

Amphibians and Culture

Amphibians, especially frogs, play an important role in Southeast Alaska Native culture and in this section you and your students will learn about their role in myths from around the world, including Southeast Alaska. Students will also explore *ethnobotany* – the way people use plants – to collect and make salves, oils and lotions from plants important to both amphibians and Pacific Northwest Coast Native peoples.

The frog is a creature that lives in two worlds and is revered for its adaptability, knowledge and power to inhabit a variety of realms, both natural and supernatural. They are spirit helpers for shamans and good communicators, often portrayed as the common ground, or voice of the people. Vocal, singing creatures, their songs are believed to contain divine power and magic. These characteristics may explain why frogs appear in a many cultures' myths, legends and stories.

JSD AMPHIBIAN CURRICULUM

Language Arts Activity: **The Frog Prince and Other Myths**

Introduction:

A beautiful princess is wooed by a frog, who asks for just one kiss. The princess recoils in horror, but out of sympathy, kindness or curiosity, eventually agrees and kisses the frog. Magically, the frog is transformed into a handsome prince. They marry and live happily ever after!

Almost everyone is familiar with the story of the frog prince, one of the many **myths** associated with amphibians. Myths are stories created to explain how something came to be, or to help understand the unknown. Can you think of any myths?

Objectives:

1. Students will understand the concept of a myth as a story created to explain how something came to be, or help understand the unknown.
2. Students will explore a variety of myths, collected around the world, related to amphibians.
3. Students will create their own myths to explain one or more characteristics of amphibians based on their study of amphibian life cycles, habitat needs, global population declines or other characteristics.

Materials:

1. Amphibian myths from around the world (worksheets included)
2. Paper
3. Pens, pencils and art supplies

Procedure:

1. Introduce students to the concept of a myth as an oral or written story created to explain how something came to be, or to understand the unknown.
2. Share myths (worksheets) with students, or ask students to choose their own readings.
3. Encourage students to create and illustrate their own myths to explain one or more characteristics of amphibians based on their study of amphibian life cycles, habitat needs, global population declines or other characteristics.

4. As an alternative, encourage students to illustrate the aspect, or aspects, of amphibian life cycles, habitat needs, global population declines or other characteristics, that most intrigues them. Collect and randomly redistribute drawings to other students. Ask each student to write a myth explaining the drawing they receive.
5. Share myths and illustrations.

Assessment:

1. Students understand the origin and concept of a myth.
2. Students explore myths related to amphibians.
3. Students create their own myth to explain one or more aspects of amphibian life cycles, habitat needs, global population declines or other characteristics.
4. Students share ideas, writings and illustrations with each other and other classes.

Alaska Content Standards:

English / Language Arts:

A (1-6, 8)

B (1-3)

E (1-4)

Juneau School District Core Content:

Language Arts: Writing and Speaking (5th, 6th, 7th, 8th)

- Write a folk tale or other fiction,
- Use writing process to develop own writing, from draft to publication
- Share writing with an audience outside the classroom

References:

Amphibian Folklore. 2003. Miller, Jessica and livingundersworld.org. 16 March 2004 <<http://www.livingunderworld.org/folklore>>.

Frog Myths Across Cultures: Transformations, Alchemy and Love. Wanner, Noel. 16 March 2004 <<http://www.exploratorium.edu/frogs/folklore/index.html>>.



Amphibian Myths Around the World

Abundance, good fortune, and fertility around the world

In ancient Egypt, frogs appeared in great numbers every year after the flooding of the Nile, an event crucial for ancient agriculture because it provided water for distant fields. The muddy bogs left by receding waters were home to thousands of frogs and it's easy to imagine how they came to be viewed as symbols for abundance and good fortune. The frog was symbolic of the ancient Egyptian number *hefnu*, which meant 100,000, or a huge number.

Frogs were also symbolic of the Egyptian water goddess, *Heket*, who appeared as woman with the head of a frog, along with the midwife goddess, *Heqit*, who ruled over conception and birth. Egyptian women often wore amulets in the form of frogs to enlist their good fortune.

Long before Christopher Columbus arrived in this part of the world, many central Mexican tribes worshipped the goddess, *Centeotl*, the patron saint of childbirth and fertility, who took the form of a frog or toad with many udders.

The early Aztecs saw the toad as *Tlaltecuhiti*, the earth goddess mother, who embodied the endless cycle of death and rebirth. She was depicted in a squatting position, giving birth to a new world while dying souls passed through her fanged mouth to the netherworld.

In one legend, she is the source of the entire universe. *Quetzalcoatl*, the bird-serpent god and *Tezcatlipoca*, the magician-jaguar god, find *Tlaltecuhiti* floating alone over an ancient sea. They tear her body in half, one half forming the heaven and the other, earth. Some species of toads are **cannibalistic** and eat their own or other toad species. This may explain why they are seen as symbols for both destruction and rebirth.



Now it's YOUR turn!

Frogs, toads, newts and salamanders have been our companions on earth for centuries. They live in the stories of almost every culture and take on a variety of roles – trickster, devil, mother of the universe.

Write and illustrate your own myth to explain one or more of the scientific facts you learned in your exploration of amphibian life cycles, habitat needs, global population declines or other characteristics.



Amphibian Myths Around the World

It's raining cats, dogs... And frogs!

In ancient times, frogs often reproduced in hordes. Thousands of tiny creatures covered the ground and found their way into homes and other structures. This phenomenon was called the *frog rain* because it usually occurred after the first heavy rain of the season. Why do you think that is?

Ancient Egyptians believed frogs were made of mud and water, probably because of their semi-aquatic lifestyle. Other cultures associated frogs with weather, most likely because they often vocalize before it rains.

For example, Australian *aborigines* and Native Americans both believed that frogs were bringers of rain. The *Aymara* tribe of Peru and Bolivia made small frog images to place on hilltops to call down the rain. If the rains did not come, they lashed out at them in punishment. In India, frogs were believed to personify thunder. In the Sanskrit language, the word for frog is also the word for cloud.



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Amphibian Myths Around the World

Amphibians & alchemy: Magic potions, powers & other properties

Many cultures thought amphibians contained powerful poisons and drugs that could heal or cause hallucinations. These myths are founded in truth because some species contain chemicals which are both poisonous and hallucinogenic. *Shaman* from many South and Central American tribes made poisons from frogs and toads, along with hallucinogenic potions used to communicate with spirit world.

In medieval Europe, toads were seen as evil creatures whose blood was a potent poison and whose body parts had strange powers. Toads were thought to accompany witches to help them with their spells. Toads were popular ingredients in witches' magic potions like *toad soup*, a brew made with toads, snakes and frogs, used to predict the weather.

According to Basque tradition, witches could be identified by the presence of a marking in the shape of a toad's foot, and the Great Pyrenees of Spain, witches were thought to have a toad image in the left eye.

Another widely held superstition told of the famous *Toad Stone*, a jewel supposedly found in a toad's head. Placed in a ring or necklace, the jewel would heat up or change color in the presence of poison, thereby protecting its wearer from danger.



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Frogs, toads & transformation: The masters of change

The life cycles of many amphibians involve at least one major change, which explains why some cultures believe they are the keepers of magic secrets.

Many amphibians shed their skins as they grow. Some species even eat their shed skin. The ancient *Olmec*, a tribe originating near the Gulf of Mexico on the Yucatan Peninsula, believed in a toad god of rebirth, and made images of a toad eating its own skin. Reborn by consuming itself, this god was caught in a constant cycle of death and rebirth.

When the ancient Chinese looked skyward, they saw not the man in the moon, but the toad. They believed eclipses happened when the toad in the moon tried to swallow the moon itself.

Other Chinese myths describe the toad as trickster and magician, a master of spells and escapes, and the keeper of the secret of immortality. Chinese legends describe a wandering wise man called *Liu Hai* and his wandering companion, *Ch'an Chu*. In exchange for his friendship, the toad shares the secret of eternal life with *Liu Hai*.

A similar, Japanese legend tells of *Kosensei*, a wise old man with a hunched body and a warty face. *Kosensei* wanders the land with his toad companion, who teaches him about the powers of herbs, and the secret of immortality.



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Frogs, toads & love: Beauty below the surface

In a medieval tale from Italy, a father with three daughters falls ill and travels to a healer's castle to be cured. Before he leaves, he asks each daughter what they want him to bring back. The two oldest daughters, behaving selfishly, ask for beautiful jewelry, while the youngest asks only for one flower.

Arriving at the castle, their father finds no one home and turns to leave, when he sees a beautiful garden. He picks a single rose for his youngest daughter when suddenly, a huge toad appears and says, "Who gave you the right to pick flowers from my garden? You must pay for your theft with your life!"

The toad agrees to pardon the man only if he promises to give his youngest daughter to him in marriage. Upset, the man returns home determined to sacrifice himself instead of his daughter. But his devoted daughter cannot bear her father's grief. She sneaks away one dark night to marry the toad. When she crawls into the toad's bed, she finds him transformed into a handsome prince. He tells her she must never reveal his secret and gives her a magic ring to grant her any wish.

Her sisters, surprised at her happiness when they expect her to be miserable as the wife of a toad, demand she tell them the truth. When she finally breaks her promise and reveals her secret, the toad falls deathly ill!

But, she remembers her magic ring and wishes that her husband is healed. When nothing happens, she throws the ring into a lake. Suddenly, the toad vanishes and in its place appears her handsome husband. The spell is broken and her husband returns to human form.

This myth, and others like the Frog Prince, tells of true beauty hidden beneath a superficial ugliness. In each case the hero or heroine has to recognize the beauty underneath, and make a leap of faith so it may be revealed.



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Amphibian Myths Around the World

Newts & salamanders: Fire, mischief and medicine

Associated with evil and mischief, newts and salamanders have also been the subjects of many myths. The word *salamander* means *fire lizard* when translated from its Greek origin.

Linked to fire as early as the time of *Aristotle* (384 – 322 BC), salamanders were thought to be immune to fire, and able to put flames out with special skin secretions. This belief may have come from the fact that salamanders live in cool, damp places, like piles of firewood. When the wood was kindled, they fled to safety. Ancient peoples may have believed their flight caused the fire to go out, rather than the wetness of the wood.

Collected and burned to ashes, newts and salamanders have also been used for many medicinal purposes. The saliva of the salamander was believed to make a person's hair fall out. And even today, the skins, bodies and body parts of newts and salamanders are used in traditional Asian medicines.



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JSD AMPHIBIAN CURRICULUM

Language Arts Activity: **Myths & Stories of Pacific Northwest People**

Introduction:

The Tlingit people have lived in coastal communities throughout Southeast Alaska, from Yakutat to Dixon Entrance near Ketchikan for thousands of years. As the Tlingit migrated to the coast and made use of their home – the largest temperate rainforest in the world – their environment shaped their lifestyle, culture and beliefs.

Tlingit society is organized into two divisions, called *moieties*. The two moieties are named Eagle and Raven, though Raven is sometimes also known as Crow, and Eagle as Wolf. A matrilineal society, Tlingits are born into their mother's moiety, clan and house.

A *clan* is a large family including cousins, aunts, uncles, grandparents, nieces, nephews. There are about 50 clans in both Eagle and Raven moieties, and each has an identifying crest which is often an animal. Clan crests are important and symbolic – they tell the history and significance of the clan, and are often based on a clan member's experience with that animal.

The Kiksadi clan (in the Raven moiety) uses Frog as its crest, and are viewed as intelligent and visionary leaders. And although one clan cannot use another's crest for its own, migrations led to the use of the same crest animal in the houses of other clans. This sometimes led to great conflict – in the late 1800s, Tlingits in Sitka and Wrangell almost waged war over the use of the Frog as crest animal, and the case was eventually brought to federal court!

Frogs appear as crest animals, on house posts and totems that tell stories of clan histories. Frogs continue to have many meanings to Pacific Northwest Coast peoples, including the Tlingit, Haida, Tshimsian and Salish. For example, to the Salish of coastal British Columbia, the frog sings each spring to announce the start of a new cycle. Salish stories say that when the last snowflakes touch the ground, they become frogs whose voices tell people to set aside winter dances and potlatches in favor of spring and summer. When frogs sing, the Salish know that only six weeks remain before salmon return to rivers and summer begins. They honor the frog as the keeper of the sacred seasons, and believe it to symbolize prosperity and wealth.

The Haida use the frog on house posts, believing it helps keep the house from falling over, while the Tshimsian believe the frog is the communicator between Mother Earth and man. They consider the frog as the only child of Mother Earth.

According to anthropologist Frederica DeLaguna, although the Yakutat Tlingit considered the frog a dangerous animal, with slimy poisonous skin, they believed it could be addressed and appealed to for help.

Much can be learned from the stories and artwork of Native peoples. Science topics can often begin with Native or traditional knowledge, with expansion to broader contexts and explanations taken from science or Western ideas. These ideas are well articulated in the following quotes, taken from

the Alaska Native Knowledge Network website and [A Yupiaq Worldview](#):

“The depth of indigenous knowledge rooted in the long habitation of a particular place offers lessons that can benefit everyone, from educator to scientist, as we search for a more satisfying and sustainable way to live on this planet.”

“Science teaching does not need to come from textbooks alone and it does not need to utilize the scientific method as the only way to construct knowledge. What traditionally is understood through myths, collective thinking, experiential learning, intuition and the presence of mind needed to guide, temper and get things right should also be included.”

Native stories are often thousands of years old, and are important because they tell the history of their clan. Because an inaccurate telling takes away from that history, stories are held sacred and treated as intellectual property. The elders of each clan know their stories better than anyone else, and cannot tell the stories of other clans without express permission and acknowledgment of the clan and original storyteller.

Tlingit culture is an oral culture and the history of its people was seldom written down, and was instead preserved in stories and art, like totems. The stories that follow have been taken from several written sources. When sharing them with students, please acknowledge the moiety, clan and house from which the story came, along with the name of the original storyteller, if known. This preserves clans’ intellectual property rights and shows respect for their culture and traditions.

Materials:

Myths & Stories of Pacific Northwest People (worksheets included)

References:

Kawagley, A. Oscar. [A Yupiaq Worldview: A Pathway to Ecology and Spirit](#). Illinois: Waveland Press, Inc., 1995.

Kawagley, Angayuqaq Oscar and Ray Barnhardt. [Education Indigenous to Place: Western Science Meets Native Reality](#). 1997. Alaska Native Knowledge Network. University of Alaska Fairbanks. 16 March 2004 <<http://www.ankn.uaf.edu/EIP.html>>.

Smelcer, John E. (editor). [The Raven and the Totem. Traditional Alaska Native Myths and Tales](#). Anchorage: A Salmon Run Book, 1992.

Swanton, John R. [Tlingit Myths and Texts](#). Bureau of American Ethnology Bulletin (39), 1909. 16 March 2004 <<http://www.sacred-texts.com/nam/nw/tmt/index.htm>>.



The Creation Legend

A very long time ago, Raven was flying over the big waters and saw a beautiful fish woman swimming below. Raven fell in love with her and flew down to ask her to marry him. The fish woman was happy to see him, but before she would marry him she made him agree to one condition.

“I will marry you, Raven,” she said, “if you will make some land so I don’t have to swim all the time and can dry my hair on the beach.” Raven agreed to her request and flew away to make land. He wanted someone to help him so he went to find help.

He flew around until he found a seal swimming in the warm waters. “Seal,” said Raven, “I need some sand from the bottom of the sea. Will you dive down and bring up some for me?” Raven was very clever and did not tell the seal what he wanted the sand for.

Seal replied, “I will have to ask Frog for the sand.”

Raven thought for a moment and said, “If you will ask Frog to get the sand for me, I will grant you both a favor.”

“Oh,” said Seal, “I’d like to have a shiny, warm coat of fur to keep me warm instead of these slimy scales. Then I could swim in the colder waters and still keep warm.” Raven promised Seal the fur coat if he’d get the sand for him. At once, Seal dove to the bottom of the sea where he found Frog. Seal told him of Raven’s request and promise to grant them both a favor.

Frog told Seal, “Tell Raven that if he wants my sand, he will have to make me Keeper-of-the-Earth’s-Treasures, once and for all.” Seal was amazed at such a request but told it to Raven anyway. Raven was also amazed.

“That’s asking for a lot,” Raven said, “but tell Frog that if he gives me the sand, I will grant his request.” With that, Seal dove down deep to speak with Frog, all the while wishing he had asked for more than just a fur coat. When Seal told Frog that Raven agreed, Frog filled an old frogskin with sand and gave it to Seal. As soon as Raven had the sand, he flew high into the air where the wind was blowing the strongest. Then he opened the frogskin and cast the sand into the wind where it was scattered to all four corners of the world. Every place a grain of sand landed, an island was formed. Some islands were bigger than others because the sand grain it was made from must also have been bigger.

Once the island was made, the fish woman walked on the beach and dried her hair for the first time in her life. She agreed to marry Raven, and from their marriage came the great Raven clan. For their help, Seal received a warm fur coat and Frog became guardian of the Earth’s treasures.



How the Sitka Kîksa'dî obtained the frog

A man and his wife were crossing the mouth of a big bay named L!ê'yâq, when it became so foggy that they could not even see the water around their canoe and stopped where they were. Then, quite a distance away in the thick fog, they heard singing, and it continued for so long a time that they learned the song by heart. The words of this song are (first verse), "We picked up a man; you picked up a man;" (second verse), "They captured a man; they captured a man; you've captured a man." The voice was so powerful that they could hear it echo among all the mountains.

When the fog began to rise so that they could look under it a little they heard the song coming nearer and nearer. They looked about and finally saw that it came from a very little frog. To make sure of it they paddled along for some time in the direction it was taking. Then the man said, "This frog is going to be mine. I am going to claim it," and his wife answered, "No, it is going to be mine. I am going to claim it." But, after they had disputed for some time, the man finally let it go to his wife.

Then the woman took it ashore, treating it like a child, carried it up to the woods, put it down by a lake and left it there. From that time on, her people have been KîksA'dî. That is how the Sitka KîksA'dî came to claim the frog.

Origin of the frog crest among the Kîksa'dî

A married couple went from Sitka into Gaya' bay, and camped at GA'xgu-ân. They were there for perhaps a month. One morning they started out hunting. Then they heard a song on Gaya' bay. They listened. They did not hear plainly. [The man's] wife said to him, "Do you hear it?" He said, "I hear the thing making a noise over there." "Turn toward it," they said. They went toward it and saw it. It was a little frog which the man let float down to his wife in the stern. He said, "It is for you." So they brought it to Sitka. This is how the little frog's song came to be known, and this is why the KîksA'dî claim the frog.



The woman taken away by the frog people

There was a large town in the Yakutat country not very far back of which lay a big lake very full of frogs. In the middle of the lake was a swampy patch on which many frogs used to sit.

One day the town-chief's daughter talked badly to the frogs. She took one up and made fun of it, saying, "There are so many of these creatures, I wonder if they do things like human beings. I wonder if men and women cohabit among them."

When she went out of doors that night, a young man came to her and said, "May I marry you?" She had rejected very many men, but she wanted to marry this one right away. Pointing toward the lake he said, "My father's house is right up here," and the girl replied, "How fine it looks!" When they went up to it, it seemed as though a door was opened for them, but in reality the edge of the lake had been raised. They walked under. So many young people were there that she did not think of home again.

Meanwhile her friends missed her and hunted for her everywhere. Finally they gave her up, and her father had the drums beaten for a death feast. They cut their hair and blackened their faces.

Next spring a man who was about to go hunting came to the lake to bathe himself with urine. When he was done, he threw the urine among a number of frogs sitting there and they jumped into the water. When he was bathing next day he saw all the frogs sitting together in the middle of the lake with the missing woman among them. He dressed as quickly as possible, ran home to the girl's father, and said, "I saw your daughter sitting in the middle of the pond in company with a lot of frogs." So her father and mother went up that evening with a number of other people, saw, and recognized her.

After that they took all kinds of things to make the frog tribe feel good so that they would let the woman return to her parents, but in vain. By and by her father determined upon a plan and called all of his friends together. Then he told them to dig trenches out from the lake in order to drain it. From the lake the frog chief could see how the people had determined, and he told his tribe all about it. The frog people call the mud around a lake their laid-up food.

After the people had worked away for some time, the trench was completed and the lake began draining away fast. The frogs asked the woman to tell her people to have pity on them and not destroy all, but the people killed none because they wanted only the girl. Then the water flowed out, carrying numbers of frogs which scattered in every direction. All the frog tribe then talked poorly about themselves, and the frog chief, who had talked of letting her go before, now had her dressed up and their own odor, which they called "sweet perfumery," was put upon her. After a while she came down the trench half out of water with her frog husband beside her. They pulled her out and let the frog go.

When anyone spoke to this woman, she made a popping noise "Hu," such as a frog makes, but after some time she came to her senses. She explained, "It was the Kíkca' (i. e., KíkA'dî women) that

floated down with me," meaning that all the frog women and men had drifted away. The woman could not eat at all, though they tried everything. After a while they hung her over a pole, and the black mud she had eaten when she was among the frogs came out of her, but, as soon as it was all out, she died. Because this woman was taken away by the frog tribe at that place, the frogs there can understand human beings very well when they talk to them. It was a KîksA'dî woman who was taken off by the frogs, and so those people can almost understand them. They also have songs from the frogs, frog personal names, and the frog emblem. All the people know about them.



The woman who married the frog

A certain girl once said something very bad to a frog. Some time afterward she went up to the woods with her little sister, and suddenly her little sister lost her. She had met a fine-looking man and had walked on with him for a long time until they were far off from the village. When her little sister got home they asked her, "Where is your sister?" and she said, "I thought that she had gotten back home." They searched for the girl everywhere but could not find her. They did not see her for a long, long time.

The man that this girl had met was really a frog, which she had married, and she now had two children. To her, however, the frogs looked like human beings. One day this girl said to her children, "Run down and see your grandfather and grandmother. Their house is just in the middle of the village, and you will know it as soon as you see it." So the children went down to the house, but, when they entered it, some one called out, "Look at those little frogs coming into the house." Then their grandmother said, "Put them out." So they were thrown out of doors.

When the children got back to their mother she said, "Did you see your grandmother?" and one answered, "I think it was she. We went into a house," which they described so that their mother knew at once that it was the right one, "and some one called out, saying, 'Look at these frogs.' Then some one else said, 'Throw them out,' and they did so."

Then their mother said, "Go back and try to see her again even if they do throw you out." So the little frogs went down and entered their grandmother's house once more. Again some one called out, "Those little frogs are in here again." But this time their grandfather said, "Bring them here to me. My daughter is missing. These might be her little ones." So he held out his fox robe and they laid the little frogs upon it. The frogs crawled all over his breast and shoulders. Then the frogs were seated in front of their grandfather and were given cranberries. They picked them up one by one with the fore foot and put them into their mouths.

Afterward the frogs started to hop out, and a man followed them with the dishes of food. They hopped straight up to a lake back of the village and jumped in. Then, as the chief had already directed them, the men set the dishes down at the edge and stood watching. Presently the dishes moved out into the lake and sank. All at once they came up again and moved back to the same place.

Then these men returned to the chief and reported everything that they had seen, whereupon he sent them back, saying, "Go back and say, 'Your father has invited you to the house.'" They did so. Then they heard a voice replying, "I cannot come." They reported this to her father, and he told them to take up her marten-skin robes and her other clothing and lay them by the lake. After that she came down and along with her the two high-caste frogs whom she had married. When they had finished eating, all went back.

Now the girl's father thought often and deeply how he should get her back, for he did not know what to do. Finally he said to the village people, "Make a place where the lake can flow out." So all of the people went to work to drain the lake, and the water began flowing out. When the lake was nearly

dry they saw this girl, all covered with frogs with the exception of her face, start to flow along with them. They picked her out from the very midst of the frogs and carried her home, but the frogs followed right after her. The house was quite filled with them. Then they killed all of the frogs that were upon her body, but as they did so more climbed up. When they began killing them with human bones, however, they went away. Afterward the girl remained with her father, and the frogs did not bother her any more.



Story of the frog crest of the k̄ksa'd̄i of Wrangell

A man belonging to the Stikine K̄ksA'd̄i kicked a frog over on its back, but as soon as he had done so he lay motionless unable to talk, and they carried his body into the house. This happened at Town-of-the-frogs (*X̄x̄tc!-x̄â'yikA-ân*), so named because there are many frogs near by.

The reason why this man lost his senses was because the frogs had taken his soul. They had it tied to a house post, and some of them said, "Let him starve right there where he is tied." Others said, "No, don't let him starve there. Feed him and let us see what the chief says." This chief's name was Frightful-face (*YAkû'd̄i*). When he at last came in his canoe, they said, "Frightful-face has come." Then all went down to his canoe to welcome him, and, when he reached his house, they told him the news. They said, "This man disgraced us terribly. He threw one of our women down and kicked her over." The woman was called Woman-in-the-road (*Deyêxcâ'g*^u). When the chief looked up, he said, "Untie him and bring him here." Then he said to the man, "We belong to your clan, and it is a shame that you should treat your own people as you have done. We are K̄ksA'd̄i, and it is a K̄ksA'd̄i youth who has done this. You better go to your own village. You have disgraced yourself as well as us, for this woman belongs to your own clan."

As soon as he had left the frogs' house, his body lying at home came to. He had thought all the time that his body also was in the house of the frogs. Then he got up and began to talk. He said, "Something strange has happened to me. The frog people captured me on account of that frog that I kicked over in front of the house the other day. They had tied me to the chief's house-post, and some wanted to kill me at once, while others wanted to starve me, and still others wanted to wait until their chief, Frightful-face, came home. When the latter at length arrived, they said to him, 'We have a man in here who has been throwing down one of our women. We have been waiting for you to see what shall be done with him.' I listened to all they said. Then the frog chief said, 'Untie him,' and all minded him. As soon as he had heard about it, he said, 'See here, young man, what is this you have done? Don't you know that we belong to your clan and that this woman you have done that to is of the same clan. If it were not for that, we would not let you go. As it is you may go.'"

All of the K̄ksA'd̄i were listening to what this man said, and it is because the frog himself said he was a K̄ksA'd̄i that they claim the frog.

Science Activity: **Native Uses of Wetlands Plants**

Introduction:

You may have noticed some interesting plants while exploring amphibian habitat. Like most Native Alaskan peoples, the Tlingit used plants for a variety of things – food, medicines, building materials, ceremonies. And though uses varied, most Native peoples felt a deep connection between people and plants. *Ethnobotany* is the study of how people use plants, and an excellent way to understand the cultural identity of a group of people and the botany of the ecosystems they use.

In this activity, your students will explore how the Tlingit used wetlands plants to make medicines. Medicinal plants have traditionally been used in a variety of ways, including:

1. **Decoctions** are herbal teas prepared from coarse leaves, stems, roots or bark
2. **Infusions** are herbal teas prepared from flowers and soft leaves
3. **Oils** are extractions of herbs' active principles into oil
4. **Poultices** are herbal packs applied directly to skin
5. **Salves** are thick herbal oils that may be put on skin and left there

In this activity, your class will make soothing oils and salves to put on your skin.

Before harvesting any plant for food or medicine, it is important to know what you're looking for – NEVER harvest any plant for food or medicine unless you can accurately identify it.

Also, be aware that many plants used in traditional medicines are closely linked with spiritual beliefs. For example, Devil's Club is valued for both medicinal and special, protective powers that link people to the spiritual realm. Because medicinal plants are regarded with reverence and appreciation, collection often involves prayers, ceremonies or other rituals.

The harvesting guidelines below seek to promote “traditional conservation” – preservation of the natural environment while using the resources available.

Harvesting Guidelines:

1. Learn the habitat and conditions under which the plants you need flourish, and explore your surroundings enough to discover where plants can be found in abundance. Talk with Elders or other potential harvesters to see if the area you choose is already being harvested.
2. Treat the plants you harvest with respect. In Native cultures, it is traditional to thank plants for their gifts and to give an offering. Encourage students to show respect to the plants they harvest in their own way, including simple awareness and appreciation for the process and surroundings.
3. Look for unpolluted areas. Harvest herbs at least 50 feet away from roads, and at least 200 feet away for lichens. Make sure harvesting area is free of other pollutants (has it been treated with pesticides, fertilizers, fungicides?)

4. Make sure there are plenty of other plants in the area you harvest. If there are fewer than at least ten plants, consider harvesting elsewhere.
5. Whenever possible, harvest plants so they can reseed or recover after you are finished. For example, leave the roots of perennials intact, along with a portion of the leaves so it may regenerate. Or, take only a part of the plant so it may flower and reproduce.
6. Be gentle and never take more than you need. Harvest only what you will use and share extra with others if you accidentally harvest too much.

Useful Wetlands Plants:

1. Buckbean (*Menyanthes trifoliata*)

This emergent plant is usually found growing in water with flower spikes above both its leaves and the water. Leaves are divided into three, oval-shaped leaflets, and flowers have five white to pinkish petals with white hairs along the margins, giving them a fringed look.

Yakutat area Tlingit believed this plant to border between ordinary medicine and magic, according to anthropologist Frederica de Laguna. She describes gathering protocols that must be employed to reap its full medicinal properties. These include making a payment to a closely related member of the opposite *moiety*, as this must be the person to gather the plant. Buckbean must also be talked to when harvested, in the same way one would talk to an Indian doctor. Finally, clothes or money must be left in its place and the name of the person for whom it is being harvested must be said.

Buckbean was used in a variety of way by Native people of the Northwest coast. The rhizomes were used by Alaskan tribes as emergency food. They were dried, ground and washed to remove bitterness and then dried again. Buckbean tea was used to relieve fever and migraine headaches, for indigestion, to promote appetite and to eliminate intestinal worms. Externally it was used to help wounds heal.

2. Chickweed (*Stellaria media*)

You probably have chickweed in your yard, garden or someplace near your classroom. Chickweed likes moist areas and grows to about 12 inches, with flowers blooming on long stalks spreading at the juncture of leaf and stem. Flowers are small, with five white petals that are cleaved, making it look like each flower has 10 petals instead of five. Leaves are egg-shaped with sharp points, and are arranged in pairs. Stems are weak and often trail on the ground, with new roots sprouting from stem joints. A fine line of hairs runs up one side of the stem but switches sides at each pair of leaves.

Although gardeners generally try to get rid of this common “weed,” it has a variety of medicinal and food values. Chickweed is a tender, mild green easily adapted to a uses including salads,

sandwich toppers, garnishes and seasonings. These greens are low in calories and packed with copper, iron, phosphorous, calcium, potassium and vitamin C.

Chickweed also has a number of medicinal uses, including teas and tinctures for bladder, kidney and urinary tract difficulties. Its cooling properties make it a soothing external application for painful or inflamed areas like insect bites and scratches. Salves made from its leaves will soothe a variety of skin ailments.

Objectives:

1. Students explore wetland and other habitats where amphibians may be found.
2. Students identify wetland plants used by Alaska Natives.
3. Students understand that ethnobotany is the study of how people use plants.
4. Students make safe, useful products from plants found during explorations.

Materials:

1. Plant field guides:

Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia and Alaska, (Jim Pojar & Andy MacKinnon, editors), is both comprehensive and easy to use.

Discovery Southeast's Common Flowers of Southeast Alaska by Katharine Hocker is also excellent and is available by contacting Discovery Southeast at (907) 463-1500.

2. Cutting or digging tools
3. Double boiler
4. Pure water for processing
5. Olive oil
6. Cheese cloth
7. Strainer
8. Vitamin E capsules
9. Beeswax melts
10. Small containers

Procedure:

1. Review harvesting guidelines with students, with special emphasis on respect.
2. Identify and harvest chickweed and/or buckbean plants.
3. Once back in the classroom, work in groups to make herbal oils and salves by following the recipes (included).

National Science Education Standards:

Content Standard G:

- Develop understanding of history of science

Alaska Content Standards:

Science A(3)

References:

Dick, Patty. "Native American Herbal Medicine." Notes from a course taught at Sheldon Jackson College. Sitka, Alaska. 2000.

Discovery Foundation. The Mendenhall Valley Wetlands Educators' Guide. Juneau, Alaska: US Fish & Wildlife Service, 1994.

Garibaldi, Ann. Medicinal Flora of the Alaska Natives. Anchorage: University of Alaska Anchorage, 1999.

Schofield, Janice J. Discovering Wild Plants: Alaska, Western Canada, the Northwest. Oregon: Alaska Northwest Books, 2000.



WETLAND PLANTS

Recipes

HERBAL OIL

1. Fill bottom half of double boiler with water.
2. Put 1.5 cups of your herb and 2 cups oil in top half.
3. Heat slowly for at least 30 minutes, but do not boil. The longer you heat the oil, the stronger it will be. The oil will change color, letting you know the herbs' properties are being transferred to the oil.
4. After the oil has cooled, strain it through cheese cloth or narrow gauge sieve, and into storage container.
5. Empty contents of one vitamin E capsule into the oil to preserve it. Try adding a fragrance, like vanilla, lemon, almond or lavender.
6. Cap and label containers.



SALVE

1. Put 1/2 cup herbal oil in top of double boiler.
2. Grate 1/4 cup beeswax into oil.
3. Heat slowly until beeswax melts.
4. Test consistency by placing teaspoon-full into freezer

Salve should be firm, but not too hard or soft.

If too hard, add oil.

If too soft, add beeswax.

5. When it is at the right consistency, pour into containers.
6. Cap and label containers.