



Yán Hemlock

Grade Levels K-2

Tlingit Cultural Significance

The forest in Southeast Alaska is a Sitka Spruce/Western Hemlock rainforest. Western hemlocks are shade-loving trees. They begin their life cycle in the undergrowth of the Sitka Spruce. The old-growth forest provides habitat for many birds, animals, insects and plants that young students can explore to begin to understand a forest ecosystem. Children will recognize the short, flat needles of the hemlock as “friendly” to touch.

Historically, Tlingit people had many uses for hemlock trees. The rough, reddish brown bark is used for tanning hides and producing the black dye for Chilkat Robes. The heartwood is carved into tools such as spoons, dip-net poles, combs, spear shafts, and children’s bows. Today, halibut hooks are carved from the circular wood of the hemlock trunk. Hemlock boughs are placed in the water for collecting herring roe. The needles are used as medicine for healing burns.

Elder/Culture Bearer Role

One of the best ways to learn about the Tlingit world view of the forest is to take a walk with an Elder or Culture Bearer. Students can find a hemlock tree to study its cones, needles and bark and listen as an Elder address the tree, telling what is needed and how parts of the tree are traditionally used. The primary role of the Elder/Cultural Bearer in this unit is to model and reinforce the all important Tlingit value of respect for what nature provides us. Throughout this unit, in interactions with an Elder students are asked to practice the cultural value of listening well and with respect.

Overview

Lesson #1, Let’s Learn About Hemlock Trees

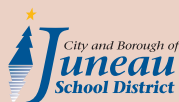
Students take a walk in the forest with an Elder, find a hemlock sapling tree, address and thank the tree, and bring branches, cones and pieces of bark back to the classroom to place in a Forest Center. They learn the names for parts of a hemlock tree, using a “feely box” to touch and identify the tree parts. They match the parts with word and picture cards in Lingít and English.

A series of elementary level thematic units featuring Tlingit language, culture and history were developed in Juneau, Alaska in 2004-6. The project was funded by two grants from the U.S. Department of Education, awarded to the Sealaska Heritage Institute (Boosting Academic Achievement: Tlingit Language Immersion Program, grant #92-0081844) and the Juneau School District (Building on Excellence, grant #S356AD30001).

Lessons and units were written by a team of teachers and specialists led by Nancy Douglas, Elementary Cultural Curriculum Coordinator, Juneau School District. The team included Juneau teachers Kitty Eddy, Shgen George, Kathy Nielson, Hans Chester and Rocky Eddy, and SHI language team members Linda Belarde, Yarrow Vaara, David Katzeek, John Marks, Mary Foletti, Rose Natkong and Jessica Chester. Curriculum consultants Julie Folta and Toni Mallott assisted and Annie Calkins edited the lessons and units.

Lessons were field tested in Juneau classrooms in 2005-6.

All units are available online at sealaskaheritage.org.





Lesson #2, Get to Know a Hemlock Tree

Students take a Hemlock Tree Journal into the forest to draw a hemlock tree, its needles and cones, make a bark rubbing and measure the tree's circumference.

Lesson #3, How Does a Hemlock Grow?

Students look for seeds in a giant paper hemlock cone, count the rings in a "tree cookie", and make tree cookies with cookie dough.

Lesson #4, When Old Hemlock Trees Fall Down

Students participate in a decomposition play, "It's a Rotten Home for Me," and examine a rotting log.

Lesson #5, Making Soil Soup

Students learn more about the decomposition process by making soil soup and recipes for this mixture to take home.

Lesson #6, Woodpeckers Love Hemlocks

Students learn a Lingít song and make woodpecker masks to dramatize the song.

Lesson #7, From Hemlock Trees to Paper

Students learn how hemlock pulp is made into paper. They make recycled paper mixed with hemlock needles and use cookie cutter tree shapes.

Lesson #8, Buzzing Around

Students learn about mosquitoes by making a paper mosquito model. They hear the Tlingit story of The Cannibal Giant and dramatize the story.

Alaska State Standards

English/Language Arts

- A1) Apply elements of effective writing, including ideas, organization, vocabulary, sentence structure, and personal style.
- A6) Revise, edit, and publish writing, as appropriate.
- E1) Use information, both oral and written, and literature of many types and cultures to understand self and others.

Mathematics

- A1a) Understand and use numeration, including numbers, number systems, counting numbers, and whole numbers.
- A2) Select and use appropriate systems, units, and tools of measurement, including estimation.
- A3) Perform basic arithmetic functions, make reasoned estimates, and select and use appropriate methods or tools for computation or estimation.

Science

- A12) Distinguish patterns of similarity and differences in the living world in order to understand the diversity of life
- A14a) Understand the interdependence between living things and their environments.
- A15) Use science to understand and describe the local environment.



Cultural Standards

- D1) Acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders.
- E2) Understand the ecology and geography of the bioregion they inhabit.

Lesson #1 Let's Learn About Hemlock Trees

Objectives

Students:

- Learn the names for the parts of a hemlock tree in Lingít and English
- Learn the Lingít words and phrases that pertain to this lesson

Time

60 minutes

Materials

- Hemlock tree parts: bark, cone, pitch, needles, branch
- Hand saw to cut tree branches
- An artificial Christmas tree to add to the Forest Center
- Cardboard box, 2 socks and paper fasteners for a "feely box" (see diagram in Resources)
- Lingít/English picture-word labels for tree parts

Vocabulary

Lingít

yán
 a t'áni
 at looní
 s'óos'ani
 aas k'eeyi
 gítgaa
 xaat
 yán x'aakeidí

English

hemlock
 branches
 bark
 cone
 trunk
 needles
 roots
 hemlock seeds

Lingít Phrases

Field trip gaxtoo.áat.
 Kaa yáa kei ayagaxtoonéi.
 Gunalchéesh yán.
 Daa sá jee idinook?
 Saak yatsx'i gés?
 Ya kats' gé?
 Alú gé yawat'?'
 Kasix'áx' gé?
 (S'óos'ani) i jeewú.
 Goosú wé (gítgaa)?

We're going on a field trip.
 We will be respectful
 Thank you hemlock tree.
 What do you feel?
 Is it bumpy?
 Is it sharp?
 Is it pointy?
 Is it rough?
 You have a (cone).
 Where is the (needles)?



Activities

Activity #1

Take a walk in the forest with an Elder

Once in a nearby local forest area, ask the Elder and students to find a hemlock tree. The Elder can then teach the students how to address the tree in a traditional way, telling the tree what is needed (bark, needles, branches, cones) and thanking the tree for its use. Students should leave a small gift in exchange for the tree parts that are to be cut. They practice the words of respect that are used by the Elder. After this conversation with an Elder, cut off the tree parts named above.

Take the tree parts back to the classroom, to put in the classroom Forest Center. They will be used in the next lessons.

Activity #2

Learn the parts of a hemlock tree

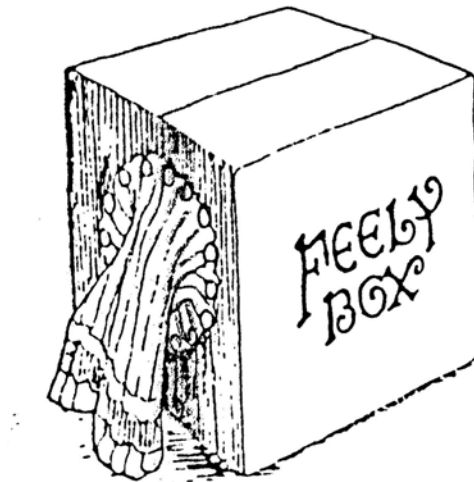
Teacher preparation

Before this lesson, make a “feely box”. Cut 2 holes in a cardboard box big enough to put your hand inside on opposite sides of the box. Leave the bottom flap side open so you can put hemlock tree parts inside. To discourage peeking, fasten the tops of 2 socks with paper fasteners on the rim of each hole. Your “feely box” will look like the one below.

Activity

Put the hemlock tree parts into a paper bag before you gather the students together. When they are sitting around you direct them all to close their eyes. Bring out one tree part while children’s eyes are closed and put it into the “feely box”. Invite one child to put his/her hands in the box and describe what he/she feels. Ask: Is it bumpy, sharp, pointy, rough?

Bring the part out of the box, say the name of the part in Lingít and English. Ask the child to find the matching picture/word card. Place the tree part near the card and say the words again. Continue with other tree parts until all the parts have been identified.





Activity #3

Goosú wé—parts of a hemlock tree

Distribute tree parts cards to students. Ask the question *Goosú wé _____?* (Where is?) to the class for each part as it is introduced. Ask the student who is holding that card to respond to the question, and put that card in the appropriate place on the artificial tree or tree poster. (See the Spruce Unit for a similar dialogue in Lingít and English)

Assessment

Observe students as they listen and respond as the Elder addresses and thanks the hemlock tree. Were they able to listen carefully and respond respectfully?

Using a simple checklist, assess whether individual students can correctly match a tree part with a picture-card.

Ask individual students to say the names of the tree parts in Lingít and record answers on a checklist.

Optional Extension Activities

Provide a coloring/labeling page of a hemlock tree for students. After they have colored and labeled the parts of the tree they take it home to share with parents and families.

Reference Materials and Websites

- Project Learning Tree, <http://www.plt.org/>
- Arbor Day Foundation, <http://www.arborday.org/>
- Society of American Foresters, <http://www.safnet.org/>
- Alaska Region U.S. Dept of Agriculture Forest Service, <http://www.fs.fed.us/r10/>

Lesson #2

Get to Know a Hemlock Tree

Objectives

Students:

- Expand their knowledge of the physical features of a hemlock tree
- Learn to say the name of tree parts in Lingít and English

Time

45 - 60 minutes

Materials

- Copies of Hemlock Journal for each student
- Pencils, crayons, tape
- Balls of string (one ball per group or pair of students)
- Scissors (1/student)
- Measuring tapes, rulers, chain links, unifix cubes (choose which measuring tools you would like to use)



Vocabulary

Lingít

dultin
χ wakaa
yaháayi
x'úx'

English

observe
measure
picture/rubbing
journal

Lingít Phrases

Yaadu yán.
Yaadu (gítgaa).
s'óos'ani
at looní
a t'áni
aas k'óox'u
aas k'əeyi
χaat

Here is a hemlock tree.
Here are the (needles).
cone.
bark.
branches
pitch
trunk
roots

Activity #1

Getting to know a hemlock tree

Return to the forest area previously visited by the class. Direct them to make an observation drawing of a hemlock tree they select in their journals, using pencil and crayons. Tell them to make drawings of the needles and cones.

After a period of drawing, gather the class together to demonstrate how to make a bark rubbing of a hemlock tree.

A bark rubbing is made by putting a journal page on the tree bark and rubbing with the side of a crayon (remove the paper from the crayon). Each student makes one bark rubbing. After the rubbing, pair students so that they can work together to measure the circumference of one tree with a ball of string. You will need to help them cut the string with scissors at the end of the measurement. They should then lay the string down on the ground and use one of the measuring tools you have chosen to measure the length of each string and record the measurement in their journals.

Activity #2

Sharing hemlock tree information

Ask children to share the information they gathered in their journals with each other, preferably in pairs. They should describe their tree, show their drawings, share their measurements of the circumference. After a period of sharing ask each pair to determine who had the bigger tree, and whether there was any evidence that birds or animals might like that tree.

Assessment

Listen to the children's descriptions of their experiences to assess their knowledge of the forest and hemlock trees. Using a checklist, record whether each student included tree information in his/her journal. Did each child work cooperatively in a pair or small group, and tell each other about the tree?



Optional Extension Activities

Using the classroom Forest Center, schedule time for students to go to the center for independent activities, including the Tree Parts sorting game, drawing forest scenes and animals, using magnifying glasses to examine tree parts. (See the Forest Center Drawing for suggestions in making this center.)

Put the Hemlock Bingo Game and/or the Alder/Cottonwood Bingo Game in the Forest Center.

Lesson #3 How Does a Hemlock Grow?

Objectives

Students:

- Learn how to determine the age of a tree
- Learn about the reproduction process of hemlock cones
- Explore a hemlock cone

Time

Three 45 minute sessions

Materials

- Drawing of giant hemlock cone with seeds (1/child)
- Drawing of hemlock cross-section cut from a hemlock tree (or drawing of a tree cookie) (1/child)
- Set of tree cycle cards
- Play dough recipe (using 2 colors- brown and natural dough color are preferable) or plasticene clay (same 2 colors) or cookie dough recipe (2 colors)
- Rulers
- Rectangle pattern for making tree cookies

Vocabulary

Lingít

yán x'aakeidí
aas daa gaadli

English

hemlock seeds
tree cookie

Lingít Phrases

X'oon táakw sáwé yán?

Naxtoo.too yaa aas kutáagu.

(Jinkaata) táakw áyá ya aas akatáagu.

Waa sás kei kana.ein wé at x'aadeidí?

Goosú wé yán x'aakeidí?

X'oon sá yatee wé at x'aakeidí?

How old is the hemlock tree?

Let's count the rings.

This tree is (10) years old.

How do seeds grow?

Where are the hemlock seeds?

How many seeds are there?



Activities

Activity #1 How does a hemlock tree grow?

Teacher preparation

Before class, make a giant hemlock cone using the master drawing. (See Resources)
Hide the cone in a paper bag to play a guessing game with your students.

Activity

Show the students the paper bag and invite them to guess what is inside. Give one clue to start the guessing: Hemlock trees need this to grow.

Play a game like Hangman, but draw a tree instead of a Hangman, to use as students ask questions. Erase one part of the tree with each guess, until students guess that a cone is in your bag.

Bring out the giant hemlock cone. Ask the students where they think the seeds are hiding. Count the seeds as you pull them out.

Ask the students questions such as:

- How do the seeds start to grow?
- What do they need to grow? (soil, food, water, sunshine)
- How do the seeds get into the soil? (squirrels, wind, birds)
- How do the seeds get food? (nutrients in the soil)

Record responses to these questions on a chart pad or the board. After talking about the answers to these questions and any others you generate, use the set of tree cycle cards to show the class the tree's growth.

Activity #2 Let's look inside

Using the "tree cookie" drawing, show students how to count the growth rings to find the tree's age. Tell them that each growth ring represents one year of growth. Bring out a pre-cut slice from a hemlock tree trunk for the class to examine. Ask the class to guess the age of the tree. (The most effective, experiential learning will happen if a parent or an instructional assistant can help students to cut sections of a hemlock sapling with a hand saw, to make their own tree cookies to look at) Another option is to send home part of a hemlock sapling trunk to a family that has a band saw to cut one tree cookie for each student. If it is not possible to have real "tree cookies", use the paper drawing to make a copy for each student.

Have students work as partners to count the rings on each tree cookie block of wood or paper drawing. Students tally the rings, count the total and record it in their Hemlock Journals.



In a group discussion ask the students:

- Comparing your tree with your partner's, whose tree is the oldest?
- How many rings did your tree have?
- If you had this many rings in your tree, how tall do you think your tree is?

Activity #3 Make tree cookies

There are 3 options for making tree cookies:

- Make 2 colors of play dough (see recipe in Resources)
- Use 2 colors of plasticene clay
- Make 2 colors of cookie dough (see recipe in Resources)

Divide two colors of dough/clay into piles so that pairs of students each have a pile of both colors. Each student then rolls out his/her pile of dough/clay onto one colored rectangle. They peel off the paper, leaving them with a rectangle. They then layer one color over the other and roll it vertically, into a log. They seal the edge, and, using a plastic knife, measure and cut one inch slices. Lay flat and count the rings. "My tree cookie is ___years old."

Assessment

If using cookie dough, before eating his/her cookie have each student draw the cookie in his/her Hemlock Journal and record the age rings. When given a wooden or paper tree cookie, assess whether each student correctly counted the rings and told how old the tree is. Use students' recorded responses to question about hemlock seeds.

Optional Extension Activities

Schedule time for students to go to the Forest Center to observe and compare samples of cones, seeds from spruce and hemlock trees with hand lenses. Record the differences on a simple Spruce vs. Hemlock chart.

Sprout some lima beans so children need to see larger seeds sprouting. Have them draw changes they notice on a daily basis.





Lesson #4

When Old Hemlock Trees Fall Down

Objectives

Students:

- Learn the four stages of decomposition
- Learn Lingít words and phrases that pertain to hemlock trees

Time

60 minutes (including play practice)

Materials

- Cardboard box with 2 flaps cut like this:
- Decomposition drawing - 4 stages of decomposition
- Wood in 4 stages of decomposition (new branch or log chunk, log with moss, lichens and fungus, log with soft punk, forest soil with leaves and punk)
- Script: "It's a Rotten Home for Me"
- Seasons word cards in English and Lingít
- Decomposition picture recording sheet (masters)
- List of rotting log inhabitants (masters)
- Rotting log from a nearby forest
- Hand lenses

Vocabulary

Lingít

taakw eetí
kutaan
yeis
táakw
séew
xoon
dleit
wudinakw
yées wuduwxáshi gán
aas daa s'ix'gaa
aas daa s'éixwani

English

Spring
 Summer
 Fall
 Winter
 rain
 wind
 snow
 rotting log
 newly cut log
 wood with moss
 wood with lichen

Lingít Phrases

taakw eetí, kutaan, yeis, táakw
Séew daak woostaanín.
Ayaw diteeyín.
Dleit daak woostaanín.
(Yán) xwásiteen.

Spring, Summer, Fall, Winter
 It rained.
 It blew.
 It snowed.
 I saw a (hemlock).



Activities

Activity #1 Dramatize “It’s a Rotten Home for Me”

(More effective learning in this activity will take place if you can bring real decomposing tree parts from the forest into the classroom. If that is not possible, use the pictures provided with the Resources section.)

Teacher preparation

Before class, cut 2 flaps in the front and back of a cardboard box, as noted in the Materials list above. Gather branches or log chunks in 4 stages of decomposition from the forest, or use the paper drawings which illustrate these stages.

Activity

Using the photographs of decomposing trees, tell students about “Forest Time”- that it is a long, long time, with many seasons passing one after another –spring summer, fall, winter. During those seasons there is rain, snow and wind, which slowly change hemlock trees until they become part of the soil, and are then a place for new seeds to sprout and grow. After this conversation invite the children to make a play called, “It’s a Rotten Home for Me”.

Divide students into 4 groups:

- Season Chanters (saying spring, summer, fall winter over and over)
- Wind Makers (woo-ooo sounds)
- Rain Makers (finger taps on desks sounds)
- Snowflakes (rubbing fingers together gently sounds).

Direct the Season Chanters to practice saying, “spring, summer, fall, winter, spring, summer, fall winter, repeating the chant in unison several times. You might have one student act as a conductor, with a stick pointing to the words, to help children say the words together. Have the Wind Makers practice their wind-blowing sounds in unison several times. Have the Rain Makers also practice tapping the rain sounds on their desks. Have the Snowflakes practice gently rubbing their fingers together.

Once the four groups have practiced making their sounds, read the script slowly to the class, asking for them to make their sounds as appropriate in the play. If possible, perform the play for families or another class.

Activity #2 It’s a rotten home for me – exploring a rotting log

Put a chunk of a rotting log on a piece of butcher paper or newspaper in the Forest Center. Invite students to observe insects, moss, lichen, mushrooms, worms, etc. that are in the log, using magnifying glasses. Each student should record his/her observations on a checklist. (See sample in Resources) If you need more time for all students to see various forms of life, you may want to bring in another rotting log the second day of this activity. The more plants and creatures, the better!



Add the hemlock log checklist to each student's Hemlock Journal.

Assessment

Using the hemlock tree checklist, assess student knowledge of how hemlock trees decompose. Observe children chanting and acting out the story, noting levels of participation, voice level and dramatic details that indicate comprehension of the story and concepts. Observe and record on a checklist student pronunciation of Lingít words in this lesson.

Optional Extension Activities

Encourage students to bring a large plastic jug with a wide mouth to school to make individual terrariums (if this is not possible, plan to make a classroom terrarium). Gather moss, lichen and fungus to put into a terrarium. Turn the jug on its side, add a few pebbles on the bottom layer for drainage, and then "plant" bits of moss and lichen and fungus to make a forest garden. Cover the opening with a piece of plastic wrap. Add a little water each day. Send terrariums home with students to use to explain forest ecosystems to their families.

Lesson #5 Making Soil Soup

Objectives

Students:

- Explore and expand their knowledge of decomposition
- Learn new Lingít words and phrases related to the forest

Time

45 minutes

Materials

- Large empty cans or cylinder oatmeal boxes covered with brown paper to represent a tree trunk
- Picture cards of insects and plants that decompose to make soil (see Resources)

Vocabulary

Lingít

kútl'kw
taxhéeni
k'wálx
s'ix'gaa
kayaani
yán gítgaayi
shéiyi gítgaayi
kanas.aatx'i

English

soil
soup
fern
moss
leaves
hemlock needles
spruce needles
insects



Lingít Phrases

Kútl'kw taxhéeni yei naxtusanéi.
Akaadé kanasxa wé (k'wálx).
s'ix'gaa
kayaaní
yán gítgaayi
shéiyi gítgaayi
kanas.aatx'i

Let's make soil soup.
 In goes the (ferns)
 moss
 leaves
 hemlock needles
 spruce needles
 insects

Activities

Activity #1 Making soil soup

Teacher preparation

Collect real ingredients from the forest floor in a plastic bag, including ferns, moss, leaves, spruce and hemlock needles. You will add the pictures of insects, sun, rain, snow and ice from the Resources section.

Activity

Divide the class into small groups. Tell them they are going to be cooks and make soil soup. Make a list of things the children think might make good soil soup.

Show them the ingredients you have gathered from the forest and the pictures from the Resources. Give each group a large can or an oatmeal box wrapped in brown paper to resemble a rotting log. As cooks, they will have to decide which ingredients will be needed to make soil soup. Put the ingredients on a large piece of paper on the floor in the middle of your classroom meeting area. Have the groups take turns choosing the parts they will use. As each ingredient is chosen, students add it to their soil soup container. After all soups are complete, ask each group what ingredients they used and why. Students can write up their recipes and add them to their Hemlock Journal.



Assessment

Listen for each student's understanding of decomposition of forest elements that makes soil. Review student journals to check for completion and understanding.



Lesson #6

Woodpeckers Love Hemlocks

Objectives

Students:

- Learn about a woodpecker's symbiotic relationship with trees in the forest

Time

45 minutes

Materials

- Book, *The Forest*, by Dawn Adams, Queen Charlotte Islands Readers, Pacific Educational Press, ISBN 0-88865-033-7
- Woodpecker picture (1 per student)
- Crayons or colored pencils
- CD of Tlingit woodpecker song, in Lingít and English
- Words for the song in Lingít and English
- Woodpecker headband pattern
- Tag board for making woodpecker headband
- Paints for painting headbands
- Red feathers, to represent flicker feathers
- Scissors, glue
- Photo of a Tlingit front piece on a head dress decorated with flicker feathers

Vocabulary

Lingít

gandaadagóogu

kóon

asgutuyiksháa

t'aaw

English

woodpecker

flicker

forest beetle

feather

Lingít Phrases

Haagú gandaadagóogu.

Ax̣ xooní shakalagéi.

ḷx̣ṣix̣án.

ḷx̣ṣix̣án kúnáx̣.

Yáat'aa asgutuyisháa.

Come here woodpecker.

My pretty friend.

I love you.

I love you a lot.

Here is a forest beetle.



Activities

Activity #1

Who's that tapping on that hemlock tree?

Read the book, *The Forest*, to the children. Stop on each page to ask, "Have you ever seen a _____ in the forest? When you have finished reading, display the picture of a woodpecker. Ask the students,

"Why do woodpeckers tap, tap, tap on trees?
What are they looking for?
What do they like to eat?
How do they get their food?"

Put more woodpecker pictures on display to show that there are several kinds of woodpeckers in the forest. One of the woodpeckers is called a "flicker", and it has beautiful red feathers on its head. Tlingit *shakee.át* frontlets are sometimes decorated with these beautiful feathers, making them even more beautiful. Students color their woodpecker coloring page as they listen to the woodpecker song.

Activity #2

Make a woodpecker headband

Play the CD of the Tlingit woodpecker song. After listening to it several times, sing the song with the children, acting like a woodpecker tap, tap, tapping on a tree trunk, looking for food.

Use the pattern for a woodpecker headband. Cut the headband and beak out of tag board. Children can use markers or paint to color their masks. When everyone is ready, sing and dramatize the woodpecker song.

Assessment

Listen for acquired information about woodpeckers and the insects they eat.

Observe children singing and acting out the song, noting levels of participation and dramatic details that indicate comprehension of the song's meaning.

Listen for pronunciation of Lingít words and phrases as students give their responses.

Optional Extension Activities

Perform the woodpecker song for another classroom or for parents.

Reference Materials and Websites

- Queen Charlotte Readers, *The Forest*, by Dawn Adams, Queen Charlotte Islands Readers, Pacific Educational Press, ISBN 0-88865-033-7
<http://pep.educ.ubc.ca/first.html>



Lesson #7

From Hemlock Trees to Paper

Objectives

Students:

- Learn how to make paper from recycled materials and natural dyes from plants and berries
- Learn Lingít words and phrases about trees and paper

Time

60 minutes

Materials

- Book, *Paper, Paper Everywhere*, by Gail Gibbons
- Egg cartons
- Any other scrap paper you wish to use
- Blender or food processor

To make sheets of paper:

- Wooden frame (you can use a picture frame)
- Fiberglass window screen the size of your frame plus a little bit
- Tacks or a staple gun to fasten the screen onto the frame
- Dish washing tub
- Pieces of absorbent cloth the size of your screen plus a little bit
- Sponge
- Can of blueberries
- Lots of newspaper
- 2 cookie sheets
- Paper making directions in masters

To make cookie cutter paper:

- A tree cookie cutter about 4-5 inches tall
- A coffee can with one end cut out
- A piece of fiberglass screen slightly bigger than the can opening
- A piece of plastic needlepoint grid
- An iron to dry the paper
- Paper making directions in Resources



Vocabulary

Lingít

x'úx'
a tuxaagí
k'aakanéi
teet x'achálxí

English

paper
wooden frame
washing tub
sponge

Lingít Phrases

X'úx' yei naxtusanéi.
Kaxyees'eil' wé x'úx'.
Héen akaa yei na.oo.
Shaklawus'.

Let's make paper.
Tear up newspaper.
Add water.
Mix together.

Activities

Activity #1

Learning how paper is made

Read the book, *Paper, Paper Everywhere*, by Gail Gibbons. Help students understand that most hemlock trees harvested from the forest in Alaska are sent on ships to Japan, where they are cut into small chips and made into paper. Talk about the pictures showing this process. Ask the children to help you make a list on the board or a chartpad of paper products in the classroom and at home.

Here is one way to make home made paper:

Make a mold and deckle by tacking or stapling a piece of screen on a frame. It should be larger than the size you want your paper to be.

Encourage the children to tear up egg cartons and any other scrap paper you would like to use. Put the pieces in a blender or food processor with a little bit of water and blend until it is smooth. Pour the paper mush into the pan and add some water. Do this two or three times to make enough pulp for several sheets of paper. Ask the children to predict what will happen if you add some blueberries to the pulp. Add blueberries and juice to your tub.

Place your screen into tub, under the pulp, and level it out while it is submerged. Wiggle it side-to-side until the pulp on top of the screen looks even.

Slowly lift the mold up until it is above the level of the water. Wait until most of the water has drained from the new paper sheet.

When the mold stops dripping, gently ease the mold down flat, with the paper directly on the fabric. Use a sponge to press out as much water as possible. Wring the excess water from the sponge back into the tub.

Hold the fabric square flat and slowly lift the edge of the mold. The wet sheet of paper should remain on the fabric. If it sticks to the mold, you may have pulled too fast or not pressed out enough water.

Repeat the steps above with each student. Stack the fabric squares on a cookie sheet. Save one fabric square to place on the top of the stack to cover the last piece of paper. Use another cookie sheet to press the remaining water out of the stack.

After you press the stack, gently separate the sheets. They can be dried by hanging



on a clothes line or laying them out on sheets of newspaper. When they have dried, peel them off the fabric. You have paper!

Activity #2 Making paper

Find directions for making sheets of paper and cookie cutter paper in the Resources section. Collect the materials you will need and create a classroom workstation that can get wet. You will need a parent or instructional assistant to help small groups of students as they make paper.

Assessment

Observe student participation and use of Lingit words and phrases, to evaluate their understanding of the paper making process.

Teaching Materials and Resources

- *Book, Paper, Paper Everywhere*, by Gail Gibbons, Harcourt, 1983, ISBN 0152594884.
- *Making Paper*, by Tim Wood, Franklin Watts, 1988, ISBN 0531105334.
- *Making Paper: Focus, Recycling*, by Meredith Costain, Rebound by Sagebrush, 2001, ISBN 0613305930.

Lesson #8 Buzzing Around!

Objectives

Students:

- Learn the life cycle of a mosquito (egg, wiggler (larva), pupa, adult)
- Learn the Lingit words and phrases that pertain to this lesson

Time

45 minutes

Materials

- Mosquito life cycle master
- Mosquito model master
- A sheet of hologram paper for mosquito eyes
- A few red and brown pipe cleaners
- A few see-through straws
- Brown construction paper
- Small box of Q-Tips for mosquito eggs
- The Cannibal Giant Legend (on CD)
- Pattern for making mosquito masks
- Construction paper and tag board for masks
- Crayons and markers
- Scissors
- Cardboard box for the Cannibal Giant mask



Vocabulary

Lingít

táax'aa kusteeeyí

x'íx'

a toonáx yeiw duwa.át

t'l'úk'x

táax'aa yádi daakanóox'u

táax'aa

English

mosquito life cycle

egg

hatch

wiggler (larva)

pupa

adult mosquito

Lingít Phrases

Táax'aa has du x'íx'i héen toox' eel'éex'.

Wé x'íx' toonáx yoox.aat.

Wé x'íx' t'l'úk'x sateex.

Wé t'l'úk'x táax'aa yádi daakanoox'u sateex.

Wé táax'aa yádi daakanoox'u táax'aa sateex

Mosquitos lay eggs on water.

The eggs hatch.

The eggs grow into wigglers

Wigglers become pupas

Pupa's become adult mosquitos

Activities

Activity #1

Learning the life cycle of a mosquito

Talk with your students about their experiences with mosquitoes and mosquito bites. Help them know that only female mosquitoes suck their blood to nourish their eggs. Male mosquitoes drink plant juices, but not blood. Using the mosquito life cycle drawing, show the children how mosquitoes hatch from eggs in water, become wigglers that breathe air through their “snorkels”, and develop into flying insects.

Show students the mosquito model you have made. Demonstrate how a female mosquito uses her proboscis to suck blood to feed her eggs.

Activity #2

Make a mosquito model

Demonstrate how to make a mosquito model:

- Cut a mosquito head, thorax and abdomen from brown paper
- Glue the head to the thorax, the thorax to the abdomen
- Cut two eyes from hologram paper – gluing them on the head
- Staple section of straw to the head
- Slide piece of red pipe cleaner into the straw for blood
- Staple 2 half pieces of pipe cleaners to the head for antennae
- Glue 6 legs to the abdomen
- Cut and glue 2 rows of Q-Tips cotton tips (about 5 in each row) for eggs
- Fasten a string to the top of the abdomen to help the mosquito fly

Students can then work in pairs or small groups to make their own models.



Activity #3 **Hearing the Cannibal Giant legend**

Introduce this Tlingit story by explaining that the cannibal giant in this story is a monster who eats people, MANY people. The villagers have to find a way to destroy the monster. It also tells about the first mosquitoes and why they like to suck our blood.

Read the story to the class, directing everyone to listen carefully to the story. Ask the children to talk to the partner sitting next to them about the parts of the story they thought were scary and the parts they liked the best. Ask if they would like to make a play of the story.

Make a list of characters in the story on the board. Talk about what they might look and act like.

Children then sign their names to the character they would like to play (cannibal giant, villagers, mosquitoes).

Activity #4 **Making Mosquito Masks**

Using the mosquito mask pattern master, make construction paper or tagboard head band masks. Staple the mosquito proboscis onto the head band.

Make a big cannibal giant mask from a cardboard box. Paint a face on the mask. Cut a hole for the cannibal giant's open mouth (See Resources for design suggestions). The villagers will need sticks for spears and the set calls for a pretend fire.

Activity #5 **Dramatizing The Cannibal Giant Story**

Listen to the story from the CD again. Children can act out the story with their mosquito head band masks, spears and Cannibal Giant mask.

Assessment

Observe student participation and use of Tlingit language as indicators of their understanding of the mosquito life cycle. Observe students ability to work together to dramatize the story. Use a simple rubric to assess voice level, dramatic presentation, facial expression and variety of movements in the play.

Optional Extension Activity

Perform the play for another class or for families

Teacher Resources and Websites

- *Why Mosquitoes Buzz in People's Ears*, by Verna Aardema, Pied Piper Printing, 1978, ISBN 0-14-054905-6.
- Video of a mosquito's life cycle can be found at the following website, http://www.co.leon.fl.us/mosquito/mceduc/mosquitobiology/mosquito_lifecycle.asp