

Forests for the Future

Unit 2

Traditional Plant Knowledge of the Tsimshian

**Unit Plan for Secondary Sciences, Social Studies, and Applied Skills
by Judy Thompson**

Forests for the Future • Unit 2

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Forests for the Future, Unit 2

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Project Leader: Charles R. Menzies, Ph.D

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INTRODUCTION

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Rationale

What is “science”? Its Latin root, *scientia*, means knowledge, which comes from the Latin verb, *scire*, to know. Many different expressions have been used to describe and interpret “science,” natural phenomena, or nature-knowledge systems, such as, “Western modern science,” “scientific knowledge,” “traditional ecological knowledge,” “indigenous science,” “indigenous science,” and “traditional environmental knowledge,” to name a few. The Canadian Oxford Dictionary defines science specifically as “a branch of knowledge conducted on objective principles involving the systemized observation of and experiments with phenomena, especially concerned with the material and functions of the physical universe,” which would be a definition from the worldview of Western modern science.

All nature-knowledge systems are intricately tied to their worldview and culture. However, the science community in general believes that science (Western modern science) is universal and absolute and that science is not seen as being relative or having significance in relation to something else. In 1994, Stanley and Brickhouse stated that the standard universalist account of the nature of science was flawed, and that the nature of science should reflect a multicultural perspective of scientific knowledge (387). In order to develop culturally relevant school science curricula, it is vital that not only the worldview of Western modern science be examined, but also the traditional ecological knowledge of the peoples who have inhabited this land, now known as British Columbia, for thousands and thousands of years.

Indigenous peoples have had and continue to have an intimate relationship with the land, a knowledge of the land, that is highly localized and social. For example, Dr. Angaayuqaq Oscar Kawagley, a Yupiaq scholar, states that his people, located in southwestern Alaska, have “a body of scientific knowledge and epistemology that differs from that of Western science” (Kawagley, et al. 1998:136).

Much of Yupiaq scientific knowledge is manifested most clearly in their technology. One may argue that technology is not science. However, technology does not spring from a void. To invent technological devices, scientific observations and experimentation must be conducted. Yupiaq inventions, which include the kayak, river fish traps...represent technology that could not have been developed without extensive scientific study of the flow of currents in rivers, the ebb and flow of tides in bays, and the feeding, resting, and migratory habits of fish, mammals, and birds (Kawagley, et al. 1998:136).

Science from this perspective refers to descriptive knowledge of nature developed through experience with nature. The definition of science used here is consistent with Ogawa who refers to science simply as “a rational perceiving of reality” (1995:588). From this definition, Ogawa (1995) argues for the existence of many different legitimate sciences. One such nature-knowledge system or “science” is traditional ecological knowledge.

Indigenous peoples' ways of knowing about nature has been called “Traditional Ecological Knowledge” in the world of academia and by government agencies and industry dealing with environmental and resource management. Defining TEK can prove to be troublesome, as can the different variations of names for such knowledge. Johnson states, “this knowledge is variously labelled as folk ecology, ethnoecology, traditional environmental or ecological knowledge, indigenous knowledge, customary law, and knowledge of the land” (1992: 3). Snively and Corsiglia (2001) have defined traditional ecological knowledge (TEK) as “both the science of long-resident oral peoples and a biological sciences label for the growing literature which records and explores that knowledge” (8). There is no universally accepted definition of TEK due to the ambiguity of the words that make up the expression (Berkes 1993: 3).

“Traditional usually refers to cultural continuity transmitted in the form of social attitudes, beliefs, principles and conventions of behaviour and practice derived from historical experience” (Berkes 1993: 3). The problem associated with the use of this word is that societies are dynamic, adopting new practices and technologies and changing over time. The amount and the kind of change would make it hard to stay true to the definition. The term, indigenous ecological knowledge, is often used thereby avoiding the use of the word traditional, and placing the emphasis on indigenous people (Berkes 1993: 3). The term ecological knowledge is also troublesome. Ecology is a branch of biology and is a part of Western modern science, thereby making this narrow definition of the word inappropriate. However, “if ecological knowledge is defined broadly

to refer to the knowledge, however acquired, of relationships of living things being with one another and with their environment, then the term TEK becomes tenable” (Berkes 1993: 3). Johnson, director of the Dene Cultural Institute in the Northwest Territories has defined TEK as:

...a body of knowledge and beliefs transmitted through oral tradition and first-hand observation. It includes a system of classification, a set of empirical observations about the local environment, and a system of self-management that governs resource use. Ecological aspects are closely tied to social and spiritual aspects of the system. The quantity and quality of TEK varies among community members, depending on gender, age, social status, intellectual capability, and profession (hunter, spiritual leader, healer, etc.). With its roots firmly in the past, TEK is both cumulative and dynamic, building upon the experience of earlier generations and adapting to the new technological and socio-economic changes of the present (cited in Battiste & Henderson 2000: 44).

While Johnson’s definition correctly indicates that TEK is dynamic knowledge and that it is not a homogenous body of knowledge, by describing it as a “body of knowledge”, it loses sight of the fact that it is a way of life. TEK in this sense is unfortunately reduced or removed from its whole (world view and context) and also from the people themselves. By doing this, it becomes possible to “extract,” “tap into,” “harvest,” or “capture” TEK from First Nations people (McGregor 2000: 444). LaDuke, an indigenous writer, defines TEK as “the culturally and spiritually based way in which indigenous people relate to their ecosystems” (cited in McGregor 2000: 444). McGregor states that,

TEK is thus more than an accumulation of other knowledge; it is a way of relating to Creation and all of its beings and forces. It is more than knowledge of a relationship; it is the relationship itself. TEK, from an Indigenous perspective, is an active, living thing; a way of being, a “verb,” so to speak. TEK is best expressed in how you live and how you relate to creation. TEK is doing! You cannot take the knowledge and ignore the people. In the absence of the people expressing, living, and doing, the knowledge loses much of its meaning. The potential for abuse of the knowledge becomes tempting and frequently occurs when extracted from the people. Indigenous definitions of TEK thus contrast sharply with the western concept of TEK as a noun, commodity, or product (2000: 444).

In spite of the difficulties in defining the term, traditional ecological knowledge, I will use it throughout the lessons.

What is “science” in science education? Questions about the content of science curricula have been raised that challenge the assumption that Western modern science should comprise school science curricula (Stanley & Brickhouse 1994:387). While there is still dispute about science and multiculturalism, or multiscience, many science educators have moved past that debate and have accepted that all knowledge systems about nature are fixed in the context of a cultural group (Coburn & Loving 2001:50, Snively & Corsiglia 2001:6, Stanley & Brickhouse 2001:35). The new focus is to find ways to position Western science so that it can inform and be informed by the nature-knowledge systems of other cultures. Besides proving that TEK is distinct from Western modern science, we need to show students how these different views of science are firmly rooted in certain cultural assumptions that influence how they go about formulating and solving significant problems.

In this context Western students come to understand that their ways of seeing the world are but one of a plethora of cultural perspectives. The simple act of recognizing the existence of indigenous knowledge in an educational setting undermines Western science’s pretensions to universality. Students and teachers in this pedagogical context understand that Western science is not the only lens through which to look at the world. Engaging Western science and indigenous knowledge in a dialogue with one another grants indigeneity a level of respect it has traditionally not received in Western education (Semali & Kincheloe 1999: 47).

It is vital that we represent all peoples in the curriculum in schools, not just those of the dominant culture. It is important and educationally useful for all students, indigenous or non-indigenous, to understand the different viewpoints regarding science and our understanding of the world. Indigenous children need to see their culture, their ways of knowing, their language, their people and themselves reflected in the curriculum in a way that is meaningful and relevant. Madeleine MacIvor (1995), a Metis educator has stated that, “because of the under-representation of our peoples in the sciences, and the great need for scientific and technological skills within our communities, efforts to encourage Aboriginal participation in school science are crucial” (74).

The next step in the development of culturally relevant school science curricula is to acknowledge barriers, perceived or real, that educators feel such a change would bring, and find ways to diminish or remove them (Snively 1995:70). Tewa Pueblo educator, Dr. Gregory Cajete (1999) talks about “building bridges of understand-

ing” (182) in regards to the Indigenous Science Education Model he has developed. Marie Battiste, a Mi’kmaq educator, and James Youngblood Henderson, a Chickasaw lawyer, (2000) offer the following advice:

Indigenous educators need to transform this way of knowing. They need to balance traditional Indigenous ways of knowing with Eurocentric tradition. They must respect and understand the other ways of knowing. They must embrace the paradox of subjective and objective ways of knowing that do not collapse into either inward or outward illusions, but bring us all into a living dialogical relationship with the world that our knowledge gives us (94).

UNIT PLAN

This unit plan focuses specifically on the traditional ecological knowledge First Nations peoples have about plants. Traditional plant knowledge is defined as, “the body of knowledge, held by members of any community long resident in a particular location, which guides peoples’ choices or actions in plant collection, processing and use. It includes names and terminology, methods of collecting and managing plant resources, narratives about plants, and belief systems that define peoples’ perspectives about plants” (Turner & Peacock 1996:1).

Traditional ecological knowledge is holistic in nature and therefore is not confined to the artificial boundaries of disciplines or subject areas. Therefore, while these lessons have been developed with science courses in mind, they also cover prescribed learning outcomes in courses listed under Social Studies and Applied Skills.

Because many community schools have mixed grade classes, these lessons have been prepared for grades 8 through 12, in order that as many students and teachers can access and utilize this material. As well, many of the lessons can be taken on as projects involving all students in the school.

This unit plan has been designed in a modular form so that the classroom teacher can use the individual lessons as needed. The unit plan contains lessons, teacher notes, and student worksheets (blackline masters). Much of the teacher information has come from interviews with Kitkatla community members. In many of the lessons, reference is made to materials developed by the First Nations Education Services, School District No. 52 in partnership with the Tsimshian Nation.

The basis for the unit plan is for the students to make connec-

tions with their people, to learn about their own culture in a more traditional way, and to know that their elders' knowledge and wisdom is as legitimate or more so than "academic" information about their people's history, culture and ways of knowing that they get from textbooks, encyclopaedias, the internet, and other such secondary sources. First Nations children need to learn about their own culture in the voices of their own people. In this unit plan, students are encouraged to be active participants in their learning, rather than passive learners that rely only on textbook learning, teacher telling and rote memorization. It is important that curriculum make connections to students' prior knowledge and to their goals and experiences (Solomon 1998). It is hoped that this curriculum will provide an environment that will promote experiences that are rich in meaning and are culturally relevant to students and their communities.

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<i>Prescribed Learning Outcomes</i>	
SCIENCES PRESCRIBED LEARNING OUTCOMES: It is expected students will:	LESSONS
SCIENCE (Life Science) Grade 9 <ul style="list-style-type: none"> • infer that diet and lifestyle are critical in helping maintain a healthy body • distinguish among the different ways that raw materials necessary for human life are utilized by the body Grade 10 <ul style="list-style-type: none"> • give evidence for and classify the following chemical reactions: synthesis, decomposition, replacement, and acid-base 	5 5 5
BIOLOGY 11 (Plant Biology – Gymnosperms) <ul style="list-style-type: none"> • Describe the characteristics that unify gymnosperms (Plant Biology – Angiosperms) <ul style="list-style-type: none"> • Examine angiosperms and describe characteristics that unify them • Use specimens to differentiate between monocots and dicots 	2 2 2
BIOLOGY 12 (Cell Biology: Cell Compounds) <ul style="list-style-type: none"> • distinguish among acids, bases, and buffers, and indicate the importance of pH to biological systems (Cell Biology: Biological Molecules) <ul style="list-style-type: none"> • list the main functions of carbohydrates • list the major functions of proteins (Cell Processes and Applications: Enzymes) <ul style="list-style-type: none"> • identify the role of vitamins in biochemical reactions 	5 5 5 5
RESOURCE SCIENCES: FORESTS 11 (Plants) <ul style="list-style-type: none"> • use a key to identify a variety of local plants with their scientific and common names • describe the habitat requirements of a variety of local plants • differentiate between: vascular and non-vascular plants, herbaceous and woody plants, annuals and perennials, trees and shrubs, monocotyledons and dicotyledons 	2 2 2

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<i>Prescribed Learning Outcomes</i>	
<p>RESOURCE SCIENCES: FORESTS 11 (Trees)</p> <ul style="list-style-type: none"> • use a key to identify a variety of local trees with their scientific and common names • describe the habitat requirements of a variety of local trees compare characteristics of angiosperms and gymnosperms • compare the characteristics of angiosperms and gymnosperms • describe functions of and relationship between parts of gymnosperms and angiosperms • identify the form and function of woody plant tissues 	<p>LESSONS</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p> <p>2</p>
<p>RESOURCE SCIENCES: FORESTS 12 (Forest Ecology)</p> <ul style="list-style-type: none"> • relate the climatic factors to plant distribution • identify uses of the Biogeoclimatic Ecosystem Classification in British Columbia 	<p>2, 6</p> <p>2</p>
<p>SCIENCE AND TECHNOLOGY 11</p> <p>(Module 5)</p> <ul style="list-style-type: none"> • describe the technological advances in the use and management of resources over the past 100 years <p>(Module 8)</p> <ul style="list-style-type: none"> • identify symptoms of illness, treatment, and common cures • identify alternative remedies for various health problems • identify and discuss issues involving ethics related to medicine 	<p>4</p> <p>5</p> <p>5</p> <p>5</p>

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<i>Prescribed Learning Outcomes</i>	
<p>BC FIRST NATIONS STUDIES (Land and Relationship II)</p> <ul style="list-style-type: none"> • identify how members of First Nations communities were traditionally educated and what they were expected to learn • compare current and traditional First Nations resource use and management <p>(Cultural Expressions—Oral Traditions and Literature)</p> <ul style="list-style-type: none"> • explain the function and significance of the oral tradition 	<p>LESSONS</p> <p>1</p> <p>3</p> <p>1</p>
<p>SOCIAL STUDIES 9 (Environment)</p> <ul style="list-style-type: none"> • demonstrate understanding of the ways in which Aboriginal people interact with their environment 	<p>3</p>
<p>SOCIAL STUDIES 10 (Society and Culture)</p> <ul style="list-style-type: none"> • identify the changing nature of families and women's roles in Canadian society 	<p>1</p>
<p>FAMILY STUDIES 11 (Families in Society)</p> <ul style="list-style-type: none"> • examine the role of adolescents in families in past and present societies • compare customs associated with adolescence in various cultures <p>(Food Products)</p> <ul style="list-style-type: none"> • select food products and meals to meet nutritional and aesthetic standards <p>(Nutritional Issues)</p> <ul style="list-style-type: none"> • describe the functions of nutrients in the body • identify the food sources of nutrients • analyse daily food intake and compare it to the Recommended Nutrient Intake (RNI) 	<p>1</p> <p>1</p> <p>5</p> <p>5</p> <p>5</p>
<p>FAMILY STUDIES 12 (Families in Society)</p> <ul style="list-style-type: none"> • compare customs and traditions of families in various cultures 	<p>1</p>

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<i>Prescribed Learning Outcomes</i>	LESSONS
FAMILY STUDIES 12 (cont'd) (Nutritional Issues) <ul style="list-style-type: none"> • describe nutritional requirements throughout life 	5
(Relationships) <ul style="list-style-type: none"> • analyse the various types of relationships and their development throughout life 	1
FOOD STUDIES 11 (Food-Preparation Techniques) <ul style="list-style-type: none"> • demonstrate a variety of food-preparation techniques • demonstrate the appropriate use of basic food-preparation equipment • demonstrate an awareness of the skills involved in food preparation and presentation 	4 4 4
FOOD STUDIES 12 (Food-Preparation Techniques) <ul style="list-style-type: none"> • make proficient use of a wide range of food-preparation techniques • demonstrate proficient use of a wide variety of food-preparation equipment • assess new technologies available for food preparation 	4 4 4

Lesson One Learning About Traditional Plant Knowledge

Materials

Documenting Traditional Plant
Knowledge: A Short Guide

References

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Major Understandings

- 1 Teaching and learning are done in distinct ways in traditional First Nations cultures.
- 2 First Nations peoples transmit their culture through oral traditions and through their languages.
- 3 Storytelling is an important cultural expression in First Nations cultures.
- 4 Individuals, families and clans in traditional First Nations cultures had specific roles and responsibilities.
- 5 Sharing, giving, and respect are highly valued in both traditional and contemporary First Nations cultures.

Introduction

To gain background, information, it is suggested that teachers read over “Documenting Traditional Plant Knowledge: A Short Guide.” The section on “Recording Information From Local Knowledgeable People” is particularly important (p. 2-6). Also, check out Rekindling Traditions. Cross-Cultural Science & Technology Units at the following website: (<http://capes.usask.ca/ccstu>).

Suggested Activities

1. As an on-going activity over the rest of the lessons, have students interview a family member, elder, or community member that has knowledge of plants.
2. Discuss the protocol for conducting an interview.
3. Discuss different ways in which the interview can be recorded. Discuss the steps involved in arranging and conducting the interview.
4. Have students brainstorm the types of questions they could ask.
5. The students will combine their research into a class or school plant book.

Extension Activities

1. Have students present their information in an oral presentation.
2. Have older students act as role models for the younger students by teaching them about the different aspects of traditional plant knowledge that they have learned from family/community members.
3. Have students find out about the culture of berries:
 - who picked them
 - baskets and equipment used
 - management methods (e.g. burning, pruning)
 - ownership of berry patches

Lesson 1 Teacher's Information

It is hoped that the information learned in this first lesson will be able to be used throughout the rest of the lessons in gathering, recording and documenting knowledge from community members. It is important for students to understand and appreciate different ways of knowing.

Oral Tradition

Before contact with Europeans, the history, customs, laws and traditions of the Tsimshian were passed down orally. One type of narrative, the *adawx*, defined as “true tellings” or “sacred history”, tells the history of the Tsimshian. They have been passed down from generation to generation and describe events that took place when the world was completely different than present day. *Adawx* are owned by house groups and they tell of the acquisition of the House Crests, as well as give descriptions of the origin and migration of ancestors. The *adawx* provides proof of the rights of the House to its crests, its territories, and its natural resources. Another type of Tsimshian narrative is the *maalsk*, which recounts the history of more recent times, such as feasts held by great chiefs or of battles. (Please refer to School District No. 52's Tsimshian Language Series, *Suwilaay'msga Na Ga'niiyatgm*, *Teachings of Our Grandfathers* and *The Adventure of Tsamsm* Series for examples of *adawx*). From *Suwilaay'msga Na Ga'niiyatgm: Teacher's Resource Guide*, it states that the oral tradition of the Tsimshian is marked by:

- a) the telling of the *adawx* to preserve the history of important events;
- b) the preservation of the exact words of the elders of recounting the *adawx* as they and those people before them heard and practiced telling them;
- c) the public acknowledgement and acceptance of the telling as containing the true essence of the event;
- d) an eloquence in the telling (First Nations Education Sector et al. 1993: 20).

Storytelling is paramount in regards to Tsimshian elders transmitting their ways of knowing, as it is with many First Nations cultures. Goulet has observed this method of teaching being used by the Dene Tha people as “...stories are repeated again and again to illustrate the kind of behavior that leads to well-being and the kind that leads to undesired consequences or disaster” (1998: 28). Such stories “...are imbued with lessons in ecology and proper ways of relating to others” (Turner et al. 2000: 1281). Annie Ned, an elder of Athapaskan and Tlingit ancestry has spoken about the value of telling stories. “Tell stories - which way you learn things. You think about that one your grandma tells you. You've got to believe it, what Grandma said...Old-style words are just like school!” (Annie Ned cited in Cruikshank 1990: 267). Storytelling was a valuable teaching tool to instruct children about appropriate behaviour. They learned about the respectful relationship their people had with the land, plants and animals.

I was thinking about my community, my people. How in the past our ancestors lived in unison with the resources and the animals. They helped to replenish them. They took what they needed and no more...One of the key things is to respect each other and the trees, the fish. In their own way they are spiritual too like you and I are spiritual beings. We have to live in harmony. When the spirit of the land is hurting, be it clear-cut trees, or reduced livestock, my spirit is hurting. In healing the land, I am healing myself.

(Kenneth Innes, Kitkatla, 13 Feb 2002)

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With the herring roe – there was a strict law put down by the Elders – no speedboats or rowing fast where the herring were spawning. You had to respect that. If you put a tree down for roe you let it down gently.

(Emsily Bolton, Kitkatla, 15 Jan 2002)

They were taught to work together and to respect other people, especially their Elders.

My Dad taught me a lesson that always stuck with me. He said if you see someone who needs help, an Elder who needs help you should help them. Don't hesitate. And when you're done, don't wait for a reward. When I was young I saw an old woman trying to chop wood; her husband was blind and her family was away. I went right over and chopped wood for her. When I was done I went to leave. She brought me in and we had tea and homemade bread – me and those two Elders. That moment of peace with them was a reward.

(Kenneth Innes, Kitkatla, 13 Feb 2002)

Traditional Teachers and Roles

Children were taught skills and knowledge that would help them become valuable members of their community. Turner, Ignace and Ignace have noted that, “Children’s participation in harvesting and management of traditional foods and materials is crucial; children gain practical knowledge and experience through observation and assisting their elders, parents, and grandparents (2000: 1280-1281). Depending on their gender, children were educated to assume specific roles. Boys were taught to hunt and fish by their maternal uncles. Girls were taught to cook, preserve food, make clothing and raise children by their maternal aunts and grandmothers.

The whole family used to be out there – living in tents and on the boat. The women would dry seaweed and the men would go hunting. Our grandparents’ generation used to row all the way out there. We’re spoiled nowadays, with speedboats. They were tough back then. They still are. When my grandmother was 81 she out picked me in seaweed. It would be time to go and she would pretend not to hear us and keep on picking. You couldn’t stop her.

(Keith Lewis, Kitkatla, 08 Feb 2002).

What is an elder?

What differentiates an elder from an elderly person? In working with Gwitch’in Elders, Wilson has found, *It is the holistic modeling of spirituality combined with wisdom and practical knowledge that seems to differentiate the elder from the elderly. Elders are responsible not only for the transmission of knowledge, but for ensuring the passing on of the unique world view that holds this knowledge in context. Thus the difference between elders and the elderly is not only in the role they play in the community, but in the individual characteristics with which they make that role culturally relevant. The elder must be willing to share his or her knowledge with the rest of the community. They must also provide this knowledge in a holistic manner (1996: 56-57).*

Medicine, a Lakota scholar states that, “Elders are repositories of cultural and philosophical knowledge and are the transmitters of such information” (2001: 73). From these definitions, it appears that not all older or elderly people are considered to be elders, that an elder is a person that has acquired a vast amount of knowledge and wisdom about their people’s ways of knowing throughout his or her lifetime, and is able to pass this knowl-

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edge on to the next generation (Medicine 2001, Wilson 1996). Medicine has stated that, “We have misused the role of elder through our ignorance and failure to see that not all elders are teachers, not all elders are spiritual leaders and not all old people are elders” (Medicine 2001: 77). While not all elders are teachers, many take this role very seriously. “... an elder is one who is willing to share this knowledge by passing it on to the younger generations through the teaching and modeling of correct behaviour” (Wilson 1996: 56-57).

Learning and Documenting Traditional Plant Knowledge

Protocol

In these lessons, students are going to be asking their elders and other community members to share their valuable traditional plant knowledge. While many knowledge holders will have no problem sharing their knowledge and wisdom with children from their community, it is still important for the students to ask permission. They will need to let the people they interview know what they will use the knowledge for, how they will use it and whom they will share it with. If the knowledge holder shares something with a student and states that it is confidential, the student must honour that and not record the knowledge or share it with other people. In regards to these lessons, elders may share information that can be shared with other community members or classmates, but not with people outside of the community. It is important to ask elders about this when interviewing them.

Please refer to Documenting Traditional Plant Knowledge: A Short Guide. The section 2.3 “Points of Protocol”, discusses such topics as permission, intellectual property rights, and respect and acknowledgement. Section 3.6, “Confidentiality”, deals with private or confidential plant information. While much of what this document deals with issues involving the documentation of plant knowledge by people outside of the community, there is valuable information that can be adapted to community members documenting their own people’s traditional plant knowledge.

Who to interview

The students will be going to elders and community members in their community to find out about traditional plant knowledge of their people. Often, there are a few elders that are deemed to be the “experts” on plants. It is important that students try to interview many different people. They might be surprised to find out how much knowledge other community members or family members, outside of those deemed to be the “experts”, have about plants. Some people may have specific knowledge about certain plants, about harvesting, usage, preservation, or storage. Some may know stories or songs associated with plants. While several students may interview the same elder, try to get students to interview different knowledge holders. They can then share the knowledge that they have learned with their classmates. Again, they must get permission from the person they have interviewed to do so.

Please refer to Documenting Traditional Plant Knowledge: A Short Guide. The section 3.1, “Identifying Consultants” discusses how plant knowledge can be specialized and how some information may be considered private and restricted.

How to conduct an interview

Depending on the elder, the time of year, and other variables, the interview may take place outdoors while gathering plants or in the elder’s home.

When interviewing a knowledge holder, it is important to consider how the information will be documented. Will the knowledge be recorded by handwritten notes or by an audio or video recording?

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Notetaking:

It is often better to have two people conduct the interview. In regards to these lessons, a younger student could be paired with an older student, with one asking the questions and participating more fully in the conversation, with the other carefully listening and taking notes. Since the students will be interviewing several elders, it may be a good idea for the younger students to try both roles. Please refer to Documenting Traditional Plant Knowledge: A Short Guide, section 3.3, “Interviewing” and section 3.5, “Taking Notes”. Also refer to Getting Started in Oral Traditions Research, <http://www.pwnhc.ca/research/otm/otrman.htm>, Chapter 4, “Preparing for Interviews”. This chapter goes over the type of questions to ask, who to interview, and where to interview. Chapter 5, “Doing the interviews” goes through the steps you should follow in order that you and the person you interview have a good experience.

Audio or video recording:

It is important to find out if the person you will be interviewing is comfortable being audio or video recorded. If they are uncomfortable, you will have to rely on notetaking and your memory. If they are comfortable with this process, then refer to Getting Started in Oral Traditions Research, <http://www.pwnhc.ca/research/otm/otrman.htm>, Chapter 4, “Preparing for Interviews”, chapter 5, “Doing the Interviews” and chapter 6, “Processing Information”. These chapters discuss the type of equipment to use, how to test the equipment, changing cassette tapes, translating and transcribing interview tapes, and other such information.

Please refer to Documenting Traditional Plant Knowledge: A Short Guide, section 3.6, “Tape recording and photographs”.

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Lesson Two Plant Identification and Classification

Materials

Materials for collecting samples.

Suggested reference books for plant identification:

- *Discovering Wild Plants: Alaska, Western Canada, the Northwest* (Schofield).
- *Food Plants of Coastal First Peoples* (Turner).
- *Tree Book: Learning to Recognize Trees of British Columbia* (Parish).

The Botany Colouring Book (?)

For Lach Klan teachers:

Get the school set of the following books:

- Plant Collecting for the Amateur
- Techniques and Procedures for Collecting, Preserving, Processing, and Storing Botanical Specimens
- Ethnobotany: A People and Plants Conservation Manual (Ch. 2 Botany) (?)

Get the following book from the First Nations Education Services Library:

- The Forest Book (Juliar, Helen)

Get the following books from your library:

- The Tree Book (Parish, Roberta) (each school has multiple copies)

Major Understandings

- First Nations peoples had distinct ways of classifying and differentiating between plants.
- First Nations peoples had names and meanings for plants in their own languages.
- First Nations peoples were knowledgeable about the habitat requirements of plants in their territory.

Teacher Information

This lesson was originally written for use in Prince Rupert School District, particularly for students at Lach Klan school in Gitxaala. However, it can be adapted to other regions of the province.

If you haven't already done so, read over the *Documenting Traditional Plant Knowledge: A Short Guide*.

Suggested Activities

1. Before going out in the field, get students to brainstorm and list all the plants that they know.

- Get them to classify plants into as many different categories as possible (e.g. what they look like, where they grow, what they are used for, etc.)

2. Learning about traditional plant knowledge

Primary Sources:

- Assign a plant to each student. From what they have learned from lesson one about the protocol of interviewing, have students interview elders and community members about the cultural uses of plants by the Tsimshian. While each student will be assigned one plant to focus on, they will not have to limit their interviews to this one plant. They should find out as much as they can about the cultural uses of many plants. Once they have asked their informant for permission to share the information, as a class, they should pool the plant knowledge they have learned.
- Students should also ask their elders how they tell the difference between different plants. How did elders learn this from their elders? How did the Tsimshian show respect to plants that they were harvesting?

Secondary Sources:

- Once students have learned from their elders and community members about traditional plant knowledge of the Tsimshian, they can go to secondary sources, such as books and the internet to find out supplementary information. From the plant field books (e.g. Pojar/McKinnon, Turner, etc.), students

Materials need for field trip:

(Collecting Plant specimens: refer to Documenting Traditional Plant Knowledge: A short guide, p. 9; Plant Collecting for the Amateur, p. 19-21; and Techniques and Procedures for Collecting, Preserving, Processing, and Storing Botanical Specimens, p. 27-28 for more complete lists of materials).

- waterproof notebook, or sheets of waterproof paper (e.g. “Rite in the Rain” brand) and a regular field notebook
- plastic bags
- sharp pruning shears or sharp knife
- plenty of newspapers
- plant press (see above mentioned sources in regards to making a plant press)
- cardboard

can find out the following information:

- identification: the plant’s common name and common name
- type of plant: angiosperm or gymnosperm
- habitat: A description of where the plant lives.
- internal and external structures

This information can be used to fill in the “labels for plant collection” that are provided.

2. Plant Observation Field Trip

Plan a field trip. With the assistance of elders, teachers, and parents, have students observe plants in a forested area. (It is a good idea to have at least one adult for every five children).

- Take the students out on a field trip to a forested area.
- Each student should have a field notebook, preferably a waterproof notebook. If a waterproof notebook is not available, loose leaf sheets of the waterproof paper would be ideal. Students should be given at least two sheets each. Once they are back in the classroom, they can transfer their field notes to their notebook.
- Have students look around and examine as many plants as possible.
- Have students sketch plants that they have observed, noting the leaves, flowers, and fruits.
- Note the type of habitat that the plants are found in: moist, dry, rocky, sandy, etc.

3. Conservation and Safety

For both conservation and safety reasons, it is important that students do not pick plants without consulting first with a teacher or an elder. For safety reasons, it is vital that the identity of the plant the student is picking is known to avoid poisonous plants that can cause painful skin irritations. In terms of eating plant parts, students need to consult with a teacher or elder to ensure that what they have is edible.

- Talk to the students about the respect that the Tsimshian have for plants and animals. (If an elder feels comfortable, ask them to do this.) Tell students that it is important to respect plants in their natural habitat and that we are to take only what we need. Since each student will be assigned a specific plant to do research on, that should be the only plant that they collect. Students can “collect” or “capture” other plants by sketching the plant in their field notebook or taking a photograph, if a camera is available.
- Since plants will be collected using a sharp knife or sharp pruning shears, it is important that the students are taught

the safety issues around the use of such equipment and should be supervised if they are using them.

- In their field notebooks, students should make notes about the plants they are observing and collecting, such as the type of habitat that a plant is found in (moist, dry, rocky, sandy, etc.), the type of leaves, flowers, fruits, etc. They should make note of the date, time, place and conditions under which they have observed a specific plant. Sketches, illustrations, and/or photographs can be included with their written observations.

4. Plant Collection (adapted from *Keepers of Life*, p. 22)

When collecting plants, it is important to:

- get permission from the band if collecting specimens on traditional territory
- pick only what you need
- pick only from common species of plants that have a healthy population
- never collect any rare, threatened or endangered species
- never take the largest plant, leaf, berry, flower, or other plant part
- always use sharp pruning shears or a sharp knife to collect plant parts. Cut back to the nearest living part of the stem to allow the plant to grow over and heal the wound.
- restore all areas you disturb to their natural state. Replace rolled-over rocks and logs, put back leaf litter, etc.

5. Plant Identification

- Back in the classroom, refer to the field guides to identify plants. Many of the plants will have been identified by elders and community members. It is also a good idea for the students to look at secondary sources that have pictures and illustrations to compare their plant samples with.
- Using blackline master 2-4, have students list the common name, scientific name, Sm'algyax name, and Sm'algyax meaning, of the plants they have collected. Students will need to share information with their classmates to fill in this chart. They will also need to refer to the Sm'algyax Dictionary: English to Sm'algyax.

6. Pressing, Drying and Storing Plant Specimens:

The sources listed for "collecting plant specimens" will all give a thorough explanation of how to press, dry and store plants (Documenting Traditional Plant Knowledge: A short guide, p. 8-10; Plant Collecting for the Amateur, p.6-10, 19-26; and Techniques and Procedures for Collecting, Preserving, Processing, and Storing Botanical Specimens, p.8-18.

Extension Activities

1. Have students come up with different classification keys for plants. Have a fellow student use their key and see if they are able to identify the plant correctly.
2. Have students list the common name, scientific name, name in the local First Nations language, and First Nations meaning, if known. Use Blackline Master 2-4, page 19.
3. Have students research different place names that are named after plants. (Refer to Suwilaay'msga Na Ga'niiyatgm: Tsimshian Series. Teacher's Resource Guide, p. 43).

References

- Discovering Wild Plants: Alaska, Western Canada, the Northwest (Schofield)
- Lewis, R. 1992. Plant life. Dubuque, IA.: Wm. C. Brown Publishers.
- Lyons, C. P. & B. Merilees. Trees, shrubs, and flowers to know in British Columbia and Washington. Vancouver, BC: Lone Pine Publishing.
- Martin, G. J. 1995. Ethnobotany: A 'People and Plants' Conservation Manual. London: Chapman & Hall.
- Na Amwaaltga Ts'msiyeen: the Tsimshian, trade, and the Northwest Coast economy. Prince Rupert, BC: Tsimshian Bands of Lax Kw'alaams, Gitka'ata, and Lax Klan, and School District 52 (PrinceRupert).
- Ts'msyeeen Sm'algyax Authority. 2001. Sm'algyax dictionary: english to sm'algyax. Prince Rupert, BC: Ts'msyeeen Sm'algyax Authority.
- Ts'msyeeen Sm'algyax Authority. 2001. Sm'algyax dictionary: sm'algyax to english. Prince Rupert, BC: Ts'msyeeen Sm'algyax Authority.
- Turner, N. J., and S. Peacock. 1996. Documenting Traditional Plant Knowledge: A Short Guide (unpublished manuscript), University of Victoria.
- U'mista Cultural Society, J. Pasco, & B. D. Compton. 1998. The living world: plants and animals of the Kwakwaka'wakw. Alert Bay, BC: U'mista Cultural Society.
- Young, P. 1982. The botany coloring book. New York: HarperPerennial, A Division of HarperCollins Publishers.

Plant Observation

Sketch a picture of your chosen plant.

Describe what your plant looks like:

General description

Leaves

Flowers

Fruit

Habitat (where found):

Labels for plant collection

Name of Project: _____

Common Name: _____

Latin Name: _____

First Nations Name(s): _____

Location: _____

Latitude: _____ Longitude: _____ Altitude: _____

Habitat: _____

Collection Date: _____ Collection #: _____

Collector: _____

Identified by: _____

Notes: _____

Name of Project: _____

Common Name: _____

Latin Name: _____

First Nations Name(s): _____

Location: _____

Latitude: _____ Longitude: _____ Altitude: _____

Habitat: _____

Collection Date: _____ Collection #: _____

Collector: _____

Identified by: _____

Notes: _____

Sample Plant Labels

Haida Gwaii Ethnobotany Field Trip

Common Name: Fireweed
Latin Name: *Epilobium angustifolium*
Sm'algyax Name: Haas
Haida Name: tl'ii7aal
Tahltan Name: g_s

Location: 5 km east of Massett (along road to North Beach)
Latitude: 54°N Longitude: 135° W Elevation: 0
Habitat: gravel roadside

Collection Date: 25 May 1996 Collection #: CP96017
Collector: Teresa Bolton
Identified by: Nancy J. Turner
Notes: Used as both food and medicine
Medicine: roots pounded as poultice; shoots eaten to purify blood
Food: shoots eaten when young and tender

Tahltan Ethnobotany Field Trip

Common Name: Soapberry, Soopolallie
Latin Name: *Shepherdia canadensis*
Tahltan Name: ishghoche

Location: Iskut, BC
Latitude: 57.84° Longitude: 129.97° Elevation: _____
Habitat: common in northern forests, with pine and spruce

Collection Date: 23 May 1997 Collection #: 97016
Collector: Carey Mitchell Stewart
Identified by: Nancy J. Turner
Notes: Tahltan Use: as both food and medicine

For other examples of plant labels, see *Documenting Traditional Plant Knowledge: A short guide*, p. 11; *Plant Collecting for the Amateur*, p. 20; *Techniques and Procedures for Collecting, Preserving, Processing, and Storing Botanical Specimens*, p. 15.

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Lesson Three *Plant Use of the Tsimshian*

Materials

- Blackline Master 2-5, Researching Traditional Uses of Plants

Major Understandings

- First Nations peoples used and valued the land and resources in distinct ways.
- First Nations peoples have a unique relationship with the environment.
- First Nations peoples recognized and respected the relationships between plants, animals, and the land.
- First Nations peoples used plants for food, medicine, and materials.

Suggested Activities

1. Have students brainstorm and list all the different uses for plants.
 - If they have had a chance to interview a family member, elder, or community member, get them to list the traditional plant uses of First Nations peoples under the following categories: food, medicine, and materials. Use Blackline Master 2-5 to record the information.
2. Show and discuss plant samples. When bringing in plant samples, you may want to have an elder come in to talk to the students about the uses:
 - Bring in examples of plants used for food e.g. soapberries, Labrador tea, berries, etc.
 - If available, bring in soapberries and whip them up. This can be done traditionally (by hand) or using a electric mixer.
 - Bring in examples of plants as medicines (e.g. Devil's club, licorice fern, etc.).
 - Bring in examples of plants as materials e.g. skunk cabbage, materials made from cedar such as baskets, adzes, mats, etc. (can make reference to Resource Centre materials)
 - When bringing in examples of plants, ask each student to comment on their specific plant and what they have learned from their elders, community members, and secondary sources.
 - Have students discuss the relationships between plants and other species (refer to quotes from "Ecological Relationships" from Teacher Information section).

Extension Activities

1. Have older students present plant uses to younger students. Have the older students set-up stations (station for each use: food, medicine, materials) and include hands-on materials and activities for the younger students to visit. Have groups of 4 to

5 rotate through the stations.

References

- First Nations Education Council, SD 52 (Prince Rupert). 1997. Gaxsoo: canoes. A cross-curricular unit for grade 5. Prince Rupert, BC: First Nations Education Services, SD 52 (Prince Rupert).
- First Nations Education Sector and First Nations Curriculum Development and Implementation Committee of School District No. 52 (Prince Rupert). 1993. Suwilaay'msga Na Ga'niiyatgm: Tsimshian Series. Teacher's Resource Guide. Prince Rupert, BC: First Nations Education Services, SD 52 (Prince Rupert).
- First Nations Education Council, SD 52 (Prince Rupert). 2001. Łootm Smgan: Respecting the cedar. A cross-curricular unit for grade 4. (rev. ed.). Prince Rupert, BC: First Nations Education Services, SD 52 (Prince Rupert).
- Tsimshian Chiefs for the Tsimshian Children Present and Future, The. 1992. Na Amwaaltga Ts'msiyeen: the Tsimshian, trade, and the Northwest Coast economy. Prince Rupert, BC: Tsimshian Bands of Lax Kw'alaams, Gitka'ata, and Lax Klan, and School District 52 (Prince Rupert).
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- Turner, N.J. 1998. Plant technology of First Peoples in British Columbia. Victoria, BC: Royal British Columbia Museum Handbook. (revised from 1979 edition). Vancouver, BC: University of British Columbia Press.
- Turner, N. J. 2001. Cultural plants of Hartley Bay (draft), University of Victoria.

Supplementary Resources available in Prince Rupert School District

District Resource Centre:

- Cedar Bark Basket (KT 970.1-17)
- Cedar Bark Mat (KT 970.1-18)
- Elbow Adze (KT 970.1-19)
- Oolichan Grease Dish and Wooden Spoon (KT 970.1-14)

Schools should have class sets of *Na Amwaaltga Ts'msiyeen: the Tsimshian, Trade, and the Northwest Coast Economy*.

RESEARCHING TRADITIONAL USES OF PLANTS

Find out about as many plants that were used by the Tsimshian and list them under the appropriate section.

Foods

Medicines

Materials

Lesson Four Berry Harvesting, Preservation and Storage

Materials

- berries
- strainer
- spoon
- containers with lids
- pen & tape to label berry specimens
- pH meter
- several types of berry juice
- distilled water
- 50 mL beakers
- Large beaker (250 mL)

Major Understandings

- Food gathering from the local environment is important to the Tsimshian people.
- First Nations peoples have developed technologies for food gathering, preservation, and storage.
- Traditional foods are still gathered, but some harvesting and preparation methods have changed.

Teacher Information

For more information, refer to *Food Plants of Coastal First Peoples*, p. 11-17 (“Harvesting Food Plants,” “Preparation of Plant Foods,” and “Food Plants Throughout the Seasons”).

Suggested Activities

1. Testing the pH of berries. Refer to Science Probe 9: go over the definitions of pH, acid, and base.
 - Strain the juice from several types of berries. Put juice into containers with lids. (Students will have either gathered these berries or will have gotten berries that have been frozen from family or community members). Make sure you label your berry specimens.
 - Calibrate the pH meter using solutions having pHs of 7.0 and 4.0
 - Pour a small amount of berry juice into a small beaker. Dip the pH meter into the beaker with berry juice. Record the pH and the type of berry on Blackline Master 2-9.
 - Rinse the pH meter off with distilled water. Do this over a large beaker.
 - Using another berry, repeat the previous steps until you have measured the pH of all of the berries.
 - Once you have filled in the chart, label the pH of the different berries on the ruler.
 - Using Blackline Master 2-6 and your pH results from Blackline Master 2-9, fill in Blackline Master 2-10.
 - Have the students discuss their results as a group.
2. Preserving Berries:
 - Ask students to read the article Tsimshian Use of Berries, Blackline Master 2-7. Have them complete the activities on Blackline Master 2-8.
 - Have students make a list of materials needed for preserving and storing berries.
 - Students need to either borrow or make the materials needed.

- Have students dry berries in a traditional manner (It is important to keep the dried berries for use in lesson 5).
- How are berries preserved and stored today? Have students compare the traditional ways of preserving and storing berries to the contemporary way.
- Get students to discuss why traditional methods are not employed as much as they were in the past.

Extension Activities

1. Is there a difference in pH between the wild and tame blueberries? If so, why might that be?
2. Test the pH of an unripe and ripe berry (e.g. green and red soapberries). Is there a difference in pH? If so, why might that be?
3. Is there a relationship between the sweetness of a berry and its pH?
4. Are berries more acidic or basic? Research and/or test the pH of other foods to find out the pH range of food.
5. What are some of the differences you may have noticed between berries that ripen earlier in the year than those that ripen later?
6. Have students design an experiment to determine the type of storage method that works best for different types of berries. Have them store the berries in both grease and water and observe what happens.
7. Have students make a list of materials needed for preserving and storing berries. They can then either make the materials needed or borrow them from community members.
8. Have students dry berries in a traditional manner (dependent on time of year and weather conditions). Keep the dried berries to be used for a lesson that measures the energy in berries.
9. How are berries preserved and stored today? Have students compare the traditional ways of preserving and storing berries to the contemporary way.

References

- Bullard, J. *et al.* 1986. *Science Probe 9*. Toronto, Ont.: John Wiley & Sons.
- Prescott-Allen, C., and R. Prescott-Allen. 1986. *The first resource: wild species in the North American economy*. New Haven, Connecticut: Yale University Press.
- Turner, N. J. 1995. *Food plants of Coastal First Peoples*.

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- Victoria, BC: Royal British Columbia Museum Handbook.
(revised from 1975 edition, Food plants of British Columbia
Indians, Part 1. Coastal Peoples). Vancouver, BC: UBC Press.
- Turner, N. J. 1997. Food plants of Interior First Peoples.
Victoria, BC: Royal British Columbia Museum Handbook.
(revised from 1978 edition, Food plants of British Columbia
Indians, Part 2. Interior Peoples). Vancouver, BC: UBC Press.
- Turner, N. J. 2001. Cultural plants of Hartley Bay (draft),
University of Victoria.

RIPENING TIMES OF BERRIES AND TRADITIONAL TSIMSHIAN USE

Common Name of berry	Ripening time	fresh	dry	storage
1 (early summer)				
salmonberry	May/June	✓		
wild strawberry	Early summer	✓		
saskatoon berry	Summer			
2 (summer)				
salal	Summer		cakes	
soapberry			cakes	
raspberry (red)	Summer	✓	cakes	
thimbleberry	Summer		cakes	
blueberry (oval-leaved, high-bush)	Summer	✓	cakes	
huckleberry (black mountain)	Summer	✓		
dwarf blueberry (low-bush)	Summer	✓	cakes	
3 (late summer)				
Pacific crabapple	Late summer	✓		
choke cherry				
bearberry (kinnikinnick)	Late summer	✓		
common wild rose hips	Late summer	✓		
4 (fall)				
bunchberry	Early Fall	✓		
cranberry (low-bush)				water
cranberry (high-bush)	Fall			water

This table refers to the ripening time of certain berries and how they were traditionally consumed, preserved, or stored by the Tsimshian. In terms of ripening, fall berries are usually more acidic. Sweet berries cannot be preserved in water because they will rot.

Tsimshian Use of Berries

The Tsimshian relied heavily on animals as their primary source of food. Although wild plants were a secondary source of food, they provided significant nutritional diversity. A wild plant is defined as “one that reproduces without human intervention and whose critical habitats (the habits required for reproduction and nutrition) can regenerate without human intervention” (Prescott-Allen and Prescott-Allen 1986:2).

Examples of wild plants used were green vegetables, such as seaweed, cow parsnip, the sprouts of fireweed, salmon-berry and thimble-berry; the cambium and the inner bark of trees such as Lodgepole pine and hemlock; underground parts such as riceroot lily bulbs and licorice roots; and fruits such as berries.

All of these wild plants provided valuable vitamins and minerals to First Peoples’ diets. While many of these wild plants are not commonly used anymore, seaweed and berries are still currently harvested and consumed by First Nations.

The ripening of certain berries begins as early as May on the coast. In the summer months, different types of berries begin to ripen rapidly and consecutively. Although overlaps exist, there appear to be four specific periods during the year when ripe berries can be gathered. These periods can be categorized as early summer (late May/June), summer (July/August), late summer (August/September), and fall (Late September/October).

In May and June (the “early summer” category), the first berries to ripen are the salmon-

berry, wild strawberry, and the saskatoon berry. Saskatoon berries were very important to interior groups, such as the Tahltans, as they were available in vast quantities. Saskatoon berries were not nearly as important to the coastal groups, unlike salmonberries, which were eaten fresh in large quantities by the Tsimshian people. The Tsimshian harvested wild strawberries at this time of year. Because salmonberries and wild strawberries are so juicy, they were eaten fresh and were not dried.

The majority of berries ripened during the month of July, the “summer” category. The salal berry, the most important berry to coastal First Peoples, was mashed and dried into cakes. Due to its texture, the thimbleberry was also dried by coastal peoples. Red raspberries, dwarf blueberries, and oval-leaved blueberries were eaten fresh as well as being dried into cakes. The black mountain huckleberry was both eaten fresh and dried into cakes.

In the “late summer” category, Tsimshians harvested both crabapples and kinnikinnick and ate them fresh. The Tsimshian preserved bog and high-bush cranberries in water, usually in bentwood boxes. The bunchberry was harvested on the coast at the beginning of fall and was eaten fresh.

Tsimshian and other coastal First Nations dried berries using several methods. One method involved the dehydration of berries using solar energy. If there was not enough sunlight, the berries were dried next to a fire.

RESEARCHING TRADITIONAL METHODS OF BERRY PRESERVATION

List the many ways that the Tsimshian preserved berries.

Choose one method and list the steps involved in the process.

Method _____

List the types of berries that would be preserved using this method.

THE RELATIONSHIP BETWEEN pH OF BERRIES, METHOD OF PRESERVATION, AND RIPENING TIME

Once the pH of the berries have been measured, you need to do some research to find the methods of preservation, as well as the time of year that the berries ripen. In the table provided, fill in this information.

pH	berry	Method (s) of preservation	Ripening time

Do you see a relationship between the acidity of berries and their method of preservation? If so, what is it?

Do you see a relationship between the acidity of berries and the time of year that they ripen? If so, what is it?

Lesson Five Plant Nutrition

Materials

Get the school set of the following videos:

- Traditional Food, Is It Safe?
- Careers in Nutrition and the Environment
- Strengthening the Ties in Dehenedeh

Get the school set of the following materials:

- Coastal BC Native Food Guide poster and information sheet
- CINE posters:
 - Traditional food - keeps us on the path to health
 - Traditional food keeps the link between the land and our health
- Get the school set of the following books:
 - Nuxalk Food and Nutrition Handbook (?)

Major Understandings

- There are many kinds of traditional First Nations foods.
- In the past, First Nations peoples were able to meet their nutritional needs with traditional foods.
- Now, First Nations peoples are able to fulfill their nutritional requirements with a combination of traditional and modern foods.

Suggested Activities

1. Have students brainstorm traditional foods of the Tsimshian.
2. Using the “Coastal BC Native Food Guide” handout, have the students fill in the traditional foods used by the Tsimshian (blackline master 2-11). Put up the CINE posters, and if available, the Coastal BC Native Food Guide poster.
3. Refer to the text, *Understanding Nutrition*. Define what a nutrient is. Differentiate between energy and non-energy nutrients. Go over what the energy nutrients are (protein, carbohydrate, fat) and their functions in the human body. Give examples of foods that are comprised mainly of each energy nutrient. (will make a blackline master for this p. 50). Have the students look over the 4 food groups and decide which of the energy nutrients are in each category.
4. Refer to “Science Probe 9”, “Table 19.2 Some important minerals in the human diet” (p. 425) and “Table 19.3 Some important vitamins in the human diet”, (p. 428); *Understanding Nutrition*; and *The Nuxalk Food and Nutrition Handbook* (If available). Go over the vitamins and minerals that are important to the human diet and their function in the human body. Have the students look over the 4 food groups and decide which of the vitamins and minerals (non-energy nutrients) are in each category.
5. Meal Planning
In this activity, students will plan and follow a menu for 3 to 7 days.
 - Begin with using Blackline Master 2-14. Have students analyse the nutrients in recent meals.
 - Students will plan a balanced menu which they will endeavour to follow as closely as possible. See Blackline Master 2-15.
 - After the assigned time period, debrief students’ experience.
 - Using Blackline Master 2-16, have students plan their ideal menu using as much First Nations food as possible.

Extension Activities

1. Have students test the energy stored in berries dried in lesson 4. (Refer to Science Probe 9, p. 250-252, “Energy from Food”).
2. Have students test for Vitamin C in the juice of several different berries. (Refer to Science Probe 9, p.429-430, “Testing for Vitamin C”).

References

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- Health and Welfare Canada. 1985. Native foods and Nutrition: an illustrated reference resource. Ottawa, Ont.: Minister of Supply and Services.
- Kuhnlein, H. V., and N. J. Turner. 1991. Traditional plant foods of Canadian Indigenous Peoples: nutrition, botany and use. Philadelphia, PA.: Gordon and Breach Science Publishers.
- Nuxalk Food and Nutrition Program. 1984. Nuxalk food and nutrition handbook: a practical guide to family foods and nutrition using native foods. Richmond, BC: Malibu Printing.
- Port Simpson Curriculum Committee. 1983. Port Simpson Foods: a curriculum development project. Prince Rupert, BC: The People of Port Simpson and School District No. 52 (Prince Rupert).
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NATIVE FOOD GUIDE

FOUR BASIC FOOD GROUPS

List traditional foods under the appropriate category.

Berries and Vegetables

Meat, Fish, Birds, and Eggs

Bread and Cereals

Bone and Milk Products

Nutrients

What is a nutrient?

Name the six classes of nutrients found in foods.

Define "organic":

Which of the nutrients are considered to be "organic"?

What is an energy nutrient?

Name the energy nutrients.

Name the non-energy nutrients.

The Energy Nutrients

Describe the roles the energy nutrients play in the human body. Provide examples of traditional plant foods that are rich in these nutrients.

Protein

Function: _____

examples: _____

Carbohydrate

Function: _____

examples: _____

Fat

Function: _____

examples: _____

Meal Planner

Plan a menu for 3 to 7 days, ensuring that you are getting all of the foods from each food group. Try to make your menu as varied as possible. (You will need a separate Meal Planner for every day of the week). Try to stick to your plan as closely as possible.

Date _____

<i>FOOD</i>	<i>Fruits & Vegetables</i>	<i>Calcium Products</i>	<i>Breads & Cereals</i>	<i>Protein</i>	<i>Other</i>
TOTAL					

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Lesson Six *Relationships With Other First Nations*

Materials

- Common, Scientific, Tsimshian and Tahltan Names of Berries, Blackline Master 2-17
- Ripening Time of Berries, Blackline Master 2-18.
- Comparing Traditional Plant Knowledge, Blackline Master 2-19
- Naming Berries, Blackline Master 2-20
- *Persistence and Change*. (SD 52, Prince Rupert, BC: 2003)

Materials Available in Prince Rupert School District:

- Gathering What the Great Nature Provided (641.3 PEO)
- Food Plants of Interior First Peoples
- Plants of Northern British Columbia
- Sm'algax Student Dictionary (2 vols)

Major Understandings

- The Tsimshian had relationships with neighbouring coastal and interior First Nations.
- In terms of plant foods (usage, harvesting, preservation, nutrition, etc.), there are similarities and differences between some coastal First Nations cultures and some interior First Nations cultures.

Suggested Activities

1. Have students find out the Sm'algax names for plants such as berries.
2. Find out the names of berries and other plants for another First Nations language. See Blackline Master 2-17.
3. Have students read Chapter 4, Trade: Using the Resources from *Persistence and Change*. From these sources, and from knowledge students may have learned from their elders, have students investigate the types of plants that were traded between coastal and interior peoples of BC and what was traded in exchange. What plants are still being traded?
4. After looking at Blackline Master 2-18, have students discuss possible reasons interior peoples stored berries more often in grease than in water. (More grease available? Needed more food energy from grease? Too cold in winter to store berries in water?)
5. Have students compare plant knowledge using Blackline Master 2-19.

Extension Activities

1. Contact a First Nations school in the interior (e.g. Tahltan School, Telegraph Creek, BC). With the cooperation of a classroom teacher from the chosen school, match up students as pen pals. Have them share traditional plant knowledge of their people with their pen pal (keeping in mind not to divulge confidential information given to them by family/community members). Have the students share the names for plants in their languages. Have the students compare how their people traditionally consumed, preserved, and stored berries (see Table 3 as an example).
2. Did interior peoples ever store berries in water? Get students to investigate this.

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Common, Scientific, Tsimshian (Sm'algyax) and Tahltan Names of Berries

Common Name ^a	Scientific Name ^a	Sm'algyax Name ^b	Tahltan Name ^{c d}
saskatoon berry	<i>Amelanchier alnifolia</i>	gyem	dechitl'eje
bearberry (kinnikinnick)	<i>Arctostaphylos uva-ursi</i>	maaya'ol	ideni
bunchberry	<i>Cornus canadensis</i>	k'apk'oop	
crowberry/mossberry	<i>Empetrum nigrum</i>		ejinastlh'it
wild strawberry	<i>Fragaria virginiana</i>	maguul	k'inhdz_'
salal	<i>Gaultheria shallon</i>	dzawes	
choke cherry	<i>Prunus virginiana</i>		tehkahche jije
Pacific crabapple	<i>Pyrus fusca</i>	moolks	
gooseberry (wild)	<i>Ribes divaricatum</i>	dales	
black currant (northern, wild)	<i>Ribes hudsonianum</i>	t'u'utsgh maay	tli' jije
gooseberry (northern)	<i>Ribes oxycanthoides</i>		dahghodze
red currant	<i>Ribes triste</i>	masgm maay	n_s'ese
common wild rose hips	<i>Rosa nutkana</i>	k'alaams	g'_nay_l
raspberry (red)	<i>Rubus idaeus</i>	naasu	dahkaale
thimbleberry	<i>Rubus parviflorus</i>	k'oo	sas jije
salmonberry	<i>Rubus spectabilis</i>	makooxs	luwe jije
elderberry	<i>Sambucus racemosa</i>	lo'ots	
soapberry	<i>Shepherdia canadensis</i>	'as	ishghoche
dwarf blueberry (low-bush)	<i>Vaccinium caespitosum</i>	mihaa_	etsis tsedle
huckleberry (black mountain)	<i>Vaccinium membranaceum</i>	maay	echish ch_
blueberry (oval-leaved, high-bush)	<i>Vaccinium ovalifolium</i>	smmaay	etuga tsedle
cranberry (bog)	<i>Vaccinium oxycoccus</i>	dahdee	ts'ost'ae jije
cranberry (low-bush)	<i>Vaccinium vitis-idaea</i>		itl'et
cranberry (high-bush)	<i>Viburnum edule</i>	_aaya	gokhe'

a Source: Turner 1995, Turner 1997

b Source: Ts'msyen Sm'algyax Authority 2001

c Source: Tahltan Tribal Council 1994

d Source: J. Callbreath and R. Quock, personal communication to J. C. Thompson 1996

Ripening time of berries

and how they were traditionally consumed, preserved, or stored by Tsimshian and Tahltan peoples

Common Name of berry	TSIMSHIAN ^a			TAHLTAN ^{b c}			Ripening time
	Ripening time	fresh	dry	storage	fresh	dry	
1 (early summer)							
salmonberry	May/June	✓					
wild strawberry	Early summer	✓			✓		June
saskatoon berry	Summer					whole,cakes	June/July
2 (summer)							
salal	Summer		cakes				
soapberry			cakes				July
raspberry (red)	Summer	✓	cakes				July
thimbleberry	Summer		cakes		✓		July
blueberry (oval-leaved, high-bush)	Summer	✓	cakes		✓	cakes	July
huckleberry (black mountain)	Summer	✓			✓	whole	Late Summer
dwarf Blueberry (low-bush)	Summer	✓	cakes		✓	cakes	August/Sept.
3 (late summer)							
Pacific crabapple	Late summer	✓					
choke cherry						whole,cakes	Late Aug/Sept.
bearberry (kinnikinnick)	Late summer	✓			✓	grease	Fall (mid-winter)
common wild rose hips	Late summer	✓			✓		Fall (mid-winter)
4 (fall)							
bunchberry	Early Fall	✓					
cranberry (low-bush)				water	✓	grease	Fall (mid-winter)
cranberry (high-bush)	Fall			water	✓	grease	Fall (mid-winter)

a Source: Turner 1995,

b Source: Turner 1997

c Source: J. Callbreath personal communication to J. C. Thompson 1996

COMPARING TRADITIONAL PLANT KNOWLEDGE: Coastal versus Interior

List plants that are found in both regions.

List examples of plants found only in the listed region.

Coast

Interior

<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

Why would there be differences?

How were berries preserved on the coast?

How were berries preserved in the interior?

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Book Inventory for Curriculum Extension of Forests for the Future

Title/supply item	Number of copies	Comments etc.
1 Tree Book learning to Recognize Trees of British Columbia	10	
2 Trees, Shrubs and Flowers to Know in British Columbia and Washington by C.P. Lyons and B. Merilees	5	
3 Plants of Coastal British Columbia	4	
4 Field Guide to Old-Growth Forests by Larry Eifert	2	
5 Food Plants of Coastal First Peoples by Nancy Turner	5	
6 Food Plants of Interior First Peoples by Nancy Turner	1	
7 Plant Technology of First Peoples in British Columbia by Nancy Turner	1	
8 Pacific Seaweeds by Louis Druehl	1	
9 Plant Collecting for the Amateur by T. Christopher Brayshaw	1	
10 Understanding Nutrition, 9th edition by E. N. Whitney and S. R. Rolfes		
i All-Weather copier paper – 200 sheets	200 sheets	



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Traditional Plant Knowledge of the Tsimshian
by Judy Thompson

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