put together a collage or mobile of all of the different plants and leaves they were able to find. Have the students label their rubbing or print with the names of the parts (and if appropriate shape and margin (or edge)) or have them identify on their mobile or collage.

# Learn to Respect Plants

**Grade:** 4-8

**Estimated Time:** 2 hours (can be broken up into 30 minutes or hour intervals)

## Standards

### Background

Many of the plants traditionally used as medicines are readily available in the areas around (and in) the community. Students may be aware of some but not others, they may also not know that there is almost as much interest outside of the region in the use of traditional medicinal plants as there is in the region. The renewed interest in using traditional healing methods, especially with plants is truly world-wide. Many western doctors now suggest homeopathic medicines to their patients in addition to or in lieu of traditional western medicine.

### Objectives

Students will compare and contrast traditional medicines with modern medicines and discuss traditional healers' knowledge. Students will learn to identify local plants traditionally used as medicines (in both English and Sugcestun) and their uses.

### Materials/Resources

- Viereck, Eleanor G. *Alaska's Wilderness Medicines* (a copy per group of 2-3 students)
- Russell, Priscilla. *English Bay and Port Graham Alutiiq Plantlore* (a copy per group of 2 or 3 students)
- Shield, Sophie, et al. *Nupuguet* and the *Nupuguet* Flashcards
- *Amazing Medical Plant Card* (2 for each student) (Sample on page 124)
- A collection of plants that are used in making traditional medicines

### Teacher Preparation

- Prepare the *Amazing Medicinal Plant Cards* for student use.
- Select appropriate flashcards so that students have an opportunity to choose several cards.
- Work with a locally Recognized Expert to find several plants that are regularly used medicinally and take several samples of the plants. List the names of the parts of a plants in English and Sugcestun.

### Activity Procedure

1. Hold a classroom discussion on medicines and how students have used them. Give students an opportunity to describe a time when they were ill, the kind of medicine taken, and where they got the medicine. As students describe the medicines, make a list classifying the medicine types, internal/external, liquid, solid, gel, salve, or other, and commercial or home remedy.
2. Introduce the idea that there was a time before the clinics when people had to rely on themselves and knowledgeable healers to prepare medicines. Make a list the traditional medicines that students know which are made from local plants and classify them according to the ailments they treat.

3. Hand out the plant samples collected for the lesson. Have students feel the texture of the leaves and describe the plant using correct terms for parts. Describe a plant following the information found on the *Amazing Medicinal Plant Card* and using *Alutiiq Plantlore* and *Wilderness Medicines*.
4. Hand out *Alutiiq Plantlore* and *Wilderness Medicine*, along with two copies of the *Nupuguet* flashcards and *Amazing Medicinal Plant Card per student*. Have students research each of the plants found on the *Nupuguet* flashcards. Complete the *Amazing Medicinal Plant Card* for each plant and present their findings to the class.

# Habitat (Ecosystems)

**Grade:** 4-8

**Estimated Time:** 45-90 minutes depending on the length of the field trip.

## Standards

### Background

Habitats, or ecosystems, are very different all over the world and around the community. The best way to learn about habitats is to go out and take a close look, or beginning an ecological study. Ecologists are still learning how organisms work together in their different habitats. Tundra, forests, wetlands and oceans are Alaska's four major ecosystem types and each of them may be sub-categorized.

### Objectives

Students will be able to:

1. describe the things plants need to survive
2. the ways in which plants depend on animals and other plants (the basic components of habitats)
3. be able to identify habitats in their region.

### Vocabulary

English: Tundra, forest, grassland, wetland, ocean, alpine, subalpine

### Materials/Resources

Map of community

Compass/GPS

Flags to mark habitats

Marker to mark flag

Small maps for students to label

Alaska Department of Fish and Game, *Alaska's Ecology 2001*, pages 37-44 found at the following web page

[http://www.sf.adfg.state.ak.us/Static/statewide/aquatic\\_ed/awc%20activities/ecology/background%20information/ecology%20iii\\_living%20things%20in%20their%20habitats.pdf](http://www.sf.adfg.state.ak.us/Static/statewide/aquatic_ed/awc%20activities/ecology/background%20information/ecology%20iii_living%20things%20in%20their%20habitats.pdf)

### Activity Procedure

1. Brainstorm with the class about plants and their habitats. Make lists of all the things that they know about the area around and in the community that relate to habitat.
2. Write the words OCEAN, WETLAND, FOREST, GRASSLAND, and TUNDRA on the board. Continue discussing these habitats. Talk about what kinds of plants and animals grow in each of these habitats.
3. Once the students have a good understanding of each of the habitats, have them identify locations of as many of them near the school as possible. Have each student devise a key for their map to identify each of the different habitats.

4. Take a field trip to the locations identified by the students. Discuss how the students classified each area. Confirm the classifications and have the students label them on their map with the actual GPS location as well.
5. Leave a flag in each of the areas identified for future reference (make sure to label the flag appropriately, other classes may be doing research at the same time as you).
6. When you get back to the classroom compare and contrast the maps and how they were labeled by students.



# Habitat Game

**Grade:** 4-8

**Estimated Time:** 30 minutes

**Standards**

**Background**

**Objectives**

Students will learn the three elements of habitat: food (nutrients and sunlight), water, and shelter.

**Vocabulary**

Sugcestun:

English: food, nutrients, sunlight, water, shelter, plants

**Materials/Resources**

**Teacher Preparation**

**Activity Procedure**

7. Before the game begins, brainstorm with the class about plants and their habitats. Make lists of all the things that they know about the area around and in the community that relate to habitat.
8. Write the words OCEAN, WETLAND, FOREST, GRASSLAND, and TUNDRA on the board. Continue discussing these habitats. Talk about what kinds of plants and animals found in each of these habitats.
9. Once the students have a good understanding of each of the habitats, have them identify the three main elements of habitats: food (nutrients and sunlight), water and shelter.
10. Introduce hand motions for the three elements: 1) food (hands on belly), 2) water (hand to mouth, as if drinking), and 3) shelter (hands over head, making a shelter).
11. Divide the class into two groups: plants and habitat. The *plant* students get together as a group and decide what one habitat component they will all go after, then stand in one line 20 feet from and facing away from the *habitat* students.
12. The habitat students then *individually* choose what habitat component to be and then make the appropriate hand motion: food (hands on belly), water (hand to mouth, as if drinking), and shelter (hands over head, making a shelter).
13. When the habitat students have assumed their positions, the leader makes a signal for the plants to turn around and run to the students displaying the habitat component that the group decided on (all the plants should be running after the same thing). If a plant reaches the right kind of habitat first, that habitat student is turned into a plant and goes back to the other line. If a plant student doesn't make it to the right kind of habitat, the plant dies and becomes habitat. (This activity can also be played with animals instead of plants.)

14. Continue for several more rounds. Discuss what happens when there are not enough of certain habitat components to go around.



# Plants We Use

**Grade:** 4-8

**Estimated Time:** 30 minutes

## Standards

## Background

## Objectives

Students will identify a variety of plant products found in over-the-counter medicines, then identify local medicinal plants and use a number of resources to define their use, habitat and gathering season.

## Materials/Resources

- *Plant Identification Cards*
- Viereck, Eleanor G. *Alaska's Wilderness Medicines* (for each group of 2 or 3 students)
- Russell, Priscilla. *English Bay and Port Graham Alutiiq Plantlore* (for each group of 2 or 3 students)
- Heller, Christine. *Wild Edible and Poisonous Plants of Alaska* (for each group of 2 or 3 students)
- *Amazing Medicinal Plant Cards* (5 or 6 per student)
- A large simplified topographical map of the area surrounding the community for each group of students
- Seasonal Round, or paper for making a round, for medicinal plants for each group of students
- Containers from over-the-counter medicines

## Teacher Preparation

- Research and collect samples of plants that will be used in the lesson.
- Prepare Plant Identification Cards using images found online or one or more of the books suggested for the unit.
- Print enough photographs of plants for students to use on each *Amazing Medicinal Plant Card*.
- Print five or six *Amazing Medicinal Plant Cards* for each student.

## Activity Procedure

1. Review the homework from Learn to Respect Plants. Identify the variety of plant products (oil, essence, extracts, etc.) found in various over-the-counter medicines and hygiene items. List the terms used to describe the plants.
2. Divide the class into groups of three or four and assign plants for them to research. Plants to be researched can be grouped by plant type, as found in *English Bay and Port Graham Alutiiq Plantlore*, or by therapeutic uses, as found in *Alaska's Wilderness Medicines* (see pages 82 to 90). As a group project, have students collect information from a variety of resources and complete *Amazing Medicinal Plant Cards* for each of the plants assigned as well as habitat and gathering season.

Common Name: \_\_\_\_\_

Scientific Name: \_\_\_\_\_

Plant Family: \_\_\_\_\_ Habitat: \_\_\_\_\_

Description: \_\_\_\_\_

Medicinal uses (symptoms treated): \_\_\_\_\_

Part of the plant used for medicine: \_\_\_\_\_

Type of remedy (preparation): \_\_\_\_\_

Interesting facts: \_\_\_\_\_

Common Name: \_\_\_\_\_

Scientific Name: \_\_\_\_\_

Plant Family: \_\_\_\_\_ Habitat: \_\_\_\_\_

Description: \_\_\_\_\_

Medicinal uses (symptoms treated): \_\_\_\_\_

Part of the plant used for medicine: \_\_\_\_\_

Type of remedy (preparation): \_\_\_\_\_

Interesting facts: \_\_\_\_\_

# Poisonous Plants

**Grade:** 4-8

**Estimated Time:** 90 minutes (can be broken down into 30 minute sessions)

## Standards

## Background

## Objectives

Students will learn to identify the region's poisonous plants and their "look-alikes" (in both English and Sugcestun) using similarities and differences. Students will learn from an Elder or Recognized Expert about which parts of some of the poisonous plants can be used and when, as well as the location of the plants.

## Vocabulary

Sugcestun:

English:

## Materials/Resources

- Heller, Christine. *Wild Edible and Poisonous Plants of Alaska* (one for each 2 or 3 students)
- [http://t230.com/poison\\_plants.htm](http://t230.com/poison_plants.htm)
- *Plant Cards* showing poisonous plants
- Digital camera
- Large map of the community showing a variety of habitats in which poisonous plants are found
- Enlarged pictures of poisonous plants and their "look-alikes"
- *Poisonous Plant Card*

## Teacher Preparation

- Plan with LEC and an elder for the field trip.
- Prepare poisonous plant cards by taking pictures of the plants or by using the photographs found on the website listed above.
- Find or make a map of the community.
- Carefully review the information in *Wild Edible and Poisonous Plants of Alaska*.
- Collect leaves, flowers, and berries of poisonous plants with an Elder or recognized expert. Place each collected plant in a sealed Ziploc™ bag. Label bags with common and Sugcestun names. Display the items. Save these plants in a secured area. They will be re-used for the community-wide demonstration.
- Prepare *Poisonous Plant Cards* for student use.

## Activity Procedure

1. Use the display of poisonous plants to identify the region's poisonous plants. Have students find plant "look-alikes." List the differences and similarities between the plants.

2. Assign students in small study groups. Assign each group a poisonous plant to research. Hand out copies of *Wild Edible and Poisonous Plants of Alaska* to be used as a research tool and copies of the *Poisonous Plant Cards*. Have students complete the information on the cards.
3. Take students on a field trip with an Elder or Recognized Expert to learn more about plants. Ask the local expert to explain the safety information on the use of the plants.
4. Make several large diagrams with two overlapping circles. Put pictures of poisonous plants and their “look-alikes” on the circles. Have students name the plants and list their commonalities and differences in the appropriate circles.
5. Have the students play “P.P.P.” or Preventing Poisoning by Plants. The goal of the game is to prevent yourself from being poisoned by putting a poisonous plant in the “safe to taste” file. Provide cards of the poisonous plants and their look-alikes with no names or other documentation on them (or samples of the plants in Ziploc™ bags). Have students pick a card from the deck or sample from a box and put them into one of three files: “Safe,” “Poison,” and “Ask First.” See which of the players can identify all of the plants properly.
6. Display the community map. Have students show where poisonous plants might be found based on their knowledge of the local environment and the information they have found on the poisonous plants they have researched. Save the map for the community-wide demonstration.



**Common Name:** \_\_\_\_\_

**Scientific Name:** \_\_\_\_\_

**Plant Family:** \_\_\_\_\_ **Habitat:** \_\_\_\_\_

**Description:** \_\_\_\_\_

**Medicinal uses (symptoms treated):** \_\_\_\_\_

**Part of the plant used for medicine:** \_\_\_\_\_

**Type of remedy (preparation):** \_\_\_\_\_

**Interesting facts:** \_\_\_\_\_

\_\_\_\_\_

**Common Name:** \_\_\_\_\_

**Scientific Name:** \_\_\_\_\_

**Plant Family:** \_\_\_\_\_ **Habitat:** \_\_\_\_\_

**Description:** \_\_\_\_\_

**Medicinal uses (symptoms treated):** \_\_\_\_\_

**Part of the plant used for medicine:** \_\_\_\_\_

**Type of remedy (preparation):** \_\_\_\_\_

**Interesting facts:** \_\_\_\_\_

# Collecting Plants

**Grade:** 4-8

**Estimated Time:** 90 minutes to 2 hours (some of the work may be done after the elder has left the classroom)

## Standards

## Background

## Objectives

Students will go into the field with an Elder or Recognized Expert to locate, name in both English and Sugt'stun, identify parts and uses, map and collect medicinal plants. Some plants will be preserved for future use; others will be pressed for display.

## Vocabulary

Sugcestun:

English: Names of: plants, parts of plants used for medicine, descriptions of plants, ailments plants cure, place names for the locations they were found (if there are any), and habitats.

## Materials/Resources

- Garibaldi, Ann. *Medicinal Flora of the Alaska Natives*
- Survey flags or flags made of paper fastened to coat hanger wire or survey stakes
- Waterproof markers
- Elder or Locally Recognized Expert to guide a plant gathering field trip
- Plant press and blotter paper (heavy books, such as encyclopedias will work, too)
- Demonstration topographical map
- Simple topographical map of the areas around the community for each student
- Field trip permission slips, as required by the school district
- Camera(s)
- Ziploc bags
- Pens, pencils, colored pencils
- GPS and/or compass
- Audio recorder for Elder's explanations

## Teacher Preparation

- Plan with the LEC and work with the Elder or Recognized Expert who will guide the field trip to identify plants which will be collected and where they will be gathered. Discuss the local traditions and local set of beliefs of plant collecting and make a decision on whether to use the material from page 3 of *Medicinal Flora and Fauna of the Alaska Natives*. Review the information from *English Bay and Port Graham Plantlore* page 5, *Alaska's Wilderness Medicines* page 2, and *Alaska's Wild Plants* page 6.
- Prepare flags or signs to mark the places where plants have been collected.
- Send an announcement or permission slip to let parents know about the field trip activities.

### **Activity Procedure**

1. Have students work from a USGS topographical map to prepare simplified topographical maps of the area surrounding the village. This map will be used while they are harvesting plants to mark the locations of the plants as well as the habitats in which the plants were found.
2. Have the students prepare some questions to ask the Elder or Recognized Expert about the plants they are going to study.
3. Introduce the Elder or Recognized Expert who will be leading the field trip. Ask him or her to discuss the local beliefs or values on gathering plants for healing.
4. Take a field trip to gather plants. As plants are gathered, write the name of the plant on a flag and use it to mark the harvest area. Make sure lots of photographs are taken of the Elder working with the students, the students collecting the plants and the plants proper. You may want to have one or two students be the official photographers of the trip.
5. Upon return to the classroom, have the Elder or Recognized Expert:
  - Identify the plants collected in English and Sugcestun and the habitat(s) in which they were found.
  - Discuss the part or parts of the plant used for traditional medicine.
  - Describe the processes used to prepare medicine from the plants collected.
  - Describe the ailments each plant cures.
  - Describe the methods for preserving the plants for future use (there may be more than one method for a plant depending on how it will be used)
6. Preserve excess plants for future use. Choose drying, freezing, or any effective preserving method.
7. While plants are fresh, select several good examples and have students put them in the plant press for future display.



# Plant Journal

**Grade:** 4-8

**Estimated Time:**

**Standards**

**Background**

**Objectives**

Students will press, mount, mat and cover medicinal plants collected in previous lessons

Students will design produce a plant journal

Students will design produce a local map that identifies the medicinal plants collected in previous lessons and locates their habitats (in both English and Sugcestun).

**Vocabulary**

Sugcestun:

English:

**Materials/Resources**

- Garibaldi, Ann. *Medicinal Flora of the Alaska Natives*
- Biggs, *Wild Edible & Medicinal Plants: Alaska, Canada & Pacific Northwest Rainforest Volumes 1 and 2*
- Cooperative Extension Service, *Wild Edible and Poisonous Plants of Alaska*
- Other plant identification books for reference of different ways books are organized
- Plant press and blotter paper (heavy books, such as encyclopedias will work, too)
- Demonstration topographical map used in Collecting Plants Lesson
- Simple topographical map of the areas around the community used in Collecting Plants Lesson
- Large poster-size paper or board(s) for maps
- Tape and glue
- Plastic covers for plants (could be Ziploc bags)
- Binders, folders or rings to hold journal together
- Pen, pencil, crayons, colored pencils

**Teacher Preparation**

- 

**Activity Procedure**

8. Have students decide how they plan to organize their plant journal. They may want to have it be a compilation of all of the information gathered for each plant alphabetically, or organized by habitat, color of flowers, medicinal uses, types of leaves or any other method that makes sense to the student. Have the student explain their organizational method in the forward of their journal.

9. Once the organization method is chosen, have them decide what information they want to include for each plant (the Amazing Medicinal Plant cards may help).
10. If plants have not been collected ask the students how they will show what the plants look like. If they go online to collect photographs, have them make proper citation.
11. Will the students include maps or quotes from the Elder or Recognized Expert who showed them the plants in their journals? What other interesting things may they put in the journal? Perhaps stories from their parents or of their own about times the plants were used medicinally.
12. Once the students have prepared their journals, have them share their ideas with the classroom.

# Medicinal Plant Scavenger Hunt

**Grade:** 4-8

**Estimated Time:**

**Standards**

## Background

A scavenger hunt is one method of assessing the knowledge and understanding which students have gained through the first six lessons of this study. It will reinforce the understanding of the habitats in which plants are found. The scavenger hunt is intended to be an enjoyable activity for all involved. This lesson is designed to reinforce all Health and Wellness: *Learn to Respect Plants as Givers of Life* concepts.

1. *Much of traditional medicine was based on the use of plants and some animals.*
2. *Many local plants have medicinal value.*
3. *Plants were prepared for use as medicines different ways.*

## Objectives

Recognition and respect for the traditional ecological knowledge and the ability to make use of materials from the environment is the expected outcome of this lesson.

Students will:

- Use both personal knowledge and understanding and reference materials to find answers to medicinal plant-related questions.

## Vocabulary

Sugcestun:

English: Names of plants, bruises, cuts, scrapes, remedy, skin, rash, diarrhea, vomiting, constipation, stomach ache, colic, laryngitis, cough, arthritis, poultice, herbal salve, ointment, tea, Blueberry, chamomile-wild pineapple, clover, cranberry, devils club bark, fireweed, mint, nagoon berries, salmonberry, spruce tips, strawberry, yarrow

## Materials/Resources

- Indelible marker such as Sharpie™
- Surveyor's flags
- Collected plants
- *Scavenger Hunt Ailment* cards (sample on page 127-129) (two cards for each group of student)
- One complete set of the *Scavenger Hunt Ailment* cards for each student
- Schofield, Janice J. *Alaska's Wild Plants* (for each group of 2 or 3 students)
- Viereck, Eleanor. *Alaska's Wilderness Medicines* (for each group of 2 or 3 students)
- Russell, Priscilla. *English Bay and Port Graham Alutiiq Plantlore* (for each group of 2 or 3 students)

- State Botanical Garden of Georgia, *The Healing Power of Plants: Pre and Post Field Study Packet* Level 3 Kit

### **Teacher Preparation**

- Prepare for the Scavenger Hunt by reviewing the State Botanical Garden of Georgia's *The Healing Power of Plants: Pre and Post Field Study Packet*.
- Revise *Scavenger Hunt Ailment Cards* as needed. Be sure there are enough ailments that each group of students has a different one.
- Return to plant collection sites and check that the flags from Lesson Three are still in place. Replace flags as needed or rewrite the information if required, and number each flag with an indelible marker.

### **Activity Procedure**

1. Explain what a scavenger hunt is and what the rules are.
2. Give each group of students two cards with the same ailment. Have one student from each group read the information to the class. Allow a few minutes for students to name the plants that maybe used to treat the ailment.
3. Students are to use reference materials and to find plants which can be used to treat the ailment.
4. Begin the scavenger hunt. Students are to go out to the area around the school and look for flags with the names and numbers of the plants used to treat the ailments.
5. After identifying all the plants and their numbers, students are to complete the sheet by matching the plants used to treat the ailments.
6. The team that finishes completing the Ailment Sheet first wins.

**Bruises**

Trudy has been suffering from bruises on her arms since she wrecked her four-wheeler. Use your knowledge of plants to help her find a remedy. Seek out the flags for those plants and list their names and numbers below.

Plant Name	Flag Number

**Cuts and Scrapes**

After playing too hard on the playground equipment Mary and John have cuts and scrapes on their elbows and knees. Use your knowledge of plants to help them find a remedy. Seek out the flags for those plants and list their names and numbers below.

Plant Name	Flag Number

**Skin Rash**

Rhoda has developed a skin rash after weeding her garden. Use your knowledge of plants to help her find a remedy. Seek out the flags for those plants and list their names and numbers below.

Plant Name	Flag Number

**Diarrhea and Vomiting**

After returning from his travels to Anchorage, Larry has a case of diarrhea. Use your knowledge of plants to help him find a remedy. Seek out the flags for those plants and list their names and numbers below.

Plant Name	Flag Number

**Constipation**

Your cousin is complaining of problems associated with constipation. Use your knowledge of plants to help him find a remedy. Seek out the flags for those plants and list their names and numbers below.

Plant Name	Flag Number

**Stomach Ache**

Your father is complaining of a stomach ache after eating too much. Use your knowledge of plants to help him find a remedy. Seek out the flags for those plants and list their names and numbers below.

Plant Name	Flag Number

**Colic**

Michael's baby sister has been crying during the night because of colic gas pain. What can he do to help so he can get some sleep? Use your knowledge of plants to help him find a remedy. Seek out the flags for those plants and list their names and numbers below.

Plant Name	Flag Number

**Laryngitis**

Donna has laryngitis (she has lost her voice due to inflamed vocal cords). Is there something she can gargle with to help get her voice back? Use your knowledge of plants to help her find a remedy. Seek out the flags for those plants and list their names and numbers below.

Plant Name	Flag Number

**Cough**

Connie has a persistent cough that is keeping her awake. What can she use to help stop coughing and fall asleep? Use your knowledge of plants to help her find a remedy. Seek out the flags for those plants and list their names and numbers below.

Plant Name	Flag Number

**Arthritis**

Your grandmother has arthritis; you would like to do something to help her. What plants can be used for this ailment? Use your knowledge of plants to help her find a remedy. Seek out the flags for those plants and list their names and numbers below.

Plant Name	Flag Number



### ***Making Herbal Remedies:***

Taken from Plant Power by Laurel Dewey

### ***Poultice***

Ingredients 2-4 Tablespoons Powdered Herb

Direction 1 (Eyeball) Hot Water A poultice can be made from dried herbs by grinding them into a granulated or powdered form. Depending on the area that needs treatment, combine 2 to 4 Tbls. of the powdered herb with enough hot water to make a thick paste. Apply the mixture to the affected area and cover with plastic wrap to hold it in place. A dried herb poultice is often left on from 2 to 8 hours.

Direction 2 Lightly heat the fresh flowers or leaves until moist or bruise by rubbing between palms and apply directly to the area that needs to be treated. The herbal poultice can be held on the area by hand or with tape. Check the poultice every 30 minutes or so and replace poultice as it be comes dried.





***Making Herbal Remedies:***  
Taken from Plant Power by Laurel Dewey  
***Herbal Salve/Ointment***

Yield: 12 to 14 oz of Salve

Ingredients 16 oz. Extra Virgin Olive Oil  
2 oz. Beeswax  
2 oz. Dried herbs or 4 oz. Fresh herbs, finely cut  
1 oz. Benzoin tincture

Direction Combine herbs and olive oil in a saucepan and heat on low. Keep covered so the herbal oils do not escape. Stir every 10 minutes or so and rub the herbs with a spoon to make sure they are saturated with the oil. Continue for 2 hours making certain that the mixture never gets so hot it starts to burn. After 2 hours of cooking, turn off the heat and cover the pot. Allow the mixture to sit covered for up to 8 hours.

Melt two ounces of yellow beeswax in a quart canning jar. Strain the herbal oil through the cloth and return it to the pan. Strain the hot herbal through a cloth into the jar with the melted beeswax. Stir for several minutes to make sure the oil and wax are completely blended. One ounce of benzoin tincture can be added as a preservative. Keep the jar in the sunshine for at least two weeks then store in a cool dark place.



***Making Herbal Remedies:***  
Taken from Plant Power by Laurel Dewey  
***Teas***

Ingredients 1 Tablespoon of any leaves

Direction Teas can be made from one or combination of any leaves:

Blueberry	Chamomile-wild pineapple
Clover	Cranberry
Devils club bark	Fireweed
Mint	Nagoon berries
Salmonberry	Spruce tips
Strawberry	Yarrow

Select leaves that have dried without decay or discoloration. Store leaves on a rack or screen, or hang in bunches from pegs in an airy place that is warm and dry. When leaves are dry, store in an airtight container without crumbling. Place leaves in a heated container, preferably glass, and pour freshly boiled water over them. Cover the pot or cup with a lid to keep the temperature high and steep from three to 5 minutes.

# Making Traditional Medicine - 1

**Grade:** 4-8

**Estimated Time:**

**Standards**

## **Background**

Through time, Sugpiaq/Alutiiq people devised different techniques in processing traditional medicines. Some traditional medicines are made by boiling, steaming, or roasting the plant. Other medicines are made by pounding, drying, or mixing crushed plant material with wax or oil for use as a salve, ointment, and poultice. In this lesson, the different methods plants are processed to become medicine will be explored. This lesson introduces Health and Wellness *Learn to Respect Plants as Givers of Life* concept three:

3. *Plants are prepared for use as medicine in different ways.*

## **Objectives**

Students will gain an understanding of the processes used in the preparation of plant medicines.

Students will:

- Describe at least two processes used in making traditional plant medicines.
- Design and prepare labels for traditional plant medicines.

## **Vocabulary**

Suggestun:

English:

## **Materials/Resources**

- Garibaldi, Ann. *Medicinal Flora of the Alaska Native* (pages 173 to 179)
- Schofield, Janice. *Alaska's Wild Plants*
- Viereck, Eleanor G. *Alaska's Wilderness Medicines* (pages 3 and 82 to 84)
- Russell, Priscilla. *English Bay and Port Graham Plantlore* (pages 6 to 8)
- Elder to demonstrate making medicine
- Access to a stove or cook top, pots and pans
- Containers for medicine (small film canisters work well)
- Adhesive labels for medicine containers
- Bee's wax and petroleum jelly or mineral oil
- Sample of over-the-counter and prescription medicines

## **Teacher Preparation**

- Meet with the Elder or Recognized Expert who will be working with the class. Plan activities and list materials that will be required for the lesson. Write out as many recipes and instructions as the Elder or Recognized Expert is able to provide.
- Gather and sanitize medicine containers.
- Collect all materials required for making plant medicines.

**Activity Procedure**

1. Have students wash their hands and sanitize the area to be used for processing plants into medicine. Remind students of safety, health, and sanitation practices needed, bandage open wound and put gloves on.
2. Prepare medicines following the Elder's instructions or those found in one or more of the resource books listed for this lesson.
3. Classify each of the traditional medicine made by its use and type.
4. Have students study the information required by the federal government on both over-the-counter and prescription medications. Have each student design a label for one of the traditional medicines made which includes: ingredients, directions for use, date prepared, and other information regularly found on medicine labels. Save some of the traditional medicines for the community-wide demonstration.

# Making Traditional Medicine - 2

**Grade:** 4-8

**Estimated Time:**

**Standards**

**Background**

Teas, decoction, and infusions are the focus of this lesson. Various parts of the plants mentioned below will be used to prepare these teas. This lesson is designed to reinforce Health and Wellness: *Learn to Respect Plants as Givers of Life* concept three.

3. *Plants were prepared for use as medicines different ways.*

**Objectives**

Students will recognize and appreciate the knowledge required to understand the variety of processes followed in making traditional medicines from plants.

Students will:

- Identify at least two plants, describe the processes, and describe parts of the plants used for making teas.

**Vocabulary**

Sugcestun:

English:

**Materials/Resources**

- Access to cooking equipment, paper cups, infusers, tea balls, or pieces of cloth or filter paper and string, containers for dried plants (Ziploc bags™ or jars), sweeteners
- *Amazing Medicinal Plant Cards*
- Crowell, Aron L. et al. *Looking Both Ways*
- Elder or Recognized Expert to demonstrate techniques for preparing decoctions and infusions and to describe their purpose
- Laurel Drewry *Plant Power* “Making Herbal Remedies” Card- Teas page 131
- Garibaldi, Ann. *Medicinal Flora of the Alaska Natives*
- Russell, Priscilla. *English Bay and Port Graham Alutiiq Plantlore*
- Viereck, Eleanor G. *Alaska’s Wilderness Medicines*
- Label sheets and access to a computer with color printer

**Teacher Preparation**

- Review the plants that will be used in this lesson. The chart below is an easy cross reference:

Plant	Source pages from mentioned books by authors below		
	Russell	Garibaldi	Viereck
Chamomile	58		15

Northern red current	26-27	41 & 174	26-27
Horsetail	55	136	37-40
High-bush cranberry	33	57	35
Labrador tea		24	43-44
Rose	37	43	55
Yarrow	59-61	61	3, 79-81

- Meet with the Elder or Recognized Expert who will be leading the lesson.
- Inform parents or send a permission slip, should a field trip to collect plants be necessary.

**Activity Procedure**

1. If necessary, take a field trip with the Elder or Recognized Expert to collect the plants that will be used in the day’s lesson. Use flags to mark the places from which plants were gathered (see Lesson Three).
2. Separate plants that are best steeped fresh or dried according to the Elder’s instructions.
3. Put the separated and identified plants in containers (Ziploc™, plain paper bags, or jars) and label and date each container.
4. Select the plants to be used for the class tea making demonstration. Have the Elder demonstrate the steps traditionally used in tea making. Give each student a small sample of the teas made and offer sweetener. Caution: This is medicine, and samples should be small as some of the medicines are quite strong.
5. Group students to do more research on the plants. Assign two plants to each group of students and have them focus on the tea making qualities of the plants and the ailments effected by the teas.
6. Have students include information from demonstration and research on their *Amazing Medicinal Plant Cards*.
7. Reserve some of these plants for the community-wide demonstration.



# Medicinal Plant Jeopardy

**Grade:** 4-8

**Estimated Time:** 30 minutes or more, depending upon participant enjoyment

## Standards

### Background

Jeopardy is a fun creative way to help children learn vocabulary. It's simple and can work for a number of different areas. It may be even more fun if the students know more than their parents if they play this during the community demonstration.

### Objectives

Students will be able to use English and Sugcestun names of plants traditionally used for medicine and be able to identify them. Depending upon grade level, students will be able to categorize the medicinal plants into how they are used, where they are found (habitat) and the ailments for which they are used.

### Vocabulary

Sugcestun: As appropriate to each game

English: As appropriate to each game

### Materials/Resources

- Computer with internet access
- Whiteboard or PowerPoint projector

K-3

<http://www.superteachertools.com/jeopardy/usergames/Mar201112/game1301006518.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201114/game1302211354.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201114/game1302215136.php>

4-8

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302302733.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302307880.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201114/game1302312678.php>

HS

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302576869.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302575955.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302573475.php>

### Teacher Preparation

- Review all three games to prepare for teacher directed answers

### Activity Procedure

- Play the game, as the game is played, discuss the answers given and ask for additional information.
- Have fun



# Medicine Bags

**Grade:** 4-8

**Estimated Time:**

**Standards**

## **Background**

Traditionally, Sugpiaq/Alutiiq people have used containers for a variety of purposes: for medicines, for plant and animal materials, for amulets used in healing, as precautions from becoming sick or disabled, and for ensuring successful hunting, gathering, and fishing. In this lesson, students will have an opportunity to make a medicine bag. This lesson is designed to reinforce all Health and Wellness: *Learn to Respect Plants as Givers of Life* concepts one, two, and three.

1. *Much of traditional medicine was based on the use of plants and some animals.*
2. *Many local plants have medicinal value.*
3. *Plants were prepared for use as medicines different ways.*

## **Objectives**

Students will gain an understanding of the traditional ways that medicinal plants were stored for future use.

Students will individually:

- Sew and decorate a medicine bag following traditional Sugpiaq/Alutiiq design.

## **Vocabulary**

Sugcestun:

English:

## **Materials/Resources**

- Supplies to make a medicine bag:
  - Pattern for a medicine bag
  - Felt
  - Sewing needles
  - Leather
  - Buttons
  - Beads
  - Fur scraps
  - Scissors
- Crowell, Aron L. et al. *Looking Both Ways*
- Various types of collected and dried medicinal plants

## **Teacher Preparation**

- Arrange the sewing supplies on a table so that students can easily help themselves with the project.

- Find pictures from *Looking Both Ways* that show various bags. There are no photographs of a medicine bags, though those shown will demonstrate the fine work on a Sugpiaq/Alutiiq bag.

### **Activity Procedure**

1. Show the pictures of containers from *Looking Both Ways*. Begin with the seal stomach container on page 183, sewing bags on pages 40 and 50, and the child's necklace on page 44, and finally the hunting bag on page 171. Discuss the spiritual and aesthetic purposes of the decoration. Describe things that people might keep in a medicine bag. Tell the class that each of them will create a medicine bag, most likely the hunting bag found on page 170. Each student should be encouraged to use any of the materials found on the table.
2. Have students identify the kind of bag they want to make, sketch a design for it, and identify the materials they will use to complete the design.
3. Demonstrate how to cut a pattern and how to do the basic stitches.
4. Let the students start cutting out their patterns. Use a peyote stitch or gourd stitch along the ends to close the bag. Refer to the website below to learn how to do peyote style beading.  
<http://beadwork.about.com/od/peyotestitchbeading/g/PeyoteStitch.htm>
5. After sewing and decorating the bags, students can select dried medicinal plant to put in their finished medicine bags.
6. Encourage students to include their medicine bags as part of the planned community demonstration.

# Community Demonstration

**Grade:** 4-8

**Estimated Time:**

**Standards**

**Background**

Students will demonstrate all that they have learned about plants in a community-wide product demonstration. This lesson is designed to demonstrate understanding of all Health and Wellness *Learn to Respect Plants as Givers of Life* concepts one, two, and three.

1. *Much of traditional medicine was based on the use of plants and some animals.*
2. *Many local plants have medicinal value.*
3. *Plants were prepared for use as medicines different ways.*

**Objectives**

Students enjoy sharing their knowledge of the use of medicinal plants in traditional healing.

Students will:

- Demonstrate knowledge of at least one plant — its habitat, its scientific, English, and Sugcestun names, the medicine(s) made from it, and the technique to make this plant a traditional medicine.

**Materials/Resources**

- All materials produced during the previous lessons for a display
- Books used for this unit
- Camcorder, camera, and audio-recorders
- Cups, samples of teas, sweeteners
- Remedy cards found on pages 130 and 131

**Teacher Preparation**

- Allow students to have a demonstration rehearsal before the actual demonstration.
- Let students make cards to invite family and community members to the demonstration.

**Activity Procedure**

1. Establish parameters for displays and have students critique each display. Agree on the needed revisions, and make them.
2. Assign each student one facet of the unit or one plant to orally present to the community. Outline the material that should be included in the oral presentation. Have students practice making their presentations in small groups or in front of the class.
3. Set up camera equipment and recorders to gather information from Elders and Recognized Experts to be added to plant cards.
4. Present information to the school. Hold an evening community demonstration where students could participate in oral presentations.

**Level – 3**  
**9<sup>th</sup> through 12<sup>th</sup> Grade**

# Classifications of Plants

**Grade:** High School

**Estimated Time:** 1 class period

## Standards

### Background

Classification is the process of grouping things together according to common features - a filing system. Anything can be classified (animals, houses, cars) but today we'll be working with plants traditionally used for medicine. Classification can be an intuitive process which we tend to carry out automatically. Plants, for example, can be grouped according to their location; alpine, sub-alpine, desert, etc. This type of classification is 'artificial' in that it groups plants that can be completely unrelated. It also reveals only one piece of information, in this case, where plants grow. Scientific botanical classifications are very different from artificial classifications because they serve a different purpose.

Botanical classification is more 'natural' in that it tries to show relatedness of plants. This type of classification tries to reflect evolutionary history, so plants within a group are thought to have a common ancestor. A classification based on relatedness is **predictive**. If you know the group to which a plant belongs you can predict all sorts of its characteristics.

### Objectives

Students will compare and contrast English, Sugcestun, Latin names, use and descriptions of local plants traditionally used for medicine.

### Vocabulary

Sugcestun:

English: Medicinal plants on list

### Materials/Resources

- *Plant Identification Cards*
- Viereck, Eleanor G. *Alaska's Wilderness Medicines* (for each group of 2 or 3 students)
- Russell, Priscilla. *English Bay and Port Graham Alutiiq Plantlore* (for each group of 2 or 3 students)
- Heller, Christine. *Wild Edible and Poisonous Plants of Alaska* (for each group of 2 or 3 students)
- *Amazing Medicinal Plant Cards* (5 or 6 per student)
- A large simplified topographical map of the area surrounding the community for each group of students
- Photos and samples of plants

### Teacher Preparation

- Plan with LEC to have Elder or Recognized Expert to come to confirm all students know the Sugcestun names of the plants
- Research and collect samples of plants that will be used in the lesson.
- Prepare Plant Identification Cards using images found online or one or more of the books suggested for the unit.
- Print enough photographs of plants for students to use on each *Amazing Medicinal Plant Card*.
- Print five or six *Amazing Medicinal Plant Cards* for each student.

**Activity Procedure**

- 1) Have the Elder or Recognized Expert work with the students to teach them the Sugcestun names of all of the medicinal plants in the kit.
- 2) Have students compare and contrast English, Sugcestun and Latin names of plants. Include the Latin family names.
- 3) Ask the students where should they find the meanings of the names (hopefully they'll ask the Elder or Recognized Expert right then about the Sugcestun meanings) and whether or not any names have similar meanings?
- 4) Do they sound similar?
- 5) What is different about the names and/or meanings?
- 6) Compare and contrast plant use and descriptions.
- 7) Which plants look similar to each other? Do any of the ones that look alike have similar family names or uses?
- 8) What other ways can the students come up with to classify the plants?

# Community Plant Collection

**Grade:** HS

**Estimated Time:** 1 class period for introduction, 1 class period near end of Healing Properties of Alaska's Plants to prepare collection for Community Demonstration

## Standards

### Background

Collecting plants and saving them for the community to use for teaching and learning is an excellent way to preserve heritage as well as develop knowledge. With medicinal plants it may also be life saving, if the community is cut off from western medicine for any period of time (e.g., during the 64 earthquake).

### Objectives

Students will:

1. list reasons that a community plant collection might be of importance
2. identify the plants that should be put in the collection
3. develop a plan for a community plant collection
4. learn to appreciate the ingenuity and scope of traditional ecological knowledge of Sugpiaq peoples who developed an extensive knowledge about the flora in their region
5. Plan for the future transmission of this cultural knowledge and practice into the future

### Vocabulary

Sugcestun:

English:

### Materials/Resources

Article about pre-contact medicinal practices in Alaska (very broad, not specific to Sugpiaq)  
<http://www.akhistorycourse.org/articles/article.php?artID=282>

Article about Western Medicine's introduction in Alaska:  
<http://www.akhistorycourse.org/articles/article.php?artID=186>

### Teacher Preparation

- Check with your LEC to see if there is an Elder in the town who remembers a time before Western medicine was readily available in the community. If so, invite that person to come talk with your class.
- Meet with the tribal administrator or museum curator in larger communities to discuss the community plant collection. Request support in developing the design of the collection and display and storage following the community event.

### Activity Procedure

1. Ask your students what they know already about plants and traditional medicines.
2. Discuss where, how and from whom they learned this information.
3. Ask your students to think about their roles as teachers to their future children.

- a. What do they think is important about teaching traditional medicinal practices?
  - b. What kinds of information do they think they would want to forward to future generations?
  - c. Is there any information they would not forward?
  - d. How would they decide and who should decide what is forwarded and what is not?
4. Charge your class with creating a Community Medicinal Plant Collection.
- a. What will the collection look like? Will it be of pressed plants? Will it include maps of where the plants can currently be found and descriptions of how to prepare and use the plants? Will it include photographs, voice recordings and/or videos? Might it include an actual garden?
  - b. Who do they think might use the collection?
  - c. What will they include and why?
  - d. Where will they go to get the information and samples for the collection?
  - e. Will they have photos of the plants in different stages of maturation?
  - f. Where will the collection be housed?



# Poisonous Plants

**Grade:** High School

**Estimated Time:** 2 class periods

## Standards

## Background

## Objectives

Students will learn to identify the region's poisonous plants and their "look-alikes" (in both English and Sugcestun) using similarities and differences and other identifiers such as habitat. Students will learn from an Elder or Recognized Expert about which parts of some of the poisonous plants can be used and when, as well as the location of the plants.

## Vocabulary

Sugcestun:

English:

## Materials/Resources

- Heller, Christine. *Wild Edible and Poisonous Plants of Alaska* (one for each 2 or 3 students)
- [http://t230.com/poison\\_plants.htm](http://t230.com/poison_plants.htm)
- *Plant Cards* showing poisonous plants
- Digital camera
- Large map of the community showing a variety of habitats in which poisonous plants are found
- Enlarged pictures of poisonous plants and their "look-alikes"

## Teacher Preparation

- Plan with LEC and an elder for the field trip.
- Prepare poisonous plant cards by taking pictures of the plants or by using the photographs found on the website listed above.
- Find or make a map of the community.
- Carefully review the information in *Wild Edible and Poisonous Plants of Alaska*.
- Collect leaves, flowers, and berries of poisonous plants with an Elder or recognized expert. Place each collected plant in a sealed Ziploc™ bag. Label bags with common and Sugcestun names. Display the items. Save these plants in a secured area. They will be re-used for the community-wide demonstration. (note: you may want to laminate the plants onto a poster board if that works for your students' demonstration)
- Prepare *Poisonous Plant Cards* for student use.

## Activity Procedure

7. Use the display of poisonous plants to identify the region's poisonous plants. Have students find plant "look-alikes." List the differences and similarities between the plants.

8. Assign students in small study groups. Assign each group a poisonous plant to research. Hand out copies of *Wild Edible and Poisonous Plants of Alaska* to be used as a research tool and copies of the *Poisonous Plant Cards*. Have students complete the information on the cards.
9. Take students on a field trip with an Elder or Recognized Expert to learn more about plants. Ask the local expert to explain the safety information on the use of the plants.
10. Display the community map. Have students show where poisonous plants might be found based on their knowledge of the local environment and the information they have found on the poisonous plants they have researched. Save the map for the community-wide demonstration.
11. Have the students develop a brochure or other item (power point, video, paper, newspaper article, it is up to them) that clearly displays poisonous plants, their look alikes, and how to tell the difference between them. The maps may be of use here, but not required.

# Habitat – Soil testing

**Grade:** High School

## Standards

### Background

All plants have their own particular needs for growth. Some prefer an arid, hot environment while other plants thrive in a moist, warm habitat like a rain forest. Soil type varies within different environments since some soil types have a greater capacity for holding moisture. The moisture content of soil is key to determining which plants grow best in a particular habitat.

### Objectives

Students will test the pH and/or water content of soils from different habitats in which traditional medicinal plants are found (e.g., sun, shade, wet, dry). Students will work with an elder or recognized expert to determine which water levels match Sugcestun descriptors.

### Materials/Resources

<i>Available from Forestry Suppliers, Inc.</i> <ul style="list-style-type: none"><li>• Electronic Balance <a href="#">93599</a></li></ul> <i>Supplied by Teacher/Student(s)</i> <ul style="list-style-type: none"><li>• Community map</li></ul> <i>Optional Items (Forestry Suppliers, Inc.)</i> <ul style="list-style-type: none"><li>• Soil Texture Kit <a href="#">77330</a></li></ul>	<ul style="list-style-type: none"><li>• Soil from 3 different areas</li><li>• Oven-safe (or microwave-safe) baking dish</li><li>• Oven (or microwave)</li><li>• 5 one quart size Ziploc bags</li></ul> <i>Optional Items (Forestry Suppliers Inc.)</i> <ul style="list-style-type: none"><li>• Soil Sample Tube <a href="#">76924</a></li></ul>
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### Teacher Preparation

- Plan with LEC and an elder for the field trip.
- Ask the elder for three distinct areas (habitats) from which samples will be taken and for the names of those habitats, e.g., beach, hillside, river or stream banks.

### Activity Procedure

#### *Field trip:*

- 1) Go to the three areas identified by elder for soil collection. Record observable differences seen in the soil site environments. Mark the areas on a community map and leave a marked flag for follow-up in next activity.
- 2) Dig six inches into each site and collect enough soil to fill the plastic bag and seal.

#### *Back at school:*

- 1) Remove enough soil (1/4 cup or less; or 57 grams) from each sample, to form a thin layer in the bottom of an oven-safe (or microwave-safe) dish.
- 2) Weigh the empty dish to be used and record the weight to the nearest 0.g.
- 3) Break the soil up as much as possible when placing in the bottom of the dish.

- 4) Weigh the dish with the soil sample. Record the weight to the nearest 0.gram.
- 5) Repeat steps #5 and 6 three times to get an average. Record the final weight to the nearest 0.gram.
- 6) Heat the soil sample in the container by using one of the following methods: (Teacher must conduct the heating process.)
  - a) Place in a conventional oven at 100° Fahrenheit for 24 hours.
  - b) Place in a conventional oven at 350° Fahrenheit until it is apparent that the sample is dry throughout.
  - c) Place in a microwave with a rotating tray, heat on high until the sample is completely dry; make sure that the container is microwave safe.
- 7) Allow the sample and container to cool completely to room temperature. (A dish not completely cooled will weigh more than one that is cooled to room temperature.)
- 8) Following the steps in #6 and #7, weigh the sample and container.
- 9) Find the weight difference between the sample/container before heating and after heating and cooling. The weight difference is the weight of the moisture contained in the soil sample. The heating causes an evaporation of the water held in the soil.
- 10) Use the following formula to calculate this difference:
  - a) final weight of container and soil before heating: \_\_\_\_ grams (#7)
  - b) final weight of container and soil after heating: \_\_\_\_ grams (#10)
  - c) a - b. = \_\_\_\_ (weight of water)
- 11) Calculate the percent of water in the sample by:
$$\frac{\text{Weight of Water (\#2)}}{\text{Weight of Soil + Water (\#7)}} \times 100$$
$$= \text{ \_\_\_\_\_\_ \% water in soil sample}$$
- 12) Repeat procedure for all soil samples. You can easily heat all samples at the same time if oven space permits.
- 13) If the soil samples specifically differ in the moisture content, you should note a definite weight difference.

### Further Studies

- Students can compare possible textural differences among the different soil types utilizing the Forestry Suppliers' Soil Analysis F.I.E.L.D. Kit or the Soil Texture Kit. Definite textural differences should be noted; especially if moisture content varies greatly among the samples tested.
- Students may measure the pH value of the various soil samples by using the correlated Lesson Plan activity Determining the pH of Soil.
- Students may conduct research on specific soil and texture types by using the school or public libraries or by contacting a local soil and water conservation agency or a private soil lab.
- Students can quickly measure the immediate water holding ability of the different soil types by obtaining equal amounts of sand and garden soil and placing the samples in a plastic cup with ten holes punched in the bottom. Equal amounts of water can be poured through the cups and retrieved by placing a measuring cup or graduated beaker under the soil cup. The students can

then measure the amount of water which was not absorbed and make comparisons between the different soil types.

## Habitat Mapping - Where Plants Grow

**Grade:** High School

**Estimated Time:** 2 class periods

### Standards

#### Background

- For any particular environment some kinds of plants survive better than others.
- Some organisms help other organisms survive.
- An organism's patterns of behavior are related to the nature of that organism's environment, including the kinds and number of other organisms present, the availability of food and resources, and the physical characteristics of the environment including light, temperature, moisture, soil type, wind, etc.
- An organism's behavior evolves through adaptation to its environment.
- Adaptations are features of organisms that help them survive and reproduce.
- An organism's patterns of behavior are related to the nature of that organism's environment, including the kinds and number of other organisms present, the availability of food and resources, and the physical characteristics of the environment including light, temperature, moisture, soil type, wind, etc.

#### Objectives

Students will identify and locate habitats and local plants traditionally used for medicine (in both English and Sugcestun) with an Elder or Recognized Expert and produce a map with the locations.

#### Materials/Resources

- Heller, Christine. *Wild Edible and Poisonous Plants of Alaska* (one for each 2 or 3 students)
- *Plant Cards* showing poisonous plants
- Digital camera, recorder and camcorder
- Map of community
- Measuring tape
- Clipboard
- Pencil
- Record sheet
- Hand lenses
- Plant guides
- Compass
- GPS

### Teacher Preparation

- Spend some time with the GPS unit in the kit. If you are comfortable with teaching how to use it, please feel free to. If there is someone in the village who can teach students how to use it, have them do so prior to the field trip.
- Plan with LEC and an elder for the field trip. Ask the LEC and elder which plants should be located in this field trip.
- Prepare poisonous plant cards by taking pictures of the plants or by using the photographs found on the website listed above.
- Find or make a map of the community.
- Carefully review the information in *Wild Edible and Poisonous Plants of Alaska*.

### Activity Procedure

Have students discuss where they think they will find the plants they are searching for with the elder or expert prior to leaving. Each group of 4 students should have their own map of the community to fill out and a select number of plants to research (plan that in advance). Include any key landmarks. Locate the plants on the list and record their location on the map using the GPS. Draw your map to scale (roughly) and include a legend and the scale below the map. For each plant have the students list the KEY "ingredients" (characteristics) of the plants' habitats? Describe what makes each different from the other habitats. Think about things like sun, slope and landforms, water, soils, wind, plants and animals present, density of organisms, animal impact, (including human), etc.

### BACK IN THE CLASSROOM:

- Based on personal knowledge, conversations with elders/experts or research, list the medicinal use for each of the plants
- Transfer the maps to large chart paper to make them easier to see when each group presents its map and data to the class
- Make a group table on the board or a large chart comparing the different habitats. Use categories like: key ingredients, plants, environmental characteristics
- Ask students how all the habitats were alike and how they were different.
- Ask students if they see any patterns.

# Planting a Medicinal Garden

**Grade:** High School

**Estimated Time:** on-going

## Standards

### Background

Developing a medicinal garden is a long-term effort in which benefits/results may not be achieved for at least a year or more. This could be frustrating to students; however, this also can create a meaningful project from which students can learn and having a medicinal garden is a great way to encourage community members to spend time at the school. Not all of the plants in this kit will have easy to gather seeds pre-packaged from the store, there may be other ways of either collecting the seeds or trying to transplant plants as appropriate. The garden ideally would be the school grounds, as this affords easy access for monitoring and maintenance activities. Monitoring activities could include recording data such as identification, plant species type, plant species density, and stem growth. Maintenance activities may include watering and managing for invasive plants.

Before determining what type of plants to grow, students should have visited the site at least once to be able to make decisions on a planting plan. Choosing appropriate plants for the site is critical to the success of the project. Through previous lessons students will have observed which plants would be well suited to the conditions of the planting site. This includes habitat factors like soil type, water and climate.

### Objectives

Students will use what they have learned about habitat, plant growth and medicinal uses of local plants to plan, develop and implement a medicinal garden with guidance from an elder or recognized expert. Students will provide interpretive signage in the garden for community members to read.

### Vocabulary

Sugcestun:

English:

### Materials/Resources

- Map of planting location
- Rake
- Shovel
- Trowel
- Planting or Potting Mix (if necessary)
- Seeds, cuttings or plants to transplant
- Guidelines for Planting Seeds of Alaska native Plants from the Native Plant Nursery 2004

### Teacher Preparation

This may be an activity that will need to be planned in the winter and started during break-up. Some of the seeds and cuttings may need time to get a good head start before planting. This may need to be done over the summer.

### Activity Procedure

- Students should consult with an elder or recognized expert for advice in developing a list of plants to put in the garden. Some of the plants may grow naturally around the school, so having that area marked as part of the garden would be a good idea. In some cases seeds for the plants can be purchased, others may be able to be regenerated via a cutting or transplanted.
- Students should then develop a site plan. This can be accomplished through drawing a map of the site. The plan should include a drawing of the planting area and show where the plants or seeds will be placed.
- Some other important considerations for a site plan include
  - a) How much of the area is to be planted? Where?
  - b) What are the surrounding land uses to the site?
  - c) Will the new plantings complement surrounding habitat by connecting fragmented natural areas?
  - d) Are there topographical features to be considered that will require plants with different soil and water needs?
  - e) Are access trails for the site planned into the restoration project?
  - f) If the project is in the schoolyard, are there spots for interpretive signage?
  - g) How much site maintenance will be required?
- Site preparation is very important to the success of a garden. If you are working at a site with mowed lawn it can easily be killed off with black plastic, tilling or herbicide application.
- The next step in the process is to acquire the plants for the restoration project. These can be obtained from native plant producers in your region, or they can be grown from seed. Collecting seed and growing it in the classroom is an ideal way to teach students about the plant life cycle. Seed should only be collected if permission is granted from the landowner.
- The next step is to establish a planting day. This occurs after the site has been prepared and the plant materials for the project have been secured. Invite parent volunteers and other classes to help out. If just seed is being used it makes the project much simpler.
- Depending on the scale of the project it may be most appropriately done on a weekend. Make sure factors such as watering and mulch are considered when planning the agenda for the day.
- Monitoring and maintenance of the restoration project are important. Especially in areas that have been just been seeded and have recently disturbed ground. If the project is on the school grounds, students should monitor the site for the invasive plants they have become familiar with through the lessons. Students could be asked to keep a journal of their observations of the habitat once a week.



# Gathering Oral Histories for Plant Uses

**Grade:** High School

**Estimated Time:** 2 to 3.5 hours depending on the elder (must be broken down into segments of planning, interviewing and producing)

## Standards

### Background

No records or documents or even photos will ever be able to tell us as much about traditional medicinal uses of plants in the Chugach Region as local elders and recognized experts. The stories which they have to share are priceless. Collecting the stories requires permission from the elder (which may need to be obtained via a 3<sup>rd</sup> party), preparation (on the part of the student in many ways, preparing for the questions they will ask, preparing the Elder for the types of questions that will be asked, and preparing who, what, where, how and when the histories will be gathered), polite behavior (especially with some of the older Elders, as they may have physical issues that could disrupt collecting the oral histories) and follow-up.

### Objectives

Students will prepare a list of questions they would like answered about traditional medicinal plants, set up an appointment to interview an elder, record and take notes of the interview then summarize what was taught by the Elder either in an essay, power point presentation or other presentation (e.g., video or photo/plant collage).

### Materials/Resources

- Wild Edible & Medicinal Plants: Alaska, Canada & Pacific Northwest Rainforest, volumes 1 & 2, Biggs, Carol R.
- Wild Edible and Poisonous Plants of Alaska, Cooperative Extension Service, Heller, Christine.
- English Bay and Port Graham Alutiiq Plantlore, Russell, Priscilla

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>• Video Recorder</li><li>• Voice Recorder</li><li>• Digital Camera</li><li>• Plant cards</li></ul> | <ul style="list-style-type: none"><li>• Notebooks</li><li>• Pen/pencil</li><li>• Plant samples</li></ul> |
|--|--|



- Maps and other materials produced by students in previous lessons.

Access to the following websites that show interest in traditional medicinal plants (this was from a simple search; there are undoubtedly many more examples):

- <http://www.pbs.org/indiancountry/history/oral1.html>
- [http://www.edukits.ca/aboriginal/health/teachers/plants\\_lesson3.htm](http://www.edukits.ca/aboriginal/health/teachers/plants_lesson3.htm)
- <http://www.bgci.org/education/1683/>
- [http://www.lumrix.net/health/Folk\\_medicine.html](http://www.lumrix.net/health/Folk_medicine.html)

### Teacher Preparation

- Work with the LEC to identify appropriate elders to interview. In many villages there is a person who is generally known to be the recognized expert - the one person who everyone believes has the most information about medicinal plants. This may be the elder or recognized expert with whom the class has been working; however, there are others who could be just as knowledgeable (or more so, but unable to leave their homes). Ask the elder or recognized expert with whom the students have been working who else they think would know the most about medicinal plants and that is where students will start their search. One important thing to keep in mind as students are making the list of people to talk to is whether there is someone in the who is really getting on in years. While it is sad to think about, they won't be around forever. Additionally, they may become mentally, verbally, physically or visually impaired, affecting their speech, their ability to tolerate a long interview or their ability to remember. If there is hesitation about a certain elder being willing to work with the students, ask if any of the students in your class are related to that person, as it may ease the process and provide access to elders who may not respond to requests normally.
- In selecting groups of students to go on the interview, make sure there is a good leader in the group who will keep everyone on track. It is very important that the students are respectful of the elder, their knowledge and time, (see activity procedure) so these types of interviews are welcomed in the future.
- Make sure the students have read the “Oral History – Interviewing Elders” document.
- Let the students know they’ve already been working with an elder in this way in previous lessons with the elder leading the lesson. This is the students’ opportunity to ask questions they think are important, using what they’ve learned so far from the elder or recognized expert who has been working with them.
- Garner release forms for the students who will be interviewing as well as the interviewees so the documents may be used to teach others.

### Activity Procedure:

- 1) **Set the “Collection Crew”** Break students into groups of three to form the “collection crew”
  - a) one will be the main interviewer,
  - b) one will be the media tech (person who knows the most about running the cameras and recorder),
  - c) the third will be the resource technician who will be the one to find pictures and samples of each of the plants the interviewee starts to talk about.
  - d) After the collection crews have been determined, have them divide the different plants so each plant is discussed with an elder. Some of the crews may share certain plants, though the shared plants should be of some importance as determined by the students.
- 2) **Develop a plan for the interview.** Students may think it’s silly, but it is something which will greatly improve chances for success. Have the students:
  - a) read the attached step-by-step instructions on how to set up and conduct a successful oral history interview “Oral History – Interviewing Elders.”
  - b) make an appointment with the elder or recognized expert
  - c) **Do the research.** Have plant classifications, collection, poisonous plant cards, maps, samples and research materials in front of students to help them formulate questions

- d) decide on a list of questions, ranked in order of importance
- e) practice interviewing someone before going to see the Elder...someone in the school may already have some knowledge of medicinal plants and may be willing to be the “practice” interviewee.
- f) prepare for their visit with a notebook, several sharpened pencils, a voice recorder and a video recorder if they plan to use one (including extra tapes and batteries). Do not use a video recorder if this makes the interviewee uncomfortable. They should also bring plant cards, any collected plant samples they have, the maps they produced and resource books.

### 3) Interview Process

- a) Questions help the elder or recognized expert remember and asking the right questions will give your students the greatest chance of success in an oral history interview. When deciding which questions to ask, have them think about their objectives:
  - i) what do they already know,
  - ii) what do they want to learn, and
  - iii) about which plants and medicines is the elder or recognized expert likely to be the most knowledgeable
- b) As your students ask their questions keep the following important points in mind:
  - i) **Use open-ended questions** that encourage discussion, rather than close-ended questions that only require "yes" or "no" answers.
  - ii) **Try to elicit facts** as well as feelings and descriptions. While interviewers should always try to elicit such details as names and locations, remember that facts also include finding out *how, why, where* and *with what results*.

### 4) Prepare the oral history for presentation

- a) Once the students have collected the oral histories, have them come back and review the interviews with the rest of the class. Ask them to think about how they might present the Elder or Recognized Expert’s oral history with the community. They may want to write a newspaper article, an essay or develop a plant journal using the information the Elder or Recognized Expert shared. They may want to produce a power point presentation using photographs or short video and/or audio clips from the interview. They may want to tackle editing the video into a short documentary if the school or someone in the village has a computer with video editing software.

# Oral History - Interviewing Elders

Some things you need to know to conduct oral histories including how to prepare for an oral history interview, memory sparks and teasers, effective questions, scripts, and more.

**Time Required:** 1-2 hours

## Here's How:

1. Schedule a time in advance. Be sure to ask if it is ok to record both voice and video in the interview, and be sure to inform the Elder that you'll have a release form for them to sign so the recordings may be used to teach others. This gives everyone a chance to prepare.
2. Prepare a list of questions beforehand and either share them with the elder or recognized expert, or give an idea of what you want to cover.
3. Bring several notepads and pens to the interview. Be sure to have a video recorder, tape player, microphone, extra tapes and batteries. Also be sure the media tech in your group has practiced on how to use all of these items.
4. Take good notes and make sure you record your name, the date, the place the interview is being conducted and the interviewee.
5. Start with a question or topic that you know will elicit a reply, like something you've been told the person is interested in.
6. Ask questions which encourage more than simple 'yes' or 'no' answers. Try to elicit facts, feelings, stories and descriptions.
7. Show interest. Take an active part in the dialogue without dominating it. Learn to be a creative listener.
8. Use props whenever possible. Samples you've collected of the plants, maps, photos cards of the plants, resource books will help spark memories.
9. Use your prepared questions as a guideline, but don't be afraid to let the elder or recognized expert tell their own stories. They may have many things to say that you never thought to ask!
10. Don't interrupt or attempt to correct; this can end an interview in a hurry!
11. When you have finished, be sure to thank the elder or recognized expert for the time.

## Tips:

1. Be respectful of the elder or recognized expert's home if you're doing the interview there. If the interview is at school, make sure they are comfortable before you start.
2. Introduce everyone in the group and let the elder know what each of you will be doing during the interview.
3. Keep the interview length to no more than 1-2 hours at a stretch. It's tiring for you and for the person being interviewed. This is supposed to be fun!
4. If the elder or recognized expert begins to look uncomfortable, ask if they would like to take a break or if they would like to stop for the day and continue later.
5. Prepare a transcript or written report as a tangible thank you to the elder or recognized expert for their participation.
6. Be prepared to take breaks. Don't ask an Elder to talk for an hour without stopping.



## Sample Interview Questions

1. When was the first time an elder taught you about medicinal plants? Where were you? What were you doing? How did they teach you? How long before you remembered everything about the plant?
2. Do you remember a time when there was no western medicine in the village? What was the worst type of illness at that time? How was it cured?
3. What do you think are the most important medicinal plants and why? What do the names of the plants mean? Where do you find those plants? Is there more than one way to prepare the plant to make medicine? How do you prepare them? (remember to ask this of each plant the elder mentions)
4. When is the best time to collect the plants? Are any of the plants collected at different times of the year? Why?
5. How do you preserve the plants for use at a later date? Where and how do you store them? How long do they stay good to make medicine?
6. Do you remember a story about a particular medicine that worked on a bad illness or injury? Who made the medicine? What was the recovery like?
7. Are there any items, traditions or customs in the family which have been handed down from generation to generation that include medicinal plants?

These are only examples of the types of questions you can ask. The possibilities are endless, depending upon what you hope to achieve from your interview.

# Plant Collection and Emergency Wilderness Medicine

**Grade:** High School

**Estimated Time:** 1 to 1.5 hours

## Standards

Health and Wellness *Learn to Respect Plants as Givers of Life* concept: 3. *Plants are prepared for use as medicine in different ways.*

## Background

Many of the plants traditionally used as medicines are readily available in the areas around (and in) the community. With the renewed interest region-wide in the use of traditional medicinal plants and using traditional healing methods, now is the time to have students collect and learn their uses. Additionally with much of the subsistence lifestyle predicated upon being in the wilderness, learning traditional emergency medicine at the same time makes sense.

## Objectives

Students will discuss medicine, learn basic safety around medicines and, with an Elder or Recognized Expert, harvest and identify medicinal plants in both English and Sugcestun for making medicine in the classroom and discuss how the plants may be used for emergencies in the wilderness.

## Vocabulary

English: Names of the plants to be collected

Medical conditions (examples of): abscesses, sores, wounds, bee stings, blisters, broken bones, bruises, bug bites, burns, diarrhea, frostbite, hives, itching, vomiting, sunburn, swelling

Types of medicines: chew, decoction, infusion, plaster, poultice, raw, switch, tea, salve

## Materials/Resources

- Russell, Priscilla. *English Bay and Port Graham Alutiiq Plant Lore*
- Garibaldi, Ann. *Medicinal Flora of the Alaska Natives*  
Focus on page 15, devil's club; page 24, Labrador tea; page 57, high-bush cranberry; page 61, Northern yarrow; page 104, single delight; page 136, horsetail; page 173, Sitka spruce; and page 176, wormwood.
- Schofield, Janice J. *Alaska's Wild Plants, A Guide to Alaska's Edible Harvest*, Anchorage, AK Alaska, Northwest Books, Focus on page 67, rose
- Plant posters from photographs taken during the "Plants We Use" lesson
- Ziploc™ bags
- Notebooks and pencils for the field
- Digital camera
- Voice recorder and/or video recorder if desired

### **Teacher Preparation**

Work with the chosen Elder or Recognized Expert to identify the plants that will be gathered for this lesson and the general location that the plants will be found. Let the Elder or Recognized Expert know that plants will be gathered for making internal and external medicine later, but that emergency wilderness medicine needs to be discussed during the field trip. Ask the Elder or Recognized Expert if it is ok to videotape and/or record the trip with a voice recorder or camera. Be sure to obtain parent permission for students to be photographed, sample the medicines that will be made, and to gather information on any allergies the students may have as well as a release form from the Elder or Recognized Expert.

### **Activity Procedure**

9. Have a class discussion on different types of medical emergencies that may be encountered in the wilderness. Ask them what kinds of emergencies they have encountered or heard of people encountering in the wilderness.
10. Introduce the Elder who will be the guide for this field trip, let the students know you will be collecting samples to make medicines in the future as well as talking about plants that can be used for emergency wilderness medicine. Share the rules for respectfully participating in the plant collection.
11. Ask for volunteers for the students to record video or voice and to take photographs.
12. Make sure the students have resource material and notebooks to take notes in if they so desire.
13. Carefully collect the plant parts that will be used and put them in Ziploc™ bags for storage.
14. Upon returning to the classroom, clean plant materials.
15. Compare the plants collected with the plant cards. Name as many of the plants as possible in both English and Sugcestun.
16. Have the Elder or Recognized Expert review the different uses for the plants while in the classroom and ask students to take notes.
17. Prepare students for the next lesson by telling them that they will be making medicines.
18. Store plant materials in a cool, dark place.



# Making Medicine - Internal

**Grade:** High School

**Estimated Time:** 1 to 1.5 hours

## Standards

Chugach Health and Wellness Standard: *Learn to Respect Plants as Givers of Life: 3. Plants were prepared for use as medicines different ways.*

## Background

Teas, decoction, and infusions are the focus of this lesson. Various parts of the plants mentioned below will be used to prepare these teas.

## Objectives

Students will recognize and appreciate the knowledge required to understand the variety of processes followed in making traditional medicines from plants.

## Students will:

- Be able to make their own internal medicine, know what ailments the medicine cures, what plants to use, where and when to gather the plants, how to store the plants for future use and how long the plants will remain effective after it has been stored.

## Vocabulary

Sugcestun:

English: Medical conditions (examples of): abscesses, sores, wounds, aches and pain, arthritis, joint pains, asthma, bee stings, bladder, blisters, boils, bowel, broken bones, bronchitis, bruises, bug bites, burns, cancer, cankers, circulatory, colds, congestion, pneumonia, cough, runny nose, sinus, sore throat, colic, convulsions, corns, cramps, delirium, depression, diabetes, diaper rash, diarrhea, earache, eczema, edema, eyes, fever, flatulence, gas, frostbite, fungus infections, glands, swollen, gout, headache, heart trouble, heartburn, indigestion, hemorrhoids, hives, hypertension, inflammation, itching, jaundice, kidney trouble (kidney stones), lice/other vermin, liver troubles, menstrual flow – difficult, decrease, increase, irregular, mouth problems – mouthwash, sores, muscle cramps, nausea – stomach problems, obesity – lose weight, pimples, post parturition (childbirth), pregnancy, psoriasis, rash, restlessness, rheumatism, ringworm, skin problems – itching, disorders, eruptions, infections, sores, sore throat, spleen, sprains, stings, stomach trouble – ache, ulcers, weakness, vomiting, sunburn, swelling, toothache, tumors, ulcers, urinary problems, vomiting, warts, weak blood, worms,

Types of medicines: chew, decoction, infusion, poultice, raw, switch, tea.

## Materials/Resources

- Access to cooking equipment, paper cups, infusers, tea balls, or pieces of cloth or filter paper and string, containers for dried plants (Ziploc bags™ or jars), sweeteners
- *Amazing Medicinal Plant Cards*
- Crowell, Aron L. et al. *Looking Both Ways*

- Elder or Recognized Expert to demonstrate techniques for preparing decoctions and infusions and to describe their purpose
- Laurel Drewry *Plant Power* “Making Herbal Remedies” Card- Teas page 131
- Garibaldi, Ann. *Medicinal Flora of the Alaska Natives*
- Russell, Priscilla. *English Bay and Port Graham Alutiiq Plantlore*
- Viereck, Eleanor G. *Alaska’s Wilderness Medicines*
- Label sheets and access to a computer with color printer

### Teacher Preparation

- Review the plants that will be used in this lesson. The chart below is an easy cross reference:

Plant	Source pages from mentioned books by authors below		
	Russell	Garibaldi	Viereck
Chamomile	58		15
Northern red current	26-27	41 & 174	26-27
Horsetail	55	136	37-40
High-bush cranberry	33	57	35
Labrador tea		24	43-44
Rose	37	43	55
Yarrow	59-61	61	3, 79-81

- Meet with the Elder or Recognized Expert who will be leading the lesson.
- Inform parents or send a permission slip, should a field trip to collect plants be necessary.

### Activity Procedure

8. If necessary, take a field trip with the Elder or Recognized Expert to collect the plants that will be used in the day’s lesson. Hopefully the plants will have been collected previously.
9. Put the separated and identified plants in containers (Ziploc™, plain paper bags, or jars) and label and date each container.
10. Select the plants to be used for the class tea making demonstration. Have the Elder demonstrate the steps traditionally used in tea making. Give each student a small sample of the teas made and offer sweetener. Caution: This is medicine, and samples should be small as some of the medicines are quite strong.
11. Group students to do more research on the plants. Assign two plants to each group of students and have them focus on the tea making qualities of the plants and the ailments effected by the teas.
12. Have students include information from demonstration and research on *Amazing Medicinal Plant Cards*.
13. Reserve some of these plants for the community-wide demonstration.

# Making Medicine - External

**Grade:** High School

**Estimated Time:** 1 to 1.5 hours

## Standards

Chugach Health and Wellness Standard: *Learn to Respect Plants as Givers of Life: 3. Plants were prepared for use as medicines different ways.*

## Background

Through time, Sugpiaq/Alutiiq people devised different techniques in processing traditional medicines. Some traditional medicines are made by boiling, steaming, or roasting the plant. Other medicines are made by pounding, drying, or mixing crushed plant material with wax or oil for use as a salve, ointment, and poultice. In this lesson, the different methods plants are processed to become medicine will be explored.

## Objectives

Students will safely and sanitarily prepare and use traditional medicines used externally with an Elder or Recognized Expert as well as classify them by use and type (in both English and Sugcestun).

## Students will:

- Be able to make their own external medicine, know what ailments the medicine cures, what plants to use, where and when to gather the plants, how to store the plants for future use and how long the plants will remain effective after it has been stored.

## Vocabulary

Sugcestun:

English: Medical conditions (examples of): abscesses, sores, wounds, aches and pain, arthritis, joint pains, asthma, bee stings, bladder, blisters, boils, bowel, broken bones, bronchitis, bruises, bug bites, burns, cancer, cankers, circulatory, colds, congestion, pneumonia, cough, runny nose, sinus, sore throat, colic, convulsions, corns, cramps, delirium, depression, diabetes, diaper rash, diarrhea, earache, eczema, edema, eyes, fever, flatulence, gas, frostbite, fungus infections, glands, swollen, gout, headache, heart trouble, heartburn, indigestion, hemorrhoids, hives, hypertension, inflammation, itching, jaundice, kidney trouble (kidney stones), lice/other vermin, liver troubles, menstrual flow – difficult, decrease, increase, irregular, mouth problems – mouthwash, sores, muscle cramps, nausea – stomach problems, obesity – lose weight, pimples, post parturition (childbirth), pregnancy, psoriasis, rash, restlessness, rheumatism, ringworm, skin problems – itching, disorders, eruptions, infections, sores, sore throat, spleen, sprains, stings, stomach trouble – ache, ulcers, weakness, vomiting, sunburn, swelling, toothache, tumors, ulcers, urinary problems, vomiting, warts, weak blood, worms,

Types of medicines: plaster, poultice, raw, soap, switch, ointment, salve

## Materials/Resources

- Garibaldi, Ann. *Medicinal Flora of the Alaska Native* (pages 173 to 179)
- Schofield, Janice. *Alaska's Wild Plants*
- Viereck, Eleanor G. *Alaska's Wilderness Medicines* (pages 3 and 82 to 84)
- Russell, Priscilla. *English Bay and Port Graham Plantlore* (pages 6 to 8)
- Elder to demonstrate making medicine
- Access to a stove or cook top, pots and pans
- Containers for medicine (small film canisters work well)
- Adhesive labels for medicine containers
- Bee's wax and petroleum jelly or mineral oil
- Sample of over-the-counter and prescription medicines

### **Teacher Preparation**

- Meet with the Elder or Recognized Expert who will be working with the class. Plan activities and list materials that will be required for the lesson. Write out as many recipes and instructions as the Elder or Recognized Expert is able to provide.
- Gather and sanitize medicine containers.
- Collect all materials required for making plant medicines.

### **Activity Procedure**

5. Have students wash their hands and sanitize the area to be used for processing plants into medicine. Remind students of safety, health, and sanitation practices needed, bandage open wound and put gloves on.
6. Prepare medicines following the Elder's instructions or those found in one or more of the resource books listed for this lesson.
7. Classify each of the traditional medicine made by its use and type.
8. Have students study the information required by the federal government on both over-the-counter and prescription medications. Have each student design a label for one of the traditional medicines made which includes: ingredients, directions for use, date prepared and other information regularly found on medicine labels. Save some of the traditional medicines for the community-wide demonstration.

# Preservation of Plants

**Grade:** High School

**Estimated Time:** 1-2 hours (may be broken into two sections: one research and writing, one with elder feedback)

## Standards

### Background

Though some medicinal plants can be collected in the winter, many are collected, preserved in some way (e.g., drying or freezing) and used at a later date. The planning process for this was at one time part of the traditional subsistence lifestyle. Since the introduction of western medicine some of the traditional planning that went into collecting, preserving and using medicinal plants has diminished.

### Objectives

Students will make a plan for medicinal plant harvest, preservation, use for one year...include festivals

### Vocabulary

Sugcestun:

English: Plant names, names of processes of preservation, names of times of year to harvest and preserve plants.

### Materials/Resources

- Wild Edible & Medicinal Plants: Alaska, Canada & Pacific Northwest Rainforest, volumes 1 & 2, Biggs, Carol R.
- Wild Edible and Poisonous Plants of Alaska, Cooperative Extension Service, Heller, Christine.
- English Bay and Port Graham Alutiiq Plantlore, Russell, Priscilla
- Oral histories gathered previously by students
- Notes from previous field trips and talks with Elders or Recognized Experts
- Amazing Medicinal Plant Cards

### Teacher Preparation

- Plan with LEC and an Elder for the elder to come into the classroom and look at the timelines prepared by the students and give guidance for any changes necessary.

### Activity Procedure

- 1) Hold a class discussion about traditional subsistence annual life cycle. Talk about the main events that happen annually in the village. Do villagers go to fish camp? Is there an annual hunting season? What about festivals or other community gatherings? Ask the students when the Elders or Recognized Experts recommended harvesting the plants. Are some of the plants harvested at more than one time of year (e.g., when they first sprout, before berries

- come, just the berries, etc.)? How many different ways can the students remember Elders or Recognized Experts describing or showing how to preserve plants.
- 2) Have the students review the resource material, their research and notes from previous activities that may have included how, when and where to collect, preserve and store medicinal plants as well as how long each plant would be effective as medicine after it has been preserved.
  - 3) Once the discussion and research has been done, ask the students to devise a way to show the traditional annual timeline of medicinal plant growth, collection, preservation and use, including any medicines that may be important during festivals or other community gatherings, (are/were any of the medicines traded or sold?). Student projects document and demonstrate the timeline. Let them know an Elder or Recognized Expert will come to look at what they've produced.
  - 4) When the Elder or Recognized Expert comes to the classroom, make sure all of the presentations are ready. Ask the students to present their work to the class and the Elder or Recognized Expert. Allow time for a short discussion and/or question and answer session after each presentation. Be sure the Elder or Recognized Expert knows that the students expect feedback and guidance if they have something that is very good or needs to be changed in their timeline.

# Medicinal Plant Jeopardy

**Grade:** HS

**Estimated Time:** 30 minutes or more, depending upon participant enjoyment

## Standards

**Estimated Time:** 30 minutes or more, depending upon participant enjoyment

## Standards

## Background

Jeopardy is a fun creative way to help children learn vocabulary. It's simple and can work for a number of different areas. It may be even more fun if the students know more than their parents if they play this during the community demonstration.

## Objectives

Students will be able to use English and Sugcestun names of plants traditionally used for medicine and be able to identify them. Depending upon grade level, students will be able to categorize the medicinal plants into how they are used, where they are found (habitat) and the ailments for which they are used.

## Vocabulary

Sugcestun: As appropriate to each game

English: As appropriate to each game

## Materials/Resources

- Computer with internet access
- Whiteboard or PowerPoint projector

<http://www.superteachertools.com/jeopardy/usergames/Mar201112/game1301006518.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201114/game1302211354.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201114/game1302215136.php>

4-8

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302302733.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302307880.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201114/game1302312678.php>

HS

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302576869.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302575955.php>

<http://www.superteachertools.com/jeopardy/usergames/Apr201115/game1302573475.php>

## Teacher Preparation

- Review all three games to prepare for teacher directed answers

## Activity Procedure

- Play the game, as the game is played, discuss the answers given and ask for additional information.

- Have fun



# Medicinal Plant Jeopardy

**Grade:** Adaptable for K-3, 4-8 and HS

**Estimated Time:** 30 minutes or more, depending upon participant enjoyment

## Standards

### Background

Jeopardy is a fun creative way to help children learn vocabulary. It's simple and can work for a number of different areas. It may be even more fun if the students know more than their parents if they play this during the community demonstration.

### Objectives

Students will learn English and Sugt'stun names of plants traditionally used for medicine and be able to identify them. Depending upon grade level, students will be able to categorize the medicinal plants into how they are used, where they are found (habitat) and the ailments for which they are used.

### Vocabulary

Sugt'stun:

English:

### Materials/Resources

- Posterboard, any color except white
- Index cards (lined 3 X 5)
- Double sided tape
- Marker
- Lined paper

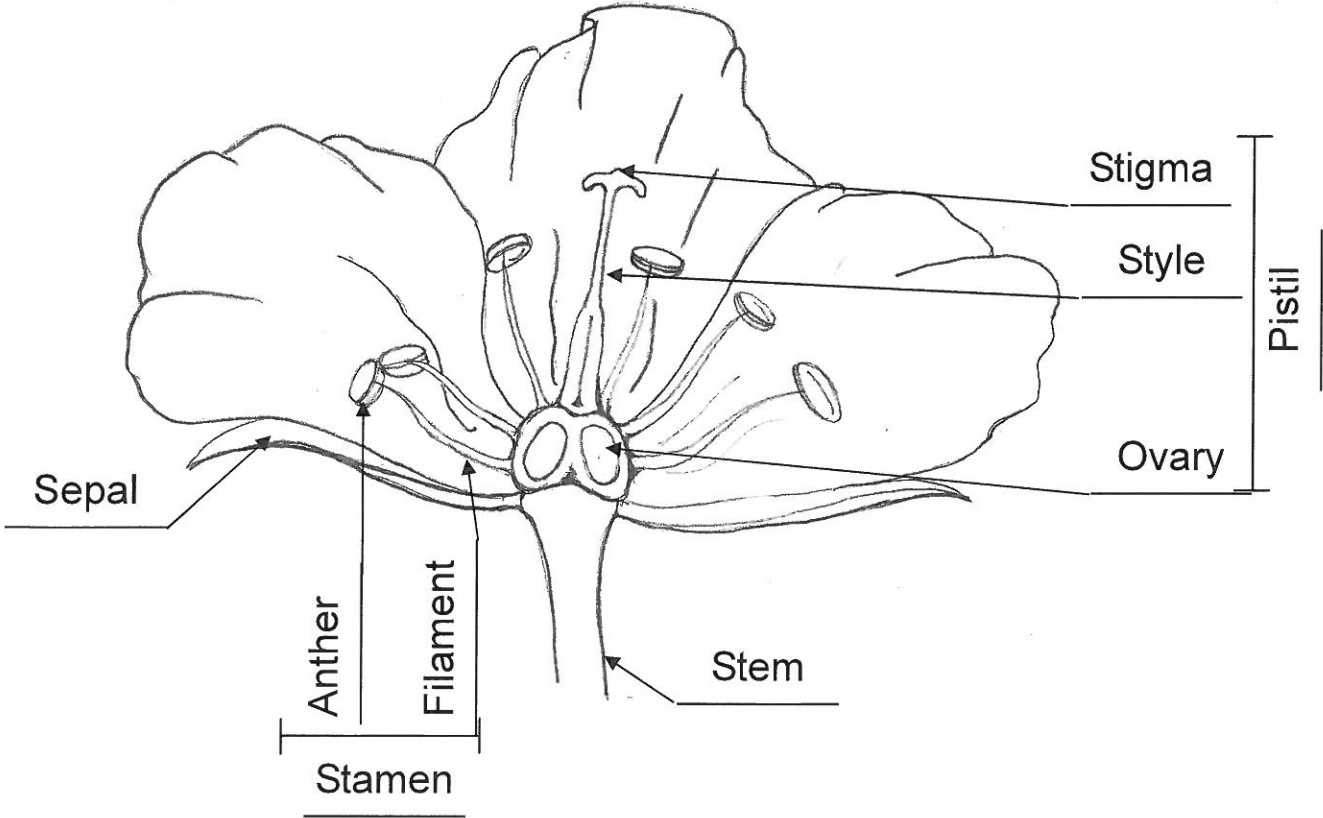
### Teacher Preparation

- Write the dollar amount \$100 on the blank (unlined) side of five index cards with a marker, \$200 on the unlined side of another five index cards, \$300 on five more, \$400 on the remaining five cards.
- Label the poster board at the top with four subject areas (you may choose, but here are some suggestions:  
K-3: Berries, Trees, Flowers, Plants, Deadly plants  
4-8: Forest (woods), Grasslands (meadows), Tundra (and wetlands), Alpine  
HS: Respiratory Ailments, Stomach Disorders, Sores or skin problems Dangerous or Deadly plants  
You might want to use the types of medicine, e.g., Decoctions, Poultices and salves, Switches, Do Not Use or some other group of questions/subject areas.
- Write the questions using the plant guides in the Kit.  
For K-3 pictures in addition to questions may be appropriate.

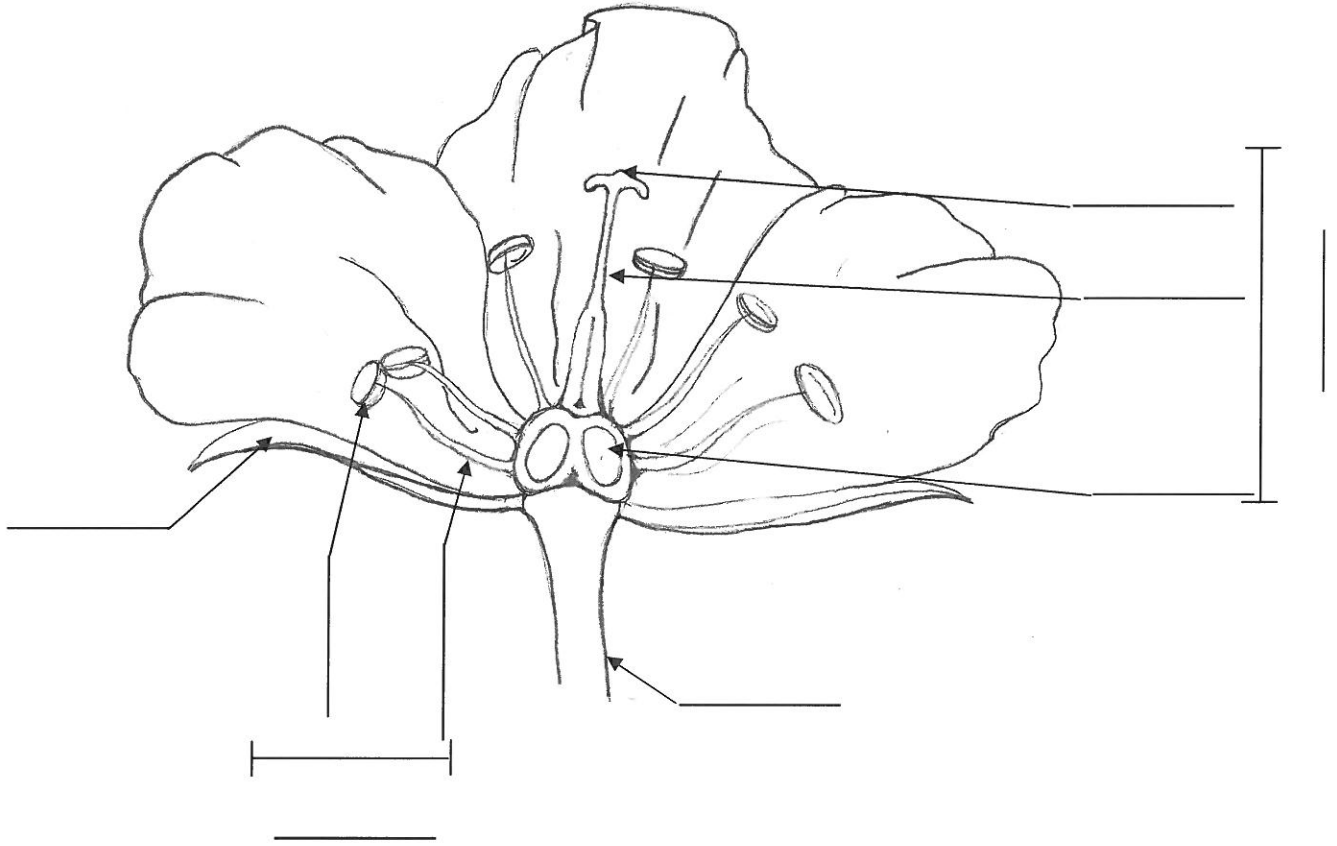
### Activity Procedure

1. Playing the Game: Once the board is set up, begin. You will need at least three players or teams.
2. Create a score sheet by placing each contestant's names on the top line of a piece of lined paper. Draw vertical lines in between players' names.
3. Determine who will go first. The first player will choose a category and a dollar amount, for example "Fractions for \$300". The "host" will gently pull off card and ask the first player the question written on the back.
4. If the player answers correctly, write the dollar amount earned under her name. If the player gives an incorrect answer, the host will reveal the correct answer and the player will receive \$0 for the turn. Place the card aside. Decide if both English and Sugt'stun names need to be shared.
5. The players will continue taking turns until all cards have been removed from the game board.

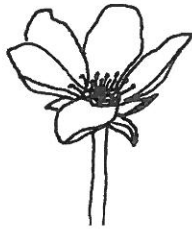
# Flower Anatomy



# Flower Anatomy



# Flower inflorescence



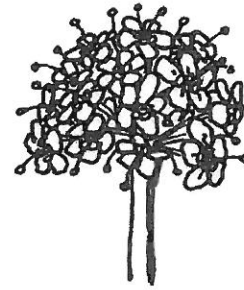
solitary



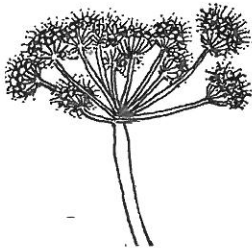
raceme



spike



corymb



umbel



capitulum

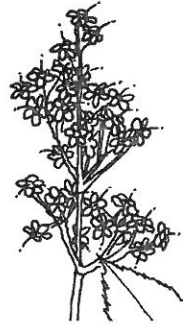
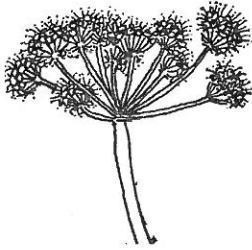
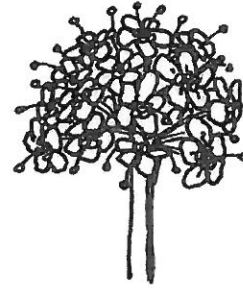
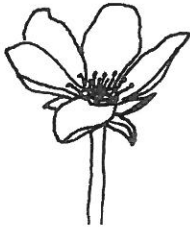


panicle

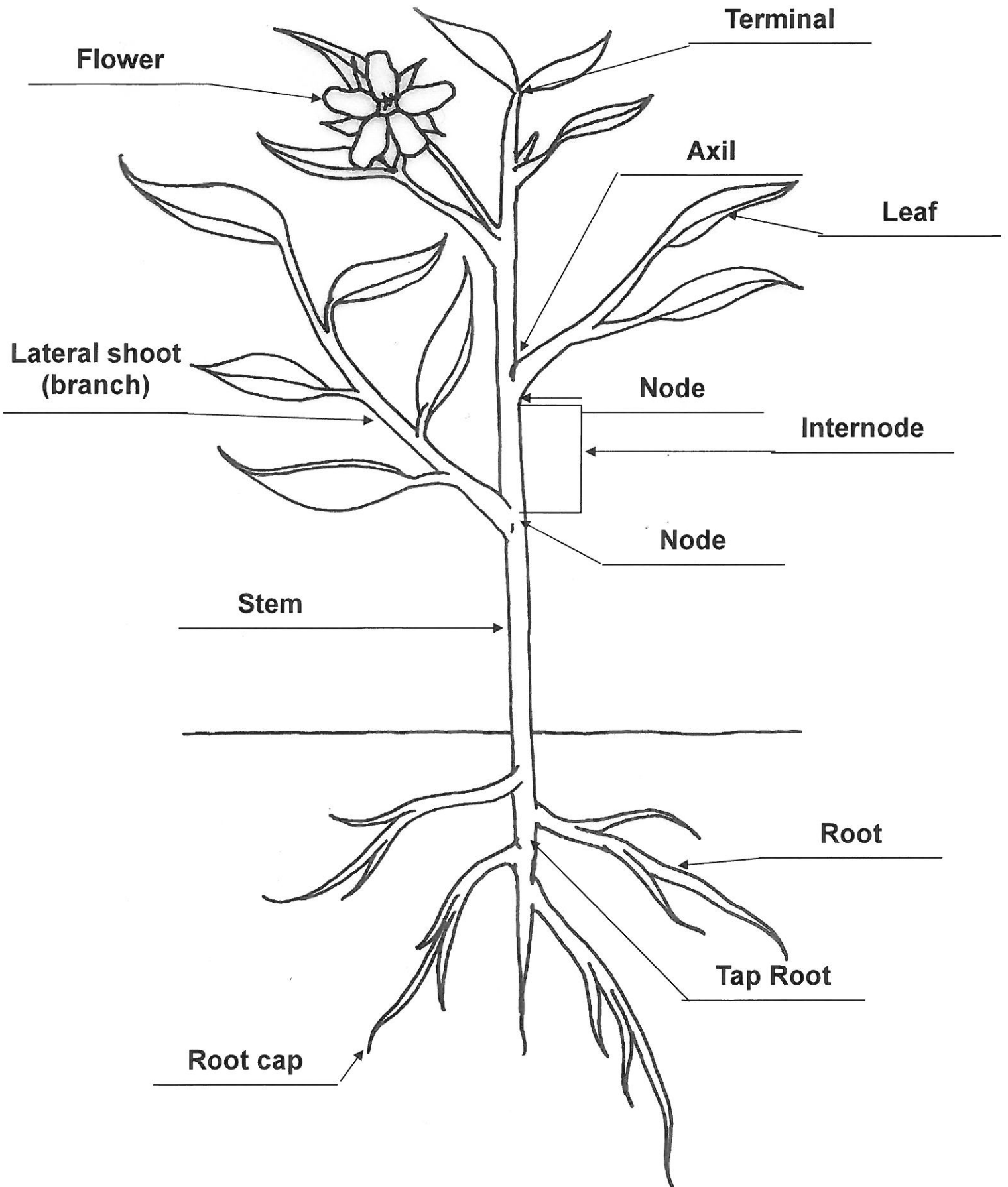


cyme

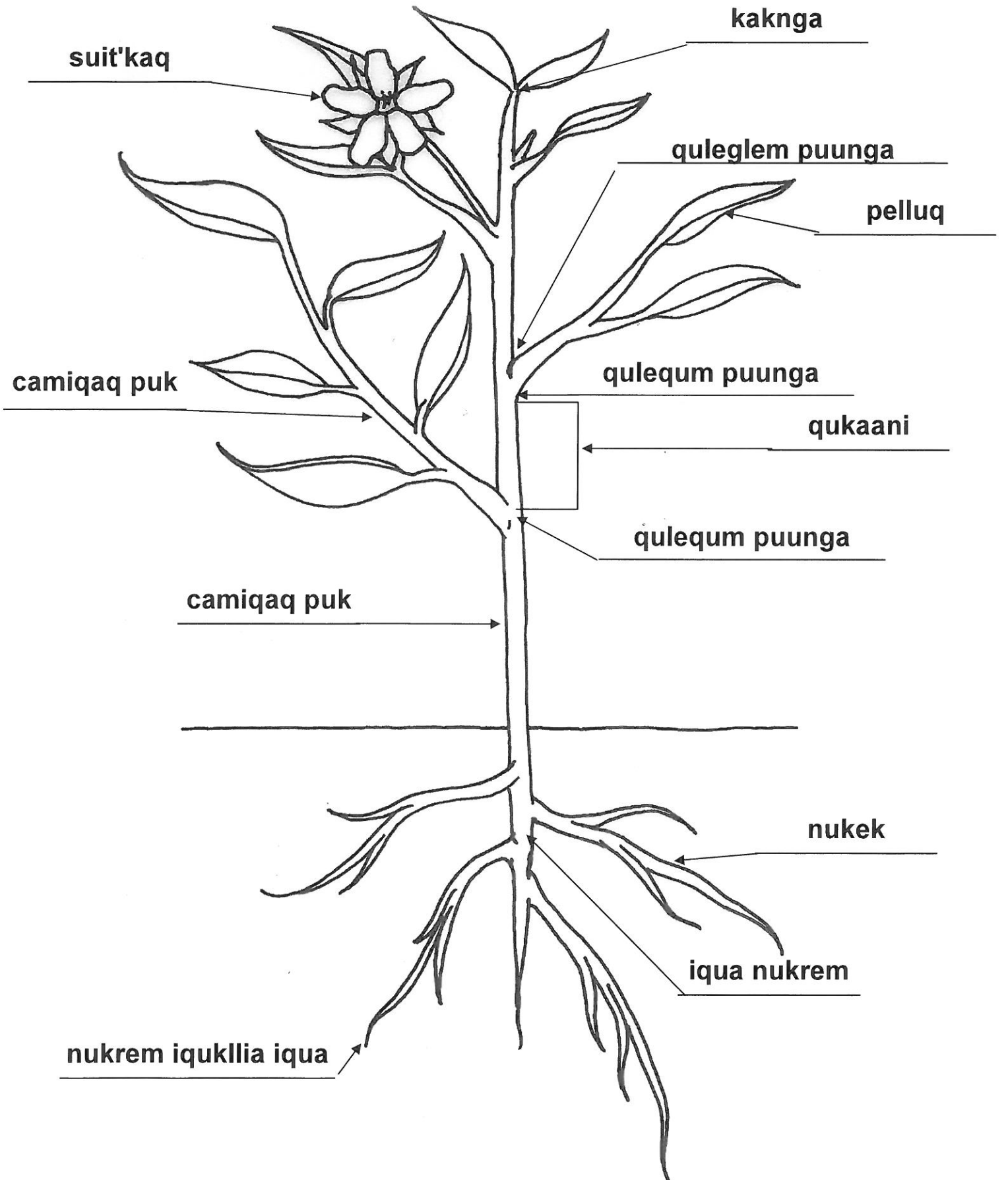
# Flower inflorescence



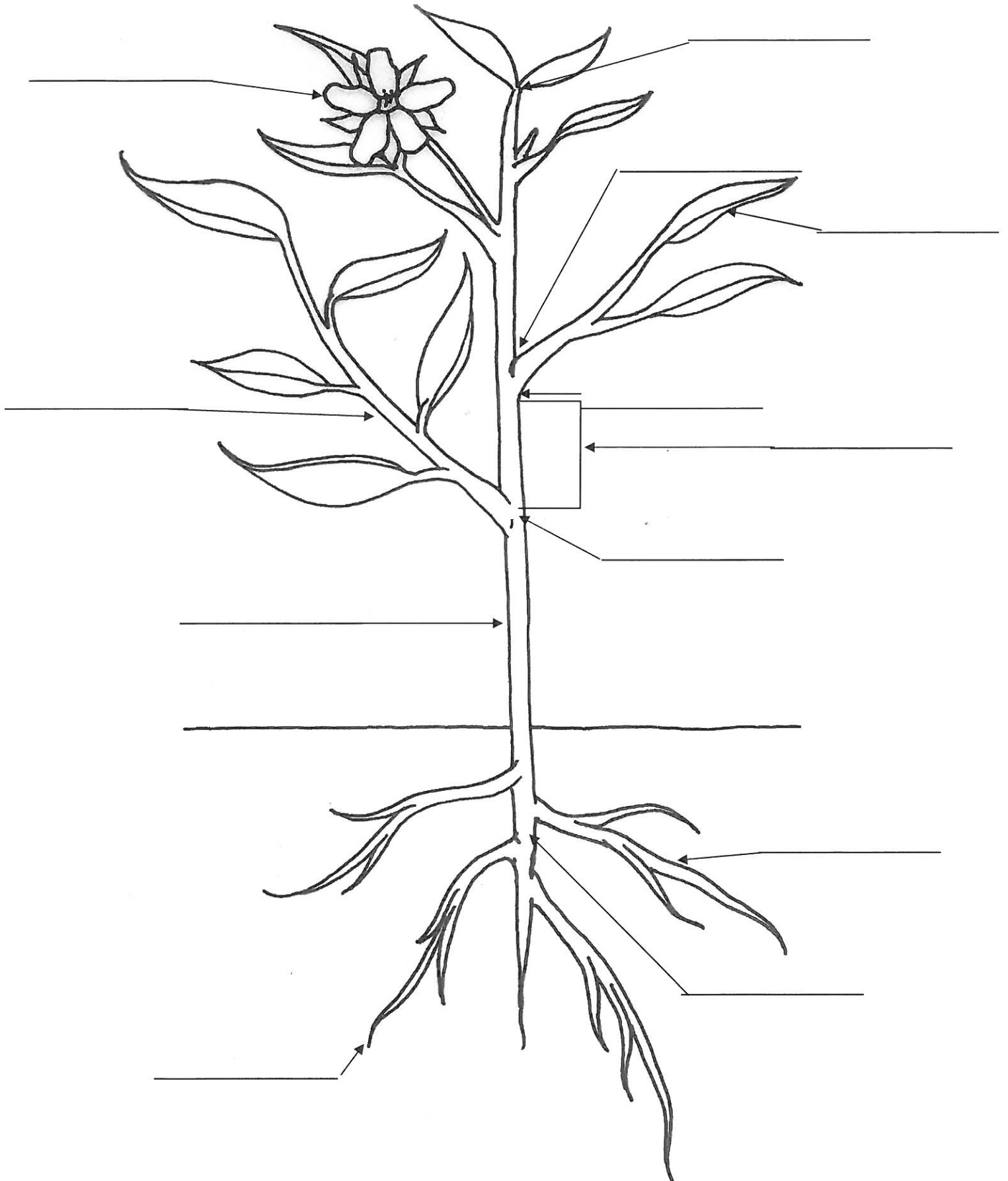
# Flowering Plant Anatomy



# nauq

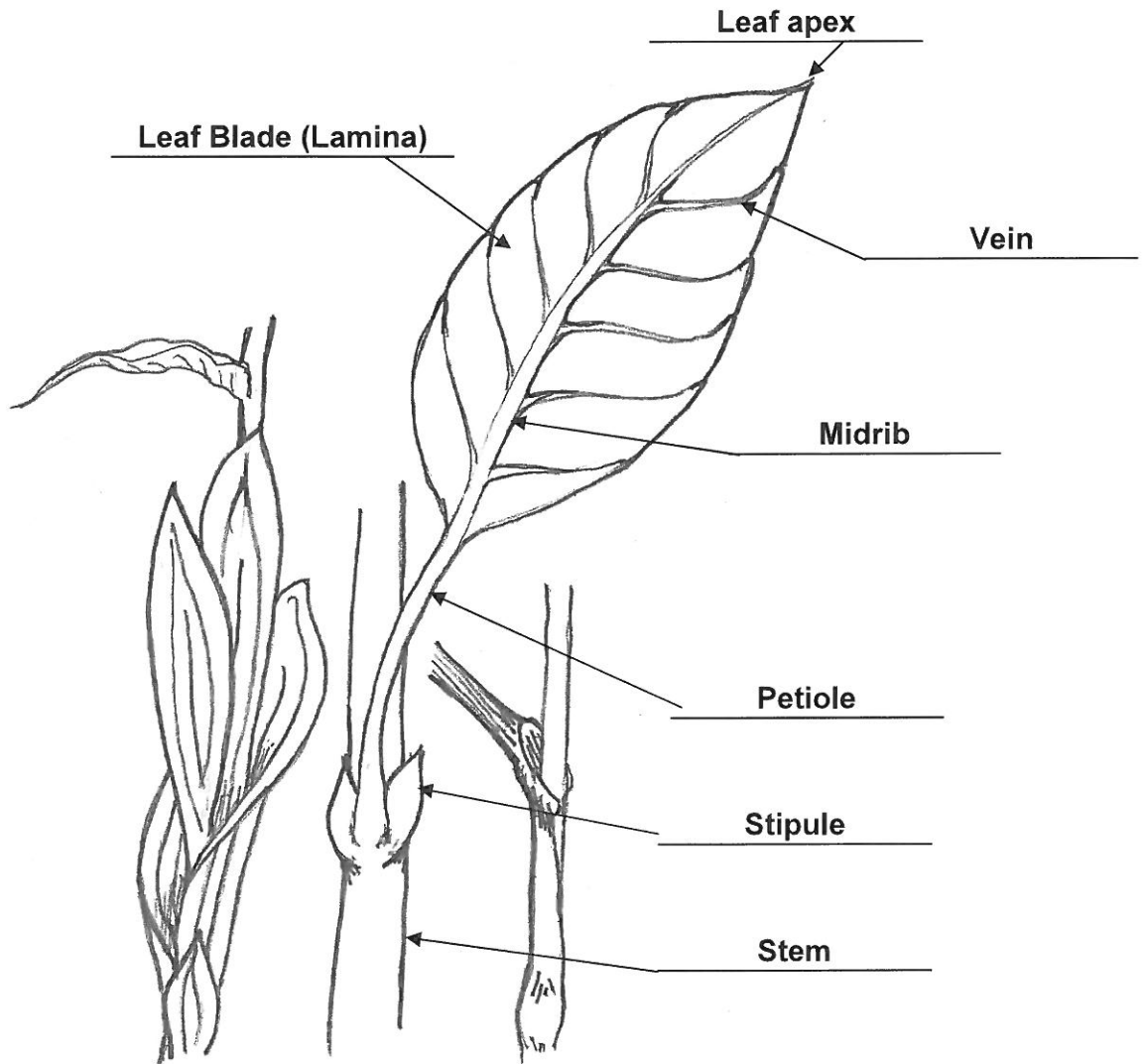


# Flowering Plant Anatomy





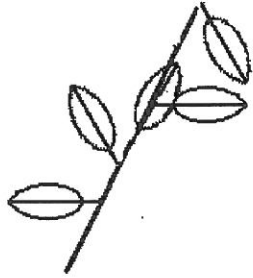
# Leaf Anatomy



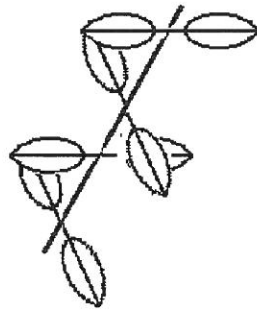
# Leaf Anatomy



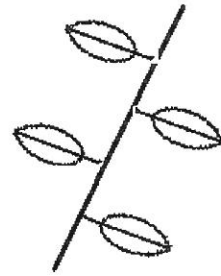
# Leaf attachment



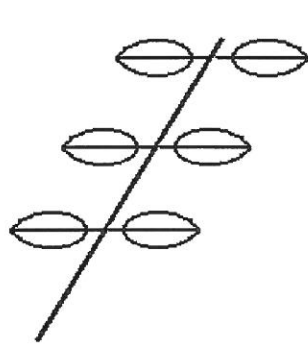
alternate



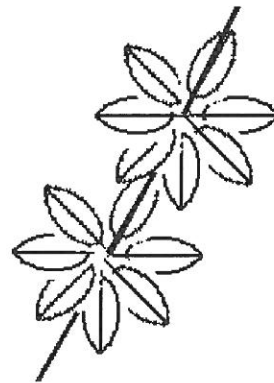
decussate



distichous

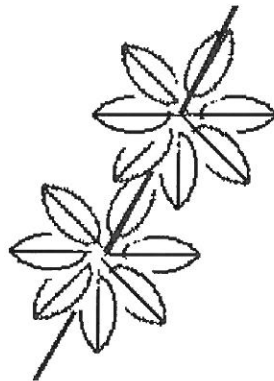
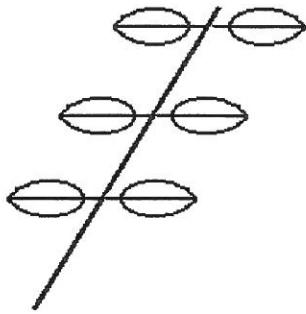
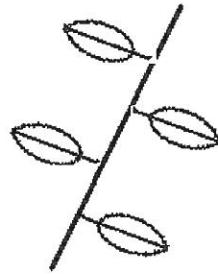
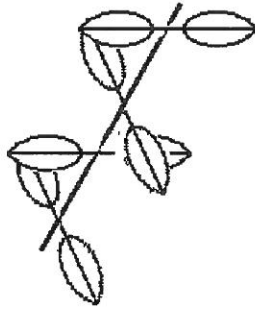
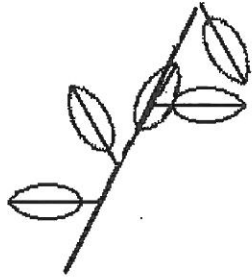


opposite



whorled

# Leaf attachment



# Leaf Margin



entire



undulate



finely  
serrate



coarsely  
serrate



doubly  
serrate



crenate



lobed

# Leaf Margin



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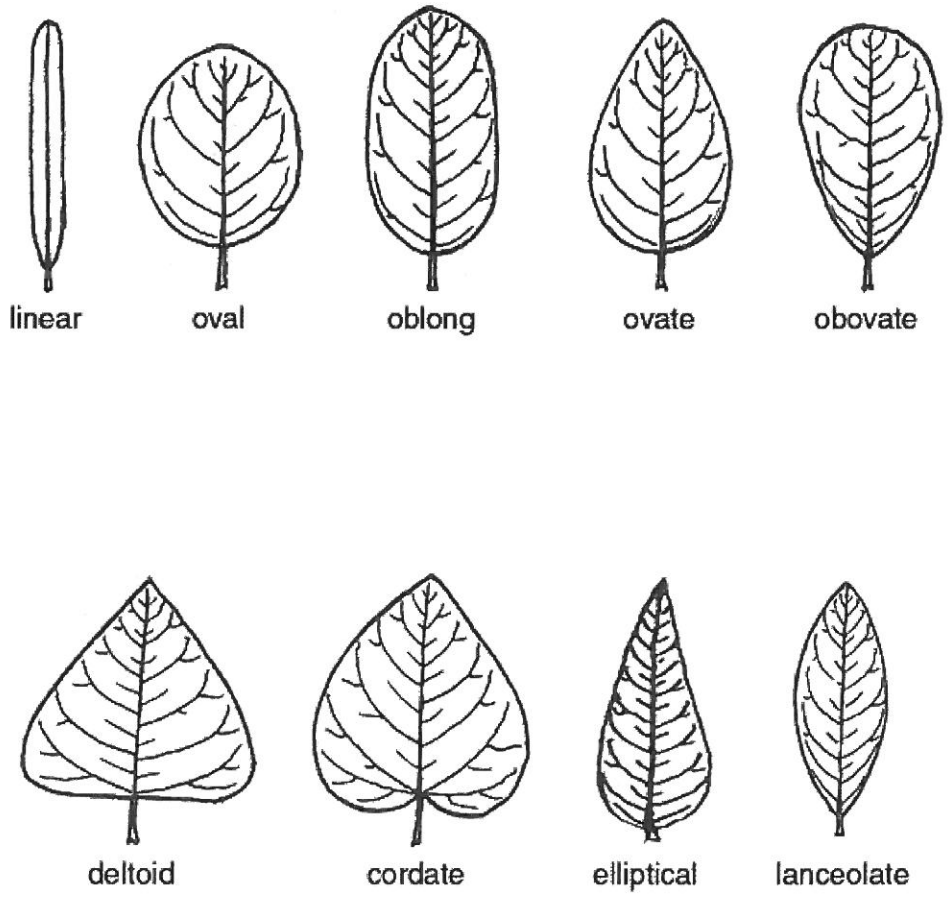


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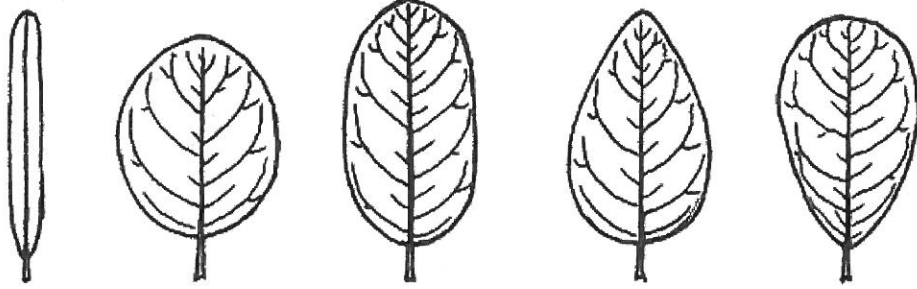


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# Leaf Shape



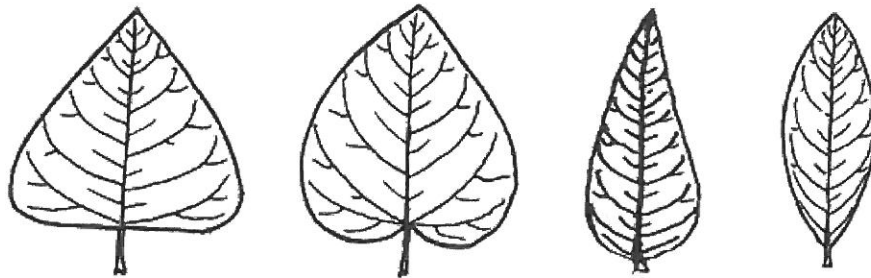
# Leaf Shape



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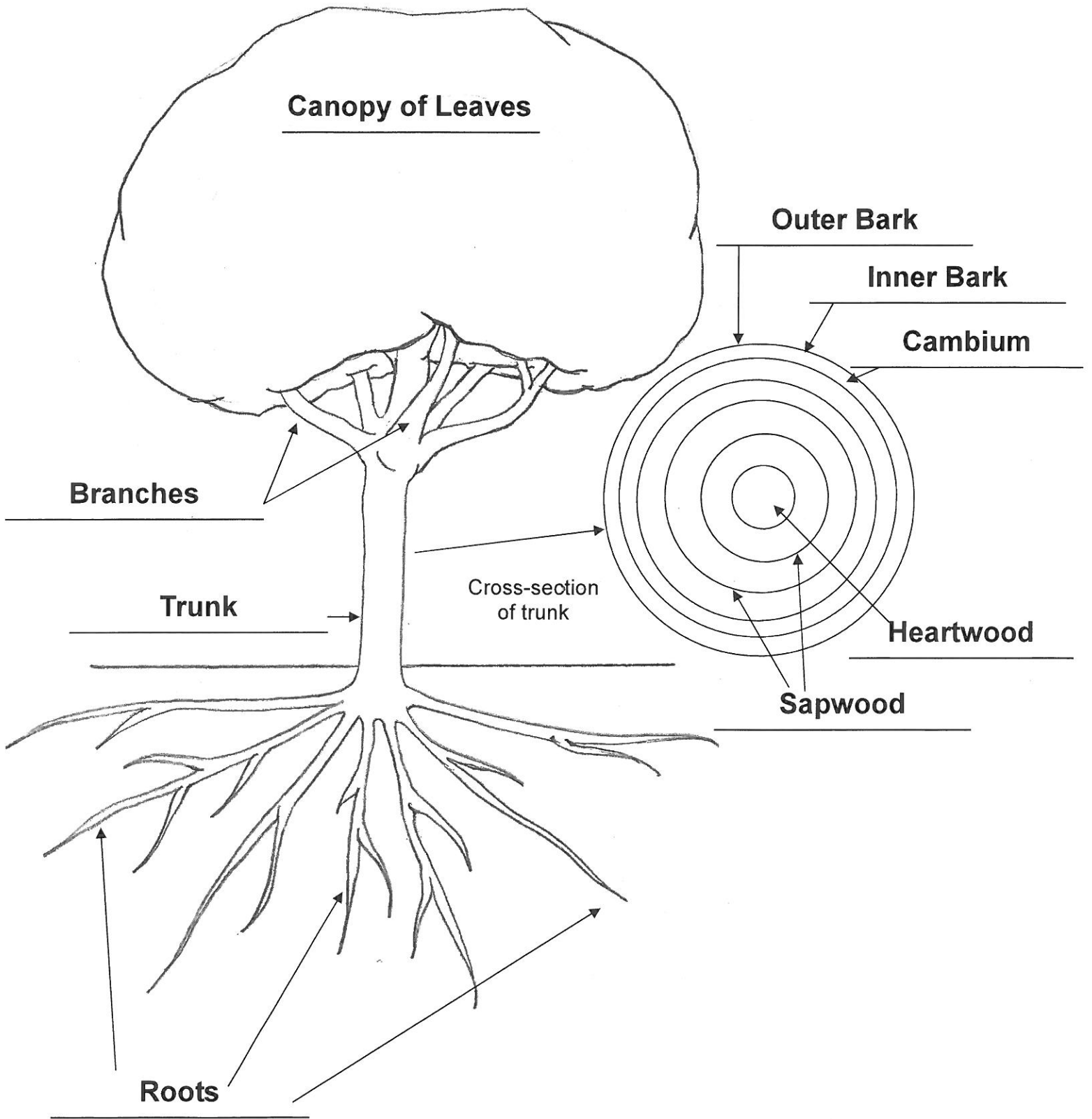
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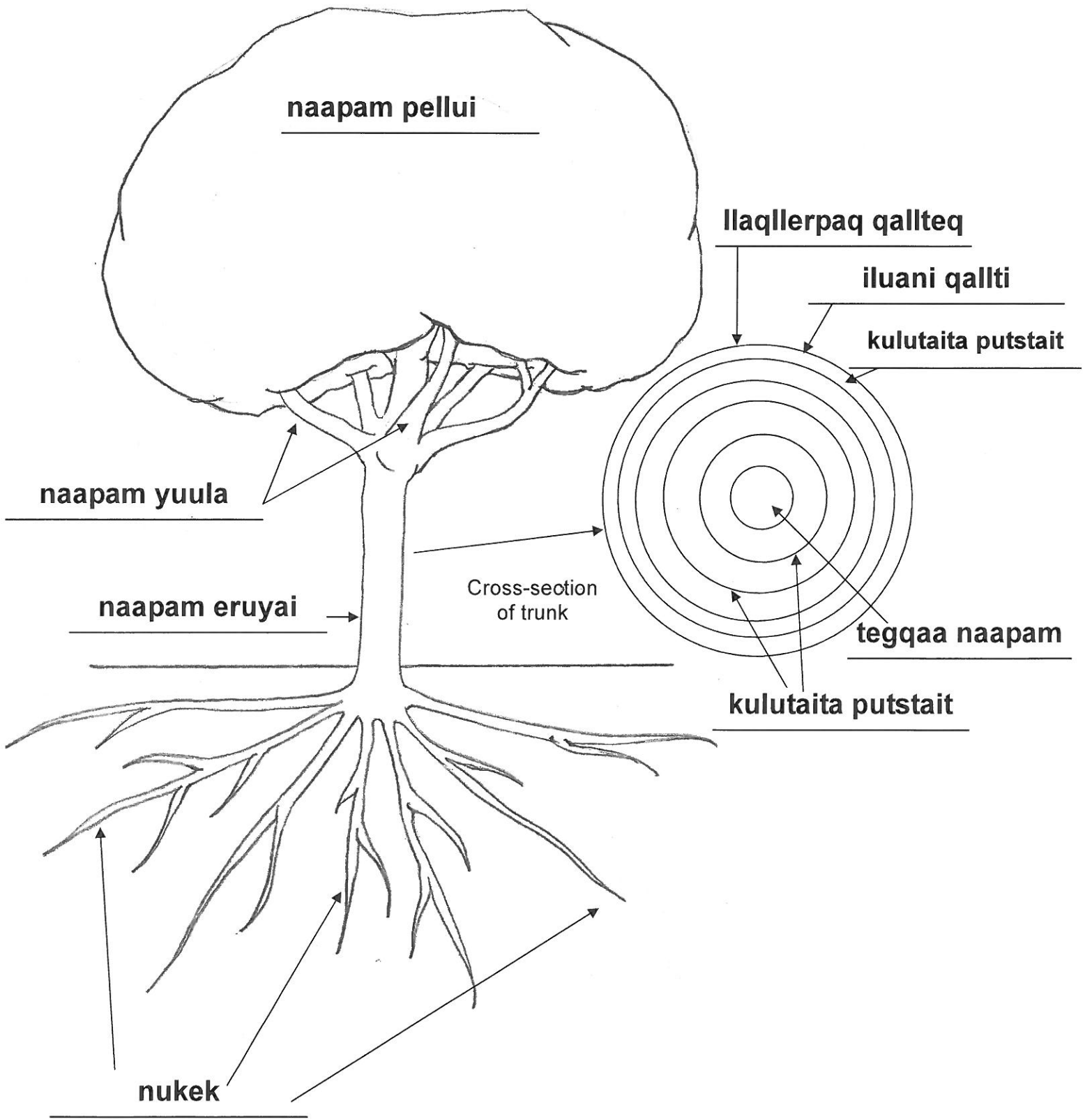
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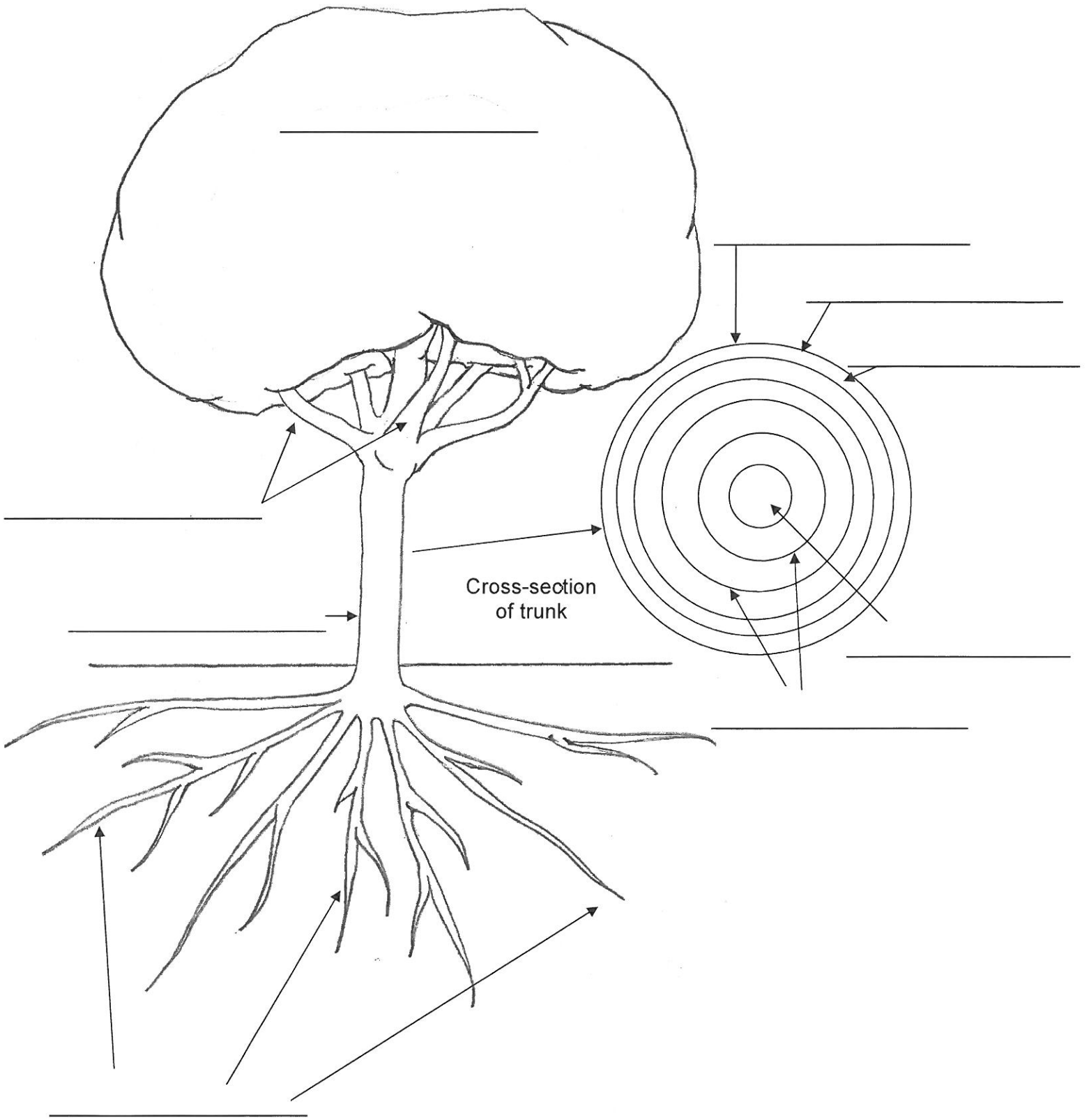
# Tree Anatomy



# napaq



# Tree Anatomy



Because many of the words in this Glossary are specific to botany it is divided into "types" of words.

Type of word	English	Sug'stun	Approved	Definition
Floral Corolla	Bell Corolla	Kuulukerngaq suik'kaq		bell-shaped, similar to campanulate but facing farther down
Floral Corolla	Campanulate Corolla	Naningua kuulukurangaqaq		are narrower than tubular, in the shape of a bell
Floral Corolla	Corolla	Qiallun puusngaqat syut;iaq		Petal arrangement descriptor
Floral Corolla	Floral-like bract Corolla	Imutan		Single petaled flower wrapping around the stem
Floral Corolla	Funnel Corolla			similar to funnels, very wide at the top and narrower at the base
Floral Corolla	Irregular Corolla	ayaqusgailingut		Petals that are different sizes when the flower is full-grown
Floral Corolla	Labiata Corolla	Maluk pingautmen		tube of corolla usually deeply slit into two irregular lobes, the upper lobe erect and made up of two petals, and the lower lobe spreading or open and composed of three petals
Floral Corolla	Papilionaceous Corolla	caqallhngatat ayuges'tait		5 petals, like a butterfly with a central standard petal and lateral wing petals
Floral Corolla	Regular or symmetrical Corolla	Taktakulluteng		Petals that are symmetrical or the same size and shape when the flower is full grown
Floral Corolla	Salverform Corolla	Itemgaatarluteng		Petals that start out looking tubular and then flare at the top of the flower.
Floral Corolla	Spurred Corolla	Nepcanarluteng		with an extension or spur that often produces nectaries
Floral Corolla	Tube Corolla	Lurnkilluteng Pellut		longer than wider, in the shape of a tube
Floral Corolla	Urn Corolla	Nanilnut Puungit		broad tube and slightly recurved, short limb
Floral Inflorescence	Capitulum inflorescence	Kaaturngaqat		a dense cluster of flowers
Floral Inflorescence	Corymb inflorescence	Puukicat'stun suik'kiat		flowers growing at different stalk lengths to create a flat-topped flower cluster (Inflorescence)
Floral Inflorescence	Cyme inflorescence	Qukaa litemluni		flower cluster in which the central or terminal flower blooms first
Floral Inflorescence	Inflorescence	litemumaqaq		flower cluster or grouping on the end

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Type of word	English	Sug'stun	Approved	Definition
Floral				
Inflorescence	Panicle inflorescence	Naningut suitkat		more than one raceme forms the flower cluster
Floral				
Inflorescence	Raceme inflorescence	Suitkat aturem puumi		stalked flowers on a main axis
Floral				
Inflorescence	Solitary inflorescence	Allingut suitkaq		single flower on stem
Floral				
Inflorescence	Spike inflorescence	Suitkat		flowers growing straight off of main axis (no stalk)
Floral				
Inflorescence	Umbel inflorescence	Naularet kiputmen		round or flat topped flower cluster with the youngest flower in the center
flower parts	anther	pelua ugafalraq		the anther is the tip of a flower's stamen ( the male reproductive organs of the plant) it contains the pollen.
flower parts	filament	peksua		the filament is the part of the flower that holds the anther (and part of the stamen, the male reproductive organs of the plant).
flower parts	flower	suit'kaq	1	reproductive structure of some plants, usually having petals.
flower parts	ovary	siminarwik		the ovary is a female reproductive organ in plants that produces ovules and where the ovules turn into seeds.
flower parts	petal	pellua		a petal is one of the leafy structures that comprise a flower. Petals are often brightly-colored and have <b>many</b> different shapes.
flower parts	pistil	araluni		the structure of the plant that holds the seeds (includes stigma, style, and ovary)
flower parts	sepal	ipellut		the sepals are small leaves located directly under a flower they are the outermost part of a flower.
flower parts	stamen	nupalkiam simina		the male organ of the flower, consisting of a filament and an anther
flower parts	stigma	arq siminaq		the stigma is uppermost part of the pistil, the female reproductive tissue of a flower. The stigma receives the male pollen grains during fertilization, when they travel through the style to the ovary.
flower parts	stipule	Suitkam puungaa		the small, paired appendages (sometimes leaf-life) that are found at the base of the petiole of leaves of many flowering plants.
flower parts	style	acitmen kanut		the style is part of the pistil, the female reproductive tissue of a flower. The style is a long tube on top of the ovary, and below the stigma.
Habitat	alpine	ing'imi napat qilitni napalluteng	1	growing above the timberline
habitat	cold	paceshneq	1	having a low temperature

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Type of word	English	Sug'stun	Approved	Definition
habitat	desert	Nuna qitrarplarlarraa	1	a region with so little rainfall that it supports only sparse and widely spaced vegetation or no vegetation at all
habitat	dry	qitringuqunuaq	1	with little to no moisture
habitat	forest	napat akulit	1	large area of land primarily covered with trees as well as other organisms, soil, water and air associated with them.
habitat	grasslands/meadow	maraq	1	a vegetation community in which grasses are the dominant plants
habitat	habitat	nuniggwik	1	an area that provides an animal or plant with adequate food, water, shelter and living space in a suitable arrangement
habitat	hot	maqarraq	1	having a high temperature
habitat	lowlands	aciqsaegmii	1	low level of country
habitat	ocean	imakcak	1	large body of water (there are five on earth separating the continents)
habitat	rainforest	napat akulithni qitisinguqaq	1	forest with very high rain fall and no dry season
habitat	shade	talumaqaq	1	the area sheltered from the sun by an object
habitat	sub-alpine	ingim ak'wa	1	on the mountain below the timberline
habitat	Sun	macaq	1	the star that is the source of heat and light
habitat	temperature	patcesnartacia/taumi maqartacia	1	a measurement of hotness or coldness
habitat	tundra	napalinguq nuna	1	treeless arctic plain, often times damp and having mounds
habitat	wet	mecuq	1	with water or moisture
habitat	wetlands	mecuqaq nuna	1	an area that is regularly wet or flooded, and where the water table stands at or above the land surface for at least part of the year, and which has a plant community comprised of species which require wet soil.
leaf arrangement	alternate leaf arrangement	marklinuaq		leaves arranged singly at intervals along the stems
leaf arrangement	Basal leaf arrangement	pelluraa itemluni		leaves arranged at the base of a plant with a stem coming out of the center of the arrangement.

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Type of word	English	Sug'stun	Approved	Definition
leaf arrangement	opposite leaf arrangement	akiqliquultek		leaves occurring in pairs at the nodes
leaf arrangement	Palmate leaf arrangement	qukiat marituluteng		Thick centered leaf (palm-like) with lobes coming out of the center (finger or digit-like)
leaf arrangement	Pinnate leaf arrangement	akeqlequultek		Compound leaf with leaflets on two opposite sides of an elongated axis (either odd or even in number, with odd pinnate having a single leaf at the end of the axis)
leaf arrangement	Pinnule leaf arrangement	Puunga pellum arelraq		One of the second divisions of a bi-pinnately compound leaf.
leaf arrangement	whorled leaf arrangement	Pinga'uluteng pellut		leaves occurring three or more at a single node
leaf margin	crenate leaf margin	nerruterpiat		a leaf margin that has rounded teeth
leaf margin	doubly serrate leaf margin	nerrutelguqcaa		a serrate leaf margin where the primary teeth support another set of teeth
leaf margin	entire leaf margin	pellum senii		a leaf margin that is smooth without teeth or lobes
leaf margin	leaf margin	ipellum senii		descriptor for the edges of leaves
leaf margin	lobed leaf margin	cuutem iqua		a segmented leaf having pointed or rounded extensions separated by sinuses that do not extend more than halfway to the midrib
leaf margin	serrate leaf margin	qallaqlukii nerutet		a leaf margin that has pointed teeth that are directed upward
leaf margin	sinus leaf margin	qukait pellum		the space or indentation between the lobes of a leaf blade
leaf margin	undulate leaf margin	qialerngaqaq		a leaf margin that is wavy
leaf parts	apex	kakngaa		the tip or distal end of a leaf
leaf parts	blade	pellum saqerii		lamina, the flat or expanded part of a leaf
leaf parts	lamina	quka pellum		the blade of a leaf.
leaf parts	leaf	pelluq		An organ of a plant typically divided into a flattened portion (the blade) and a narrow stalk (the petiole) and serving as the principal site of photosynthesis and transpiration.
leaf parts	leaf apex	akeqlequultek		the outer end of a leaf; the end that is opposite the petiole.

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Type of word	English	Sug'stun	Approved	Definition
leaf parts	margin	pellum cania		the outer edge of a leaf blade
leaf parts	midrib	nukraa		the central or main vein of a leaf it is usually continuous with the petiole.
leaf parts	petiole	pellum atagaruwia		a leaf stalk; it attaches the leaf to the plant.
leaf parts	stem	punga		main support of the leaf
leaf parts	stipule	pellurlinaq		an individual blade of a compound leaf
leaf parts	vein	nukeq		one of the many vascular structures on a leaf. Veins provide supports for the leaf and transport both water and food through the leaf.
leaf type	compound leaf	nepesnguat puunganii		a type of leaf that has three or more leaflets attached to a common stalk
leaf type	Cordate leaf	napaternaggaq		leaf with a heart-shaped base
leaf type	elliptical or arrow leaf	pitegiarnaggaq		triangular shaped leaf point out like an arrow-head
leaf type	Lanceolate leaf	kanamaqaaq or panarnaggaq		Lance-shaped leaf, several times longer than wide; broadest toward base
leaf type	Linear leaf	kemilinguq pelluq		long and thin oval shaped leaf
leaf type	Oblong leaf	leggkilnuaq		A leaf that is two to four times longer than wide; the sides are parallel
leaf type	Obovate leaf	peksurnaggaq pelluq		Inversely egg-shaped leaf; attached at the narrow end
leaf type	Ovate leaf	peksurnaggaq pelluq		Egg-shaped leaf
leaf type	spatulate leaf	iquani lurrtuqaq pelluq		Opposite of lanceolate leaf – broadest toward the tip
medical condition	Abscesses, sores, wounds	pupik		a wound usually caused by infection filled with pus and surrounded by inflamed tissue
medical condition	Aches and pain	angerlluni	1	feeling of physical pain
medical condition	Arthritis, joint pains	naniqneq	?	inflammation of a joint which is associated with redness, heat, pain and swelling

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Type of word	English	Sug'stun	Approved	Definition
medical condition	Asthma	eparqalarluni	1	a breathing condition characterized by wheezing, coughing, mucous sputum and difficulty in exhaling air.
medical condition	Bee stings	uqitim kapellraa	1	a reaction to a bee leaving its stinger in the skin which is painful and usually results in swelling and redness around the stinger and, in some instances, an allergic reaction which can cause death if not treated quickly.
medical condition	Bladder	pagaaciq	1	generally denotes the organ that contains urine
medical condition	Blister	rraaq'aaq	1	a reaction of the skin to heat, allergy, rubbing or some other outside source that produces a collection of serum below its most superficial layer.
medical condition	Boils	pupit		painful sore with hard pus-filled center
medical condition	Bowels	qilut	1	the intestine
medical condition	Broken bones	nanet quparngaqat	1	
medical condition	Bronchitis	cuupliqq		inflammation of the bronchial tubes
medical condition	Bruises	senegnet	1	bleeding under the skin with a blood clot, usually in reaction to an injury as a direct blow
medical condition	Bug bites	kingut keggmallrit	1	skin's reaction to bugs' saliva which results in a painful, itchy, red, raised wound
medical condition	Burn	utellreq	1	reaction to either chemicals or heat that is measured 1st - 4th degree, depending on the severity
medical condition	Cancer	amikuq		a malignant tumor of any type
medical condition	Cankers	qaneq	?	an ulceration found in the mouth on the tongue or gums
medical condition	Circulatory	auknukrun	1	relating to blood moving throughout the body
medical condition	Cold	quiq	1	inflammation of the lungs that can be caused by germs or viruses
medical condition	Pneumonia	pacaqaq	1	
medical condition	Colic	qairiyasnguluni	?	severe pain of the abdomen
medical condition	Convulsions			an uncontrolled muscle spasm or series of spasms. May be accompanied by unconsciousness.

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Type of word	English	Sug'stun	Approved	Definition
medical condition	Corns	itakun	?	a thickening of the skin on toes
medical condition	Cramps	qeluiq	1	painful muscle contractions, like menstrual or leg cramps
medical condition	Delirium	umiani pellalluku	1	mental confusion or excitement
medical condition	Depression	ayaniilluni	1	a mental state characterized by a pessimistic sense of inadequacy and a despondent lack of activity which may become so severe that it requires medical attention
medical condition	Diabetes	saralara	?	a disease caused by the pancreas' inability to produce insulin which controls the body's blood sugar levels.
medical condition	Diaper rash	uruum utellra	1	red eruption on the skin covered by diapers
medical condition	Diarrhea	anaruaq	1	loose stool, often accompanied by gastro-intestinal distress
medical condition	Earache	cuuciq	1	soreness of the ear
medical condition	Eczema	paurneq	?	an inflammatory disease of the skin
medical condition	Edema			swelling caused by fluids trapped in tissue
medical condition	Eyes	ik	1	organs used for sight
medical condition	Fever	maqaqaa	1	rise in body temperature, often caused by an infection
medical condition	Flatulence, gas	leq	1	release of intestinal gas
medical condition	Frostbite	amikun kumlaq		freezing of the skin and tissue under the skin
medical condition	Fungus infections	maaceqara	1	an infection caused by a fungus, e.g., yeast infection or athlete's foot
medical condition	Glands, Swollen	pugluni		enlargement of one or more lymph nodes
medical condition	Gout	naaniqilluni	?	painful swelling in the joints (primarily the big toe, feet and hands) as a result of uric acid build-up
medical condition	Headache	nasquinguq	1	a pain located in the head

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medical condition	Heart trouble	napaciqneq		issues with the heart
medical condition	Heartburn, indigestion	quulerteq	1	burning in the chest, often associated with acid reflux
medical condition	Hemorrhoids			pain caused by veins swelling at or near the anus
medical condition	Hives/welts	rraaqag		itching welts on the skin caused by allergies, infection or severe nerves
medical condition	Hypertension	iparaqlluni	?	high blood pressure
medical condition	Inflammation	pugluni or rraaqag	1	redness, swelling, pain and heat as a response to an injury or infection
medical condition	Itching	paumiqeq	1	an irritating sensation of the skin which induces desire to scratch
medical condition	Jaundice	tenguliquq	1	yellowness of skin, whites of eyes and mucous membranes caused by increased levels of bile pigment, may be a reaction of newborns to poor liver function or a symptom in adults of gallstones
medical condition	Kidney trouble	tartuliq	?	any disorder of the kidney
medical condition	Lice/other vermin	neresteq	1	small insects which feed off of human blood
medical condition	Liver troubles	eenguliqeq	1	any disorder of the liver
medical condition	Menstrual flow issues	aqum'auq	1	any issue with menses
medical condition	Mouth problems-sores	qaneqeq	?	sores in the mouth (often cankers)
medical condition	Muscle cramps	qeluiq	1	painful involuntary spasm of the muscles, may be caused by a number of issues
medical condition	Nausea – stomach problems	meryaculnguq	1	stomach distress with an urge to vomit
medical condition	Obesity	uqurtuq	1	extremely fat or grossly overweight
medical condition	Pimples	pupik	1	excess oil that is trapped in pores, also called acne or zits
medical condition	Post parturition (childbirth)	suggkuaruq	1	the act of giving birth to a child

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medical condition	Pregnancy	aqsatumaq	1	the time between inception to childbirth
medical condition	Psoriasis	nungugiagaa	?	a chronic noncontagious skin disease characterized by scaly, reddish patches
medical condition	Rash	paurneq	?	an eruption on the skin which may be caused by a multitude of issues
medical condition	Restlessness	elarteggkunani	1	not able to relax or rest
medical condition	Rheumatism	nungnaliq	?	pain and discomfort of the muscles, joints, tendons and bones
medical condition	Sore throat	igmuuciq	1	aches and pains in the throat
medical condition	Spleen	aum elguiya	1	an organ that stores blood, disintegrates old blood cells, filters foreign substances from the blood, and produces white blood cells
medical condition	Sprains	nekiaiq	1	wrench or twist of a ligament or muscle
medical condition	Stings	qatliuq	1	The result of an injury caused by the venom of any number of insects or arachnids that causes pain, swelling and redness (in some cases the venom can be deadly)
medical condition	Stomach trouble	asaqiliq	1	any issue with stomach pain or aches
medical condition	Sunburn	macamen ucelluten	1	skin's reaction to prolonged exposure to the sun resulting in redness, burns and even blisters
medical condition	Swelling	pugluuni	1	becoming puffy as from internal bleeding or accumulation of other fluids
medical condition	Toothache	neruciqeq	1	pain of the teeth
medical condition	tuberculosis	cigguutkaaq	1	or "TB," a common and in some cases deadly infectious disease caused by various strains of bacteria
medical condition	Tumors	amikuq		abnormal masses caused by uncontrolled growth of cells
medical condition	Ulcers	aqsalik		a defined inflamed and often pussy lesion on the skin or an internal mucous surface resulting in rotting tissue
medical condition	Urinary problems	angernartuq		any issue with urination
medical condition	Vomiting	miryarluni		ejection of stomach contents through the mouth

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medical condition	Warts	ufnut		A local growth of the outer layer of the skin (the epidermis) caused by a virus.
medical condition	Worms	kingut		
medicinal plant	Alder Berries (Mountain alder)	uqggwik		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Baneberry	tanerlit alaganait		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Bethlehem Star	ikigiganaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Chamomile	alamsaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Cloudberry	aqagwiq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Cottonwood	ciq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Cranberry (Highbush)	qalakuq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Crowberry	pakiit		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Devil's Club	cukilanarpak		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Elderberry	qaguteskat alagnait		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	False hellebore, Owls cabbage	tuqunegqat swiitkat		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Monkshood	tuqunesqat swiitkat		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Mountain Ash	esqunaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Nagoonberry	puyurna		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Nettle	uqayanaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Northern Yarrow	qanganaruq		See Traditional Sugpiat Medicinal Plants booklet

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medicinal plant	Pineapple Weed	alamaskaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Purple Daisy (Smooth Aster/coastal fleabane)	teptukuyaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Red Currants	kawirraq qunisiq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Rockweed (fucus gardneri)	ellquaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Salmonberry	alagnaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Shrubby Cinquefoil	qutuneskiaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Single Delight	ikiganaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Sweet Coltsfoot	nausaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Tundra Rose	qutuneskiaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Twisted Stalk	meruaqtaq or muuguaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Water Hemlock	tuqunaraqat		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Watermelon Berries	meruaqtaq or muuguaq		See Traditional Sugpiat Medicinal Plants booklet
medicinal plant	Wormwood	caik		See Traditional Sugpiat Medicinal Plants booklet
medicine type	Ash -	peluq		grey-white powder left after wood is burned
medicine type	Chew -	angulaluku		to crush and grind with teeth
medicine type	Decoction -	qallallukii		an infusion made in boiling water.
medicine type	Infusion -	angiillukii		liquid prepared by steeping or soaking a drug in water.
medicine type	Plaster -	perlan'nguaq		concoction made by crushing medicine and placing on wounds

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medicine type	Poultice --	patuƧaq		a soft mass, usually moist and heated, spread on a porous cloth and applied to an inflamed area.
medicine type	Soap --	millaq		a cleaning agent made into bars or liquids
medicine type	Switch -	tarriteq		a whip made from medicinal plants used to spank a person's body during steam baths
plant anatomy	axil	quleqllem puunga	1	The upper angle
plant anatomy	berry	alagnaq		a soft, fleshy, multi-seeded fruit
plant anatomy	plant branch (lateral shoot)	yunlaq		parts of the plant that grow from the stem
plant anatomy	flower	suit'kaq	1	reproductive structure of some plants, usually having petals.
plant anatomy	fruit	nqirrat	1	ripened ovaries of seed-bearing plants, often sweet and edible
plant anatomy	internode	qukaani napnet	1	the space on a stem in between nodes
plant anatomy	leaf	pelluq	1	An organ of a plant typically divided into a flattened portion (the blade) and a narrow stalk (the petiole) and serving as the principal site of photosynthesis and transpiration.
plant anatomy	node	napneq	1	a joint on the stem where a leaf starts
plant anatomy	Plant	nauq	1	a living organism that lacks the ability to move and, in general, nourishes itself through photosynthesis
plant anatomy	root	nueq	1	structures that obtain food and water from the soil, store energy, and provide support for the plant. Most roots grow underground.
plant anatomy	root cap	nukrem iquklia	1	end of the root
plant anatomy	seed	sim'inaq	1	the propagating part of the plant, either a fertilized ovule, tuber or spore
plant anatomy	shoot	itemqtaq		newly sprouted plant
plant anatomy	stem	punga	1	(also called the axis) the main support of the plant.
plant anatomy	taproot	nukerpiaq	1	a primary root that grows vertically downward and gives off small lateral roots; one that has a deep central position in a line of growth or development

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plant anatomy	terminal	kaknga	1	top-most part of the plant (at the end)
tree anatomy	Bark	amiq		the tough exterior covering of a woody plant
tree anatomy	branch	yuulaq		woody parts of the tree that grow from the trunk.
tree anatomy	cambium	kulutaita putstait		a single layer of living cells in the trunk that is located between the sapwood and the inner bark. The cambium produces the sapwood (on the inside of the cambium) and the inner bark (on the outside of the cambium).
tree anatomy	canopy of leaves	naapam pellui		the upper parts of the tree, where the branches and leaves are located.
tree anatomy	heartwood	teggaa naapam		the core of the trunk, which contains very strong, dead tissue that supports the tree.
tree anatomy	inner bark (phloem)	amim ilua		the layer of the trunk through which the tree's food flows it is located between the outer bark and the cambium. When this short-lived layer dies, it is called cork.
tree anatomy	outer bark	llaqlirpaq qalliteq		the tough outer layer of woody plants, trees and bushes
tree anatomy	root	nukek		structures that obtain food and water from the soil, store energy, and provide support for the plant. Most roots grow underground.
tree anatomy	Sap	neqiat		the juice or vital fluid that runs through a plant carrying nutrients
tree anatomy	sapwood	naapam kulutai naten uksurtat		the layers of wood just outside the heartwood. Each year a new layer of wood is formed (by cambium tissue), forming an annual ring. Sap (containing water and some nutrients) is transported in this layer. Older, inner
tree anatomy	Tree	napaq		a woody plant that usually 12 or more feet tall with a single main stem (trunk) and a more or less distinct crown of leaves
tree anatomy	trunk	naapam eruyai		the main support of the tree.
	breathe	anerteq		inhale and exhale
	danger	uluryanaq		exposure to harm or injury
	dangerous	uluryanartuq		filled with danger
	energy	nauggkuarluku		the ability of natural systems to produce physical change (sometimes called work or growth)
	female	amaq		the sex that bears young or produces eggs

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	food	neqaa		any substance taken into a plant or animal to keep it alive and enable it to grow and repair tissue
	handful	aiggan taturlluku		the amount of a substance able to be carried by a hand
	male	erilek		the sex that fertilizes eggs
	measure	ugperumaqat		to distribute specific amounts of a substance
	nutrients	piturkat		compounds plants and animals need to consume to survive
	poison	yaataq		a substance that causes injury or death by chemical means
	poisonous	yaatauluni		full of or containing poison
	reproduction	kukuullitens		the process where "parents" produce "offspring" in humans, animals and plants
	shape	pusngacia		an object's form or physical outline
	shelter	ungusquq		something that provides cover or protection
	shrub	cuteruat		a woody plant that is smaller than a tree
	size	pitatii		how much space an object occupies
	soil	qiquq		the top layer of the earth's surface consisting of rock, minerals and organic material
	sunlight	macam akia		light of the sun
	volume	uspermek		the measured amount of a liquid substance
	water	meq		a clear, odorless liquid essential for most plants and animals lives

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