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ETEP Survival Guide to Integrating Aboriginal Knowledge into the Curricula

Brought to you by your beloved classmates and partners in teaching.

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# intergrating MATH and aborginal knowledge

There are many ways to teach Math that expand understanding beyond a simple step by step memorization of concepts. Integrating aboriginal knowledge into how educators teach math can be a tool to deepen student understanding. Math is integral to life and, as a result, it is evident how to aboriginal ways of knowing can holistically be integrated into math education in all grades. Aboriginal people used specific estimating and measuring techniques in daily life. Specific exchange items in traditional Aboriginal cultures had specific values and patterns are important in Aboriginal technology, architecture and artwork.

“The village of the Ouje Bougoumou Cree of Northern Quebec was designed by architect Douglas Cardinal in a circular design to reflect the values and culture of those people.”

Shared Learnings: Integrating BC Aborginal Context K-10, P 41

## Resources

### Instructional Strategies k - 3

* **Number Concepts** – pictures of Aboriginal trade items used in a trading game, Aboriginal motifs or objects that reflect local culture in word problems, count to ten in local Aboriginal language
* **Patterns and Relations** – local Aboriginal art, visit an Aboriginal-designed structure in the local community
* **Shape and Space** – invite local Aboriginal Elders to share traditional measuring and estimating techniques
* **Statistics and Probability** – interview classmates to determine family shapes

### Instructional Strategies 4 - 7

* **Number Concepts** – if a different base form of numbering systems is used by local Aboriginal community discuss this with students, have the class prepare for a ceremony and estimate quantities of food, supplies and associated costs
* **Patterns and Relations** – importance of symmetry and balance in Aboriginal life and artwork, complete an Aboriginal design
* **Shape and Space** – study traditional Aboriginal structures and technologies like cabins and fish traps then have students create two and three dimensional patterns, patterns in the environment and uses by local Aboriginal peoples

# Lesson plan Examples

Area, Symmetry and Parfleche Bags

Grade 4: Shape and Space

Creator: Alison Kimbley

**Big Ideas:** Exploring area and symmetry

**Competencies:**

* SS4.2: Demonstrate an understanding of area of regular and irregular 2-D shapes by:
* Recognizing that area is measured in square units
* Selecting and justifying referents for the units cm2 or m2
* Estimating area by using referents for cm2 or m2
* Determining and recording area (cm2 or m2)
* Constructing different rectangles for a given area (cm2 or m2) in order to demonstrate that many different rectangles may have the same area.

Assessment

* SS 4.2a: Describe area as the measure of surface recorded in square units.
* SS 4.2g: Determine the area of a regular 2-D shape and explain the strategy used.
* SS 4.3h: Determine the area of an irregular 2-D shape and explain the strategy used.
* SS 4.3i: Construct a rectangle with a given area.
* SS 4.3j: Illustrate, and verify, how more than one rectangle is possible for a given area by drawing at least two different rectangles with that area (e.g., identifying the dimensions of each rectangle drawn, or superimpose the rectangles on each other).

Mathematical Processes:

* Connections
* Communication
* Reasoning
* Visualization
* Mental Mathematics and Estimation
* Spatial Sense **Procedure**

|  |
| --- |
| **Materials**:  Equipment/materials:  One piece of simulated rawhide for each student  1 cm grid printed on various colored paper for the students to share  Scissors  **Advanced Preparation:**  Prepare one simulated rawhide sheet for each student  Print sufficient copies of the parfleche outline template for the students to share and trace  Print the one-centimeter grid on colored paper. Make sufficient copies for the students to share in making their parfleche bags. |
| **Presentation**  Development  Divide the students into groups of size 2 or 3. Give each group a copy of the 1 cm grid paper. Use the grid paper to discuss area as a measure of surface recorded in square units where each square in the grid is 1 square centimeter or 1 cm2. Ask the students to describe shapes on the grid paper with areas of 2 cm2, 3 cm2, 4 cm2, 5 cm2, and 6 cm2. Ask the students to describe a rectangle with an area of 12 cm2, and then ask them to describe a different rectangle with an area of 12 cm2.  Show the students some photos of parfleche bags and tell them they are going to make a paper parfleche bag and decorate it with some of the shapes they just described. Explain to the students that historically, the Plains Cree, Sioux, and Blackfoot parfleche bags were used to carry dried food, medicine, and personal items. A single piece of rawhide was folded into a case and tied shut with rawhide laces. The outside of a parfleche was decorated. Point out to the students that parfleche designs were always symmetrical and consisted of a series of geometrical shapes.  Hand out the simulated rawhide and outline templates. Have each student trace the template onto their rawhide, cut it out, and fold along the dashed lines to form a parfleche bag.  Have each student use the colored grid paper and cut out some rectangles and square to create a design on their parfleche bag. On the grid side of each shape write its area including units, cm2. Triangles can be formed by cutting a square along its diagonal. Discuss with the class the area of the triangle. Have each student use a glue stick and glue shapes, grid side down, on one flap of the parfleche bag. Glue shapes on the opposing flap so that the flaps are symmetrical. Some students might find a Mira useful. Repeat with the other two flaps and then turn the bag over and design the back, keeping in mind the symmetry.  closed parfleche bagAn example of parfleche bag on simulated rawhide:  open parfleche bag |

# Lesson plan Examples

Jordin Tootoo-Ordering Integars

Grade 6: Number Fluency

Creator: Alison Kimbley

**Big Ideas:** Ordering Integers

**Competencies:**

* **N6.6** Demonstrate understanding of integers concretely, pictorially, and symbolically.

**Assessment:**

* **N 6.6d:**  Represent integers concretely, pictorially, or physically.
* **N 6.6e:**  Order a set of integers in increasing or decreasing order and explain the reasoning used.
* **N 6.6g:**  Extend a given number line by adding numbers less than zero and explain the pattern on each side of zero.

**Materials**

* Map and weather data for Rankin Inlet, Nunavut
* Activity sheet
* Advanced Preparation:
* A copy of the worksheet for each student. (Appendix C)
* Have the temperature table displayed so that all the students can see it. (Appendix B)

**Procedure**

* Development
* Provide the class with a short history on Jordin Tootoo. This can be done by explaining that Jordin Tootoo became the first Inuk to play in an NHL game and is a role model for many youth
* He is known for giving a full effort on the ice even though he only stands at 5'-9" tall, making him one of the NHL's shortest players.  Jordin is proud to be Inuit and often highlights the rights of Inuit people on their land, the federal government's description and recognition of Indigenous peoples, racism and the higher incidence of Aboriginal youth suicide. Not only is he admired for his hockey skills but also the way he uses his fame to draw attention to many of the issues in his community.
* Jordin Tootoo's home is in Rankin Inlet, Nunavut. In the 2011/2012-hockey season as a member of the Nashville Predators, he will be playing in many cities. Among these are Anaheim California, Dallas Texas, Uniondale New York, Ottawa Ontario, Pittsburgh Pennsylvania and Denver Colorado. (See Appendix A)
* Give each student a worksheet. (Appendix C)
* Students will be looking at ordering integers when looking at temperature.



**Appendix B**

**Temperature Table**

Average temperature in Rankin Inlet Nunavut in degree Celsius (C)

|  |  |
| --- | --- |
| **Month** | **Average Temperature**  **(Degrees Celsius)** |
| November | -18 |
| December | -27 |
| January | -32 |
| February | -30 |
| March | -25 |
| April | -17 |

**Appendix C**

**Activity Sheet**

1. For the number lines in problems 2, 3, 4, 5, 7 and 8 of this exercise label the tic marks for -10, -20, -30 and -40.
2. The Nashville Predators will be visiting the Anaheim Ducks on November 9th, in Anaheim. The average temperature in Anaheim in November is 21o C. On the number line below plot the average temperatures for Anaheim and Rankin Inlet in November and find the difference between the two temperatures.



1. The Nashville Predators will be visiting the Dallas Stars on December 23rd where the average temperature is 13o C. On the number line below plot the average temperatures for Dallas and Rankin Inlet in December and find the difference between the two temperatures.



1. The Nashville Predators will be travelling to Uniondale, New York to play the Islanders on January 16. The average temperature in Uniondale in January is -1o C. On the number line below plot the average temperatures for Uniondale and Rankin Inlet in January and find the difference between the two temperatures.



1. The Nashville Predators will be playing in Ottawa against the Senators on February 9th.   In February the average temperature in Ottawa is -8o C. On the number line below plot the average temperatures for Ottawa and Rankin Inlet in February and find the difference between the two temperatures.



1. When the Nashville Predators played against the Pittsburgh Penguins in Pittsburgh Pennsylvania on March 22nd Jordin noted that the temperature in Pittsburgh was 35o C higher than in his home town of Rankin Inlet. Plot the average temperature in Rankin Inlet in March on the number line and determine Pittsburgh’s temperature based on this 35o difference.



1. The Nashville Predators will visit Denver to play the Colorado Avalanches on April 7th.  In Denver the average April temperature is 17o C. On the number line below plot the average temperatures for Denver and Rankin Inlet in April and find the difference between the two temperatures.



1. Using the temperature table for Rankin Inlet plot the 6 temperatures on the number line below.
   1. Which month has the lowest average temperature?
   2. Which month has the highest average temperature?
   3. What is the difference in temperature between the lowest and highest?



# Lesson plan Example: Trading Game

Grade K-3: Mathematics Trading Game

1 – 2 hours

**Prescribed Learning Outcome**

* It is expected that students will use money as a form of exchange

**Purpose**

* To offer students an opportunity to understand the traditional Aboriginal way of trading without money
* To offer students an opportunity to understand that not all cultures use(d) the same money as Canadians.

**Approach**

* Ask students to bring into the class some thing  that is special to them (e.g., toy, book, picture). Each student is to tell the class why the object is important and how much money he or she thinks it would sell for and why.
* Ask students the following questions:
* How could we buy or sell things if there was no such thing as money? What else could someone give you to “buy” your object?
* Have you ever given something to someone because that person gave you something? What do you call this process? (trading, bartering)
* Invite a local Aboriginal community member to the classroom to talk about traditional times when Aboriginal peoples did not use money as we know it. Ask students to think about things that the people would need (e.g., food, fish, berries, meat, blankets, tools, clothes, hides, fur) and discuss how important each of these would be to the local people and how they might acquire them.
* Have students create cards with pictures of the Aboriginal items discussed. One student is responsible for creating cards for each item (e.g., one student creates five blanket cards, another creates five fish cards).
* Display cards around the room and discuss why in certain circumstances an item is important and valuable (e.g., furs and dried foods in winter). Ask students to act out a meeting between two Aboriginal people or an Aboriginal person and a settler to make a trade. Establish scenarios for students to act out (e.g., Student A has five blanket cards, student B has five fish cards, it is November, they are living in Northwestern BC).  You may also wish to have students act out a scenario without using words to represent the differences in language that may have existed in pre-contact and post-contact times.
* Distribute the cards and have students make their own trades in small groups.

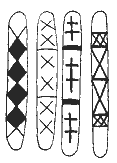
**Assessment**

* Use a checklist to evaluate student participation in class discussions and scenarios.
* In class discussions and follow-up assignments, look for evidence of students’ understanding of trading values other than monetary.
* Assess student participation and effort in the card-making art activity, and accuracy and completeness of the cards.

# Lesson plan Examples: Stick and dice game

**Origin**: Pomo Indians of California

**History**: The Pomo used finely polished beads for trade and created an elaborate numbering and arithmetic system -- base 20 and units of 400 -- to keep track of the value, which varied by diameter, and thickness. The Pomo nation is also well known for their intricate basket weaving techniques. Along with the beads, these baskets were used in trade both in and outside of their culture. Basket weaving patterns are used to create the varied designs used on the stick dice.



**Original Materials**: wood (burned etching) - dice; twigs - counting sticks

**Adapted Materials**: 6 tongue depressors or popsicle sticks - dice; 12 toothpicks – counting sticks

**Players**: 2 players or teams.

**Setup**: Decorate one side of each of the 6 sticks with the same design. Here are some design ideas that people have used.

**To Play**: The players take turns tossing the stick dice onto the ground and keep score using the 12 counting sticks.

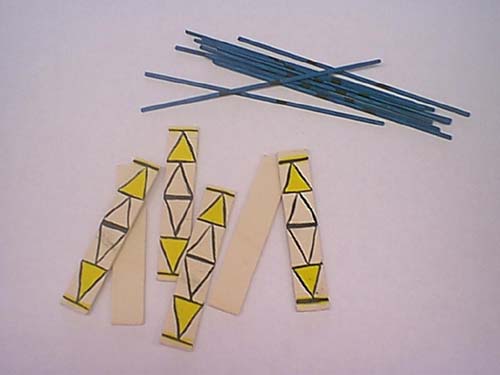
**To Score**: Different combinations will score different point values. At the start of the game, the counting sticks should be on a pile on the ground. The players collect sticks from the pile until it is used up, and then collect from each other. The first player to earn all 12 counting sticks is the winner.

|  |  |  |
| --- | --- | --- |
| Blank Side Up | Painted Side Up | Points |
| 6 | 0 | 2 |
| 0 | 6 | 3 |
| 3 | 3 | 1 |

**Math Content**: Data management, probability, patterns and relations, numbers and operations.

**References:**

* Carlson L. (1994). *More Than Moccasins*, Chicago Il: Chicago Review Press. ISBN 1-55652-213-4.





# intergrating literacy and aborginal knowledge

## Resources

Enter the witty, intriguing world of Weslandia! Now that school is over, Wesley needs a summer project. He's learned that each civilization needs a staple food crop, so he decides to sow a garden and start his own - civilization, that is.

He turns over a plot of earth, and plants begin to grow. They soon tower above him and bear curious-looking fruit. As Wesley experiments, he finds that the plant will provide food, clothing, shelter, and even recreation. It isn't long before his neighbors and classmates develop more than and idle curiosity about Wesley - and exactly how he is spending his summer vacation.

Fleischman, P. (1999). Weslandia. Cambridge, MS: Candlewick Press.

### Authentic first people’s resources

The past three decades have seen a dramatic increase in the number of resources with a First Peoples theme or focus aimed at young people. This guide has been created to help you, the BC elementary school teacher, make appropriate decisions about which of these resources might be appropriate for use with your students. The annotated listings provided in this guide identify currently available authentic First Peoples texts that your students can work with to meet provincial standards related to literacy as well as a variety of specific subject areas (FNESC).

### central okanagan school district aboriginal education website

This website was created by the Aboriginal Education Program in SD 23 and includes resources from K-12. The Aboriginal Education Program provides services to students of Aboriginal Ancestry to enhance their school experience. In addition to support for students, the program offers an Aboriginal Education Resource Support Teacher to assist with integrating Aboriginal content across the curriculum. This website includes several lesson plans in addition to a list of appropriate literature.

### How the turtles set the animals free/how food was given

***How the Turtle Set the Animals Free*** is a surprise tortoise and hare legend with far flung consequences. ***How Food Was Given*** describes the care and sacrifice of the four Chiefs of plant and animal life devoted to the new people who will soon come to Earth. Barb Marchand's vital, expressive watercolors bring the creatures alive. Her adroit portrayal of self-important Coyote in the telling but hilarious ***How Names Were Given*** adds to his personality. The touching humanity of this story is the stuff of great legends.

### in our own words: bringing authentic first peoples concent to the k-3 classroom

This resource has been developed in response to desire on the part of teachers for more guidance and information on how to incorporate First Peoples materials into their instruction and assessment practices. Educators and communities have long recognized a need for increased information and support in the use of culturally appropriate and meaningful First Peoples content, materials, and teaching methods. That is why this guide has been developed. It provides an array of ideas and suggestions that can be applied in whole or in part to incorporate First Peoples content into a K-3 classroom. By following, the suggestions provided here and remaining open to respectful dialogue and consultation with members of the local First Peoples communities, teachers will benefit their students and expand their own comfort with this material. And while mistakes will inevitably occur (as in any undertaking), no mistake arising from application of the suggestions provided here will prove as serious as the mistake of failing to work toward a more accurate portrayal of First People realities in the classroom or a pedagogy that is more inclusive of Aboriginal learners (FNESC).

### residential schools and reconciliation teacher resource guide

This resource outlines various activities on how to teach the topic of residential schools to students. The resource states that curriculum on residential school is essential as this unit was developed in response to the call by the Truth and Reconciliation Commission of Canada to develop age appropriate educational materials about residential schools. In its Interim Report, the Commission came to the conclusion that Canadians have been denied a full and proper education on Indigenous societies. This resource is a guide for teachers on how they could incorporate the topics of residential schools and The Truth and Reconciliation Commission of Canada into the curriculum in an accurate and effective way.

### Shared learnings: integrating bc Aboriginal Content k-10

“Shared Learnings: Integrating BC Aboriginal Content K-10 focuses on the diversity, depth, and integrity of the cultures of British Columbia Aboriginal peoples. It is a guide for teachers, developed in recognition of the need for classroom materials that can help all teachers provide students with knowledge of, and opportunities to share experiences with, BC Aboriginal peoples. Integration of authentic Aboriginal content into the British Columbia K-10 curriculum with the support of Aboriginal peoples will help to promote understanding of BC Aboriginal peoples among all students. A curriculum that focuses on Aboriginal content can lead to enlightened discussion of Aboriginal issues and give Aboriginal students a sense of place and belonging in the public school system.

To help teachers bring this knowledge into the classroom in a way that is accurate, and that reflects the Aboriginal concept of teaching and learning, Shared Learnings: Integrating BC Aboriginal Content K-10 has been written and designed to include the support and participation of Aboriginal teachers, Elders, and other knowledgeable members of each school or district’s local Aboriginal community(ies).”

\*\*For English Language Arts: pgs. 18, 19, 36, 37 and 128.

\*\* Of interest, page 10 on terms (story vs. myth; What to say if someone asks if it is true.)

### tea and bannock: first nations community of poetic voices

This resource gives teachers a compilation of poems in celebration of First Nations aesthetic practices, such as poetry, songs, and art, that speak about humankind’s active relationship to Home Land and her Beings. This PDF was created for the continuation of sharing and re-distribution of traditional knowledge to our First Nations communities. Throughout this PDF teachers are able to pick and choose appropriate poems that help to incorporate First Nations into their lessons.

### the learning circle: classroom activites on first nations in canada

This resource provides nine units that teachers can use in their lessons. The Learning Circle has been created to help meet growing needs for elementary-level learning exercises on First Nations. The teaching activities in this resource are designed to give teachers and students effective exercises to encourage students to learn more about First Nations. Teachers can take any of these exercises and create a literacy lesson.

You can easily change the formatting of selected text in the document text by choosing a look for the selected text from the Quick Styles gallery on the Write tab. You can also format text directly by using the other controls on the Write tab. Most controls offer a choice of using the look from the current theme or using a format that you specify directly.

# Lesson plan Examples

Grade 2: Language and Stories can be a source of creativity and joy.

30-40 minute lesson

**Big Ideas:**

* Stories help us learn about ourselves, our families, and our communities

**Competencies:**

* K Engage actively as listeners, viewers, and readers to develop understanding of self, identity, and community
* Gr 1,2,Show awareness of how story in First People’s cultures connects people to family and community

**Procedure**

Introduction

* Provide opportunities for students to hear Aboriginal stories about environment, traditions, and history by inviting Aboriginal Elders or storytellers to present Aboriginal stories. Have students learn the stories and tell them to younger students.
* Have pairs of students take turns sharing stories. Ask the listening students to notice their own behaviour while their partners are telling the stories, and to share their observations with the whole group. Review the listening behaviours and ask students to determine which are helpful to the speaker and to the listener.
* Ask students to suggest reasons why listening during formal occasions is an especially important skill for people in traditional Aboriginal societies (e.g., there was no written system; information could mean life or death; listening was a holistic experience). In discussing their responses, explain the concept of oral tradition, emphasizing the importance of the listener’s role as witness and keeper of history.
* Have students identify oral forms of communication (e.g., storytelling, audiotapes, radio programs, television news) and written forms of communication (e.g., paper and pencil, books, magazines, newspapers, computer printouts). After a class discussion on the difference between the two forms, have them draw a picture and example of each.
* Introduce students to the speaker symbols that many BC Aboriginal societies use (e.g., feather, talking stick). Discuss the protocols associated
* with their use, giving local examples (e.g., only the person holding the object talks, Elders speak first, there are no time restrictions). For the next week, have students use these items when speaking during class.

Reading and Viewing

* Provide opportunities for students to read illustrated age-appropriate Aboriginal stories about environment, traditions, and history. Have students learn the story and tell it to younger students. Have students read the stories to younger students.
* Show a video of an Aboriginal story. Discuss with students the story events, the narrative sequence, and the characters. Have students represent story events in a variety of ways (e.g., paper bag puppet, modeling clay, models, painting or colouring a picture, retelling the story, role playing the story).
* Collect a variety of Aboriginal stories. Divide the class into groups of three. Give one story to each group and choose a student to read it to the rest of the group. Ask students to discuss among themselves the themes, features, and order of events from their particular story. Ask them to decide how they can tell the story to the class as a whole group (e.g., role play, with each student relating one event). Remind the rest of the class of respectful listening.
* Read a story listed in the suggested resources in Appendix H, or a story by a local Aboriginal author or other prominent Canadian Aboriginal author. Discuss the author and his or her life and work. Have students work in groups to create an Author of the Month corner with a display of books and other works, photographs, information about where the author lives, and information about the Aboriginal group or Nation the author is from.
* Read one of the stories in the suggested resources with the class. Have students work in groups to write a letter to one of the main characters in the story or make a literary map of the story.

**Resources**

* *First Nations Families*
* *First Nations Journeys of Justice - Grades K, 1, 2, and 3*
* *Going to Visit Kou-Kum*
* *Grandma’s Special Feeling*
* *How the Robin Got Its Red Breast*
* *Mayuk the Grizzly Bear*
* *Queen Charlotte Island Readers Series*
* *Wait For Me*

**References**

* Page 17/18. Shared Learning’s: Integrating BC Aboriginal Content K-10. BC Ministry of Education. **Retrieved from February 28, 2016.** https://www.bced.gov.bc.ca/abed/shared.pdf



# intergrating science and aborginal knowledge

## resources

### Authentic first people’s resources

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### Integrating Aborginal perspectives into curricula

The purpose of this resource is to facilitate students’ understanding of the Aboriginal perspectives into new and existing curricula. It provides direction for the integration of the Aboriginal perspectives within the various curricula taught in classrooms.

The goals of integrating Aboriginal perspectives for Aboriginal students are:

* To develop a positive self-identity through learning their own histories, cultures, traditional values, contemporary lifestyles, and traditional knowledge
* To participate in a learning environment that will equip them with the knowledge and skills needed to participate more fully in the unique civic and cultural realities of their communities.

The goals of integrating Aboriginal perspectives for non-Aboriginal students are:

* To develop an understanding and respect for the histories, cultures, traditional values, contemporary lifestyles, and traditional knowledge of Aboriginal peoples
* To develop informed opinions on matters relating to Aboriginal peoples

### Shared learnings: integrating bc Aboriginal Content k-10

#### grades k-3

**Process and Skills**

* (K) Have students examine and talk about items that are specific to the local Aboriginal culture. Some examples may include artifacts, clothing (both traditional and contemporary), housing, or food.
* (Gr 1) Have children record the differences and similarities between indigenous berries, such as size, taste, location, size of bush, smell, etc.

**Life Science**

* (K - 1) When looking at the characteristics and needs of living things, include food from the local Aboriginal community (vegetables and greens, protein sources and fruits). They can compare the differences between gathering things, growing things, and shopping at the grocery store.
* (Gr 2) Bring in a knowledgeable local Aboriginal person to talk about hunting. Have a discussion regarding when it is okay to hunt specific animals and why. For example, do hunters go after ducks when they are eating lots of baby fish? Talk about natural ecological systems and how the
* Aboriginal people in the area work with them to preserve animal life as well as feed themselves.
* (Gr 3) Talk about what foods become available locally in the spring, such as salmonberries, wild onions, pussy willows, seaweed, and stinging nettle. Discuss what happens to these plants during the winter and why they come to life again in the spring.

**Physical Science**

* (Gr 1 - 2) Have the students shred cedar bark that can be used for weaving. Some students may shred it with a rock, while others may use a long board. Some students shred the bark while it’s wet, and others shred it while it’s dry. Have the students record the differences and similarities in their results.

**Earth and Space Science**

* (Gr 1) Ask students to identify the seasonal cycles in the local area.
* Research traditional activities in which the local Aboriginal people participated and relate them to seasonal cycles. As a class, discuss how weather, temperatures, and resource use influence these activities.
* Focus thinking with questions such as:
  + How did relationships change throughout the year?
  + Who worked with whom?
  + What did children do at peak work periods?
  + What did Elders do? How did people relax?
* Have students work in pairs to prepare a report on one traditional seasonal activity for presentation to the rest of the class.
* (Gr 1) Have students identify the signs of spring that are significant to the local Aboriginal culture (e.g., salmonberries, pussy willows, birds or the ability to peel logs or bark).

#### grades 4-7

**Processes and Skills**

**Life Science**

* (Gr 4) Assign students to research traditional and contemporary Aboriginal fishing technologies. Identify the differences and compare the two approaches to fishing in terms of the benefits and drawbacks of each.
* (Gr 6) Divide the class into groups. Provide the groups with information about the technology developed by two distinct BC Aboriginal cultures for the same purpose (e.g., shelter, tools). Have students: identify the differences between the technologies (e.g., materials, size, and location) and suggest reasons for those differences (e.g., climate conditions, seasonal activities, number of people living together) describe the probable lifestyles of each culture based on what the students have discovered about the technologies list advantages and disadvantages of each technology.
* (Gr 6) Provide students with research information on a local Aboriginal ritual associated with resource use (e.g., first salmon ceremony, cedar stripping prayer, hunting ritual). Have students work in groups to read and discuss why they think this ritual occurs. Have a spokesperson for each group report back on the group’s ideas.

**Physical Science**

* (Gr 4) Ask a local Aboriginal drum maker and/or musician to bring a variety of drums into the classroom. Have the children compare the sounds of wet and dry drums. Have students apply heat to drums and notice if there is a difference. Compare the different sounds of different hides, drum circumferences, and drum depths.
* (Gr 5) Have students construct replicas of traditional technologies. Provide natural resources (e.g., wood, fish bones, fibre lashing, cedar or willow strips, reeds or raffia, sharpened stone or bone), and instructions for making small items such as fish hooks, small fish nets, spindle whorls, looms, baskets, and hide scrapers. When the objects are complete, have students demonstrate their use. Discuss the cultural and environmental implications of making the technologies compared with buying the manufactured objects.
* (Gr 5) Use questions such as the following to lead a class discussion on technological change:
  + How has the local environment changed in the past 200 years? How have technological innovations contributed to this?
  + How might the environment be different 50 years from now? Why do you think this?
  + Can you identify traditional practices that Aboriginal peoples continue to use with modifications that incorporate the use of new technologies?
  + What impact do these adapted practices have on the environment?
* (Gr 6) Research the impact of electric dams on the local Aboriginal community.
* (Gr 7) There is likely to be local Aboriginal chemistry in the area in which you are teaching. Ask a knowledgeable person from the local community to come and demonstrate (e.g., using moose brains for tanning hides, making paint, using local medicines and combinations of plants to make specific medicines, whipping soapberries to make froth).

**Earth and Space Science**

* (Gr 4) Look at ways in which the local Aboriginal community would predict seasons and weather. Some examples might include wasps building their nests close to the ground, geese flying north or south, deer in velvet, or seagulls flocking.
* (Gr 5) Discuss the impact on local Aboriginal culture(s) in the past, present and future of oil exploration, mining, fish farming, and forestry.
* (Gr 6) Have students research print and on-line resources for information on a local Aboriginal ritual associated with resource use (e.g., first salmon ceremony, cedar-stripping prayer, hunting ritual). Have students in groups read and discuss together why they think this ritual occurs. Have a spokesperson for each group report back on the group’s ideas.

# Lesson plan Example: Animal cHANGES AND aDAPTIONS sCIENCE

Grade 2: Drama and Literature through Science

30-40 minutes lesson that can be done over a number of classes

**Big Ideas: All Living Things Have a Life Cycle**

* Why are life cycles important?
* How are the live cycles of animals similar and different?

**Competencies:**

* Questioning and predicting: Demonstrate curiosity and a sense of wonder about the world
* Planning and conducting: Processing and analyzing data and information
* Evaluating: Consider some environmental consequences of their actions
* Applying and innovating: Transfer and apply learning to new situations
* Communicating: Express and reflect on personal experiences of place

**Content:**

* Similarities and differences between offspring and parent
* Aboriginal knowledge of life cycles
* FNESC: similarities and differences in animals’ appearance, behaviour, and life cycles

**Materials and Resources**

* Authentic Text: *Sharing Our World: Animals of the Native Northwest Coast — Native Northwest*
* Blank booklet for students to draw pictures to demonstrate their understanding the significance of particular animals to First Peoples
* This lesson could be adapted as a series of lessons within a unit, where students could learn about different animals from different nations / territories
* Crayons, pencil crayons and felt markers

**Procedure**

Introduction

* Ask students if they are familiar with the terms First Peoples, First Nations, or Aboriginal. If necessary, explain that First Peoples were the first people to live in North America (Turtle Island).
* Ask students what they know about legends, myths, fables etc. (This is important so teachers can help students better understand traditional First Peoples stories).
* Introduce your students to the fact that animals were an important part of First Peoples traditions and ways of life.
* Ask students what they know about First Peoples and their means of survival before European settlers arrived with what was then, modern technologies (clothing, shelter, food).
  + Record students’ understanding as a means of measurement for assessment at the end of this unit.
* Make sure students understand that not all First Peoples are the same; there are many similarities in the cultural beliefs and traditions, yet many differences as well; where people lived in the province often made a difference to their ways of life.
* Discuss different areas of the province and how the needs for the people of certain regions differ across geography, climate, weather, natural resources available
* Inform students they will be learning about how and why it was that animals were such an important part of the lives of First Peoples.

Reading to Students

* Read *Sharing Our World – Animals of the Native Northwest Coast* to the class.
* A group discussion will allow students to share their understanding of what has been read, and allows the teacher to go over important aspects of the reading that may have been missed by students.
* Tell students you will be reading stories or texts from three areas of the province and that they will be learning about the different animals of those areas and their importance to the people of that particular area; Northwest Coast; Shuswap Territory; Inuit/Nunavut (or any other areas).
* Talk about the different animals in the text. Begin by talking about how all living things have a life cycle. Discuss the animal hierarchy; speculate on classifications such as herbivores, omnivores, and carnivores. Discuss the food chain amongst these animals.
  + Teacher can build knowledge by providing a visual representation of a discussion using a web or mind map style.
  + Draw out themes such as similarities and differences in animals’ appearance, behaviour, and life cycles, changes that affect animals (e.g., hibernation, migration, decline in population), how animals are important in the lives of Aboriginal peoples in BC, and ways animals are important to other living things and the environment.

**Application of Knowledge**

* Tell students they will be creating a booklet to demonstrate their understanding of the importance of animals to the First Peoples from various nations / territories of the province.
* Let students know this project will not be completed in one day, and that when they are finished they will have a nice booklet to show what they have learned about First Peoples and their connections with animals.
* Share with students the expectation for the booklet; let students know you will be looking for; evidence that students recognize the relationship between animals and First Peoples — identifying a variety of uses for various animals; food, clothing, tools, cultural activities etc.
* Drawing from the discussion on the animal hierarchy, students can classify animals in the text by herbivores, omnivores, and carnivores. Students would also include an animal hierarchy and a food chain diagram.
* Hand out blank booklets. Collect booklets at the end of the lesson. Students will share their booklets with classmates once they have completed this assignment. In the end of the series of lesson, students will able to show their knowledge to friends and family.

**Assessment**

* Assess student booklets, looking for evidence that students recognize the relationship between animals and First Peoples. Have students identify a variety of uses for various animals; food, clothing, tools, cultural activities?
* To assess students in relation to their abilities to understand the texts, look for the extent to which they
  + Make reasonable predictions about what to expect of a text
  + Make personal connections with a text (e.g., how their family compares with a family in a story) and elaborate when prompted
  + Show a knowledge of story structure by describing characters and events (e.g., answer “who,” “what,” “where,” and “why” questions; identify beginning, middle, and end of story)
  + Make inferences about characters’ feelings or the story problem
  + Select a personally significant idea from a text and describe why it is significant
  + Participate in creative retelling of a familiar text (drama, role play, etc.) using animals as a drama role. Students could display the animal hierarchy and/or the food chain through drama and play.

**References**

* In our Own Words. Bringing Authentic First Peoples Content to the K-3 Classroom. Learning First Peoples. **(Page 85) Retrieved from February 28, 2016.**

http://www.fnesc.ca/wordpress/wp-content/uploads/2015/05/PUB-LFP-K-3-In-our-Own-Words-for-Web.pdf

# BIBLIOGRAPHY

**MATH**

Aboriginal Perspectives. (n.d.). **Retrieved from February 28,** 2016, from <http://aboriginalperspectives.uregina.ca/workshops/workshop2010/>

Games from the Aboriginal People of North America: Math Content. (n.d.). **Retrieved from February 28,** 2016, from <http://mathcentral.uregina.ca/RR/database/RR.09.00/treptau1/mathcontent.html>

**LITERACY**

Aboriginal Education Enhancements Branch, British Columbia Ministry of Education. (2006). *Shared*

*Learnings : Integrating BC Aboriginal Content K-10.*  Retrieved from:

<http://www.llbc.leg.bc.ca/public/pubdocs/bcdocs/407116/shared_learning.pdf>

*Authentic First Peoples Resources: For Use in K-7.* (2011). First Nations Education Steering Committee and

First Nations School Association.: West Vancouver, BC. Retrieved from:

[http://www.fnesc.ca/wp/wp-content/uploads/2015/08/PUB-LFP-K-7-Authentic-Resources-for](http://www.fnesc.ca/wp/wp-content/uploads/2015/08/PUB-LFP-K-7-Authentic-Resources-for-Web.pdf)

[Web.pdf](http://www.fnesc.ca/wp/wp-content/uploads/2015/08/PUB-LFP-K-7-Authentic-Resources-for-Web.pdf)

Central Okanagan School District Aboriginal Education Website

<http://www.sd23.bc.ca/ProgramsServices/AboriginalEducation/CurriculumResources/CRK7/Pages/default.aspx>

First Nations Education Steering Committee and First Nations School Association. (2012). Indian Residential Schools & Reconciliation Teacher Resource Guide. Retrieved from <http://www.fnesc.ca/wp/wp-content/uploads/2015/07/PUB-LFP-IRSR-5-2015-07->WEB.pdf

Fleischman, P. (1999). *Weslandia.*  Cambridge, MS: Candlewick Press.

*In Our Own Words: Bringing Authentic First People’s Content to the K-3 Classroom.* (2012). First Nations

Education Steering Committee and First Nations School Association.: West Vancouver, BC.

Retrieved from:

[http://www.fnesc.ca/wordpress/wp-content/uploads/2015/05/PUB-LFP-K-3-In-our](http://www.fnesc.ca/wordpress/wp-content/uploads/2015/05/PUB-LFP-K-3-In-ourOwn-Words-for-Web.pdf)

[Own-Words-for-Web.pdf](http://www.fnesc.ca/wordpress/wp-content/uploads/2015/05/PUB-LFP-K-3-In-ourOwn-Words-for-Web.pdf)

*Kou-Skelowh We Are The People: A Trilogy of Okanagan Legends.* (1999). Penticton, BC: Theytus Books.

Province of British Columbia. (2015). *Aboriginal Worldviews and Perspectives in the Classroom.* Retrieved

from <https://www.bced.gov.bc.ca/abed/awp_moving_forward.pdf>

Tea and Bannock: First Nations Community of Poetic Voices. (n.d). Retrieved February 28, 2016, from

<http://www.sfu.ca/lovemotherearth/02poetry/tea_and_bannock.pdf>

The Learning Circle: Classroom Activities on First Nations in Canada. (2006). Retrieved February 28, 2016,

from

[http://www.etfo.ca/Resources/ForTeachers/Documents/The%20Learning%20Circle%20](http://www.etfo.ca/Resources/ForTeachers/Documents/The%20Learning%20Circle%20%20Classroom%20Activities%20on%20First%20Nations%20in%20Canada.pdf)

[%20Classroom%20Activities%20on%20First%20Nations%20in%20Canada.pdf](http://www.etfo.ca/Resources/ForTeachers/Documents/The%20Learning%20Circle%20%20Classroom%20Activities%20on%20First%20Nations%20in%20Canada.pdf)

Toulouse, P. R. (n.d.). Integrating Aboriginal Teaching and Values into the Classroom. *The Literacy and*

*Numeracy Secretariat*. Retrieved February 28, 2016, from

<https://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/Toulouse.pdf>

**SCIENCE**

First Nations Education Steering Committee. **(n.d). Retrieved from February 28, 2016.** **http://www.fnesc.ca**

In our Own Words. Bringing Authentic First Peoples Content to the K-3 Classroom. Learning First Peoples.

**Retrieved from February 28, 2016.**

<http://www.fnesc.ca/wordpress/wp-content/uploads/2015/05/PUB-LFP-K-3-In-our-Own-Words-for-Web.pdf>

Authentic Resources (K-7). Learning First Peoples. **Retrieved from February 28, 2016.**

<http://www.fnesc.ca/wp/wp-content/uploads/2015/08/PUB-LFP-K-7-Authentic-Resources-for-Web.pdf>

Integrating Aboriginal Perspectives into Curricula. BC Ministry of Education. **Retrieved from February 28,**

**2016.** <http://www.edu.gov.mb.ca/k12/docs/policy/abpersp/ab_persp.pdf>

Let’s Talk Science: inspiring Discovery. (n.d). Retrieved February 28, 2016.

<http://www.letstalkscience.ca/programs-resources/first-nations-metis-and-inuit.html>

* Astronomy and Space
  + http://www.letstalkscience.ca/programs-resources/activities/category/astronomy-space.html
* Chemistry
  + http://www.letstalkscience.ca/programs-resources/activities/category/chemistry.html
* Environmental Science
  + <http://www.letstalkscience.ca/programs-resources/activities/category/environmental-science.html>
* Physics
  + <http://www.letstalkscience.ca/programs-resources/activities/category/physics.html>
* Earth Science
  + http://www.letstalkscience.ca/programs-resources/activities/category/earth-sciences.html
* Life Science
  + <http://www.letstalkscience.ca/programs-resources/activities/category/life-sciences.html>

Shared Learning’s: Integrating BC Aboriginal Content K-10. BC Ministry of Education. **Retrieved from**

**February 28, 2016.** https://www.bced.gov.bc.ca/abed/shared.pdf

STEM Education Coalition. **Retrieved from February 28, 2016.** <http://www.stemedcoalition.org>