Indigenous Knowledge and Perspectives: Mathematics K–12

Context

In B.C.'s redesigned curriculum, Indigenous knowledge and perspectives are integrated throughout all areas of learning and are evident in the curriculum's rationale statements, goals, big ideas, mandated learning standards, and elaborations. The First Peoples Principles of Learning offer a crucial lens for curriculum, placing a significant importance on the authentic integration of Indigenous knowledge and perspectives in relevant and meaningful ways.

The intent behind this integration is to promote a growing understanding of Indigenous peoples in B.C. that will contribute to the development of educated citizens who reflect on and support reconciliation. This approach to Indigenous education encourages enlightened discussion among teachers and students in all areas of learning and grade levels, and this approach values and prioritizes Indigenous knowledge and perspectives that can only be found in B.C.

Purpose

The *Indigenous Knowledge and Perspectives: K-12 Mathematics Curriculum* resource is intended to support teachers in authentically integrating Indigenous knowledge and perspectives into their classrooms. This resource provides a detailed overview of the explicit and implicit references to Indigenous knowledge and perspectives in the Big Ideas, Curricular Competencies, and Content throughout the K-12 Mathematics curriculum.

Explicit References

Explicit references include the Big Ideas, Curricular Competencies, and Content that directly refer to Indigenous knowledge and perspectives. For example, the Grade 8 Mathematics curriculum includes the following explicit reference:

Grade 8, Curricular Competency, **Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts**

- ⇨ *Incorporate First Peoples:*
  - *Invite local First Peoples Elders and knowledge keepers to share their knowledge*
- ⇨ *make connections:*
  - *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)*
  - *aboriginaleducation.ca*
  - *Teaching Mathematics in a First Nations Context, FNESC fnesc.ca/k-7/*

Implicit References

Implicit references are Big Ideas, Curricular Competencies, and Content that indirectly refer to Indigenous knowledge and perspectives. For example, the Geometry 12 curriculum includes the following implicit reference:

Geometry 12, Big Idea, **Geometry stories and applications vary across cultures and time.**

- ⇨ *Can we find geometric relationships in local First Peoples art or culture?*
- ⇨ *What do we notice about and how would we construct common shapes found in local First Peoples art?*

The implicit references included in this resource represent just one perspective and should not be considered the only interpretation. Identifying implicit references depends on personal and cultural background, prior knowledge and experience, subject-matter expertise, points of view, and connections to place*. As such, the implicit references in this resource serve only as a guide and should not be viewed as a conclusive list.

Note on Elaborations: Explicit references to Indigenous knowledge and perspectives that are found within the Elaborations of Big Ideas, Curricular Competencies, or Content are considered *implicit* unless they are accompanied by an explicit reference in the Big Ideas, Curricular Competencies, or Content.

***Place** refers to any environment, locality, or context with which people interact to learn, create memory, reflect on history, connect with culture, and establish identity.

The key below shows how the information in the chart is structured:

Bolded print	Mandated Learning Standard
•	Sub-points of a Learning Standard
⇨	*Elaborations*
○	*Key questions or samples*

Indigenous Knowledge and Perspectives: Mathematics K–12

MATHEMATICS — Kindergarten

	Explicit	Implicit
Big Ideas		**Numbers represent quantities that can be decomposed into smaller parts.** ⇨ *What stories live in numbers?* ⇨ *How do numbers help us communicate and think about place?* **Familiar events can be described as likely or unlikely and compared.** ⇨ *How does data/information help us predict the likelihood of an event? (e.g. weather)* ⇨ *What stories can data tell us?*
Curricular Competencies	**Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration* ⇨ *Patterns are important in First Peoples technology, architecture, and artwork.* ⇨ *Have students pose and solve problems or ask questions connected to place, stories, and cultural practices.* **Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts** ⇨ *Incorporate: Invite local First Peoples Elders and knowledge keepers to share their knowledge* ⇨ *make connections:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *aboriginaleducation.ca* – *Teaching Mathematics in a First Nations Context, FNESC fnesc.ca/k-7/*	**Estimate reasonably** ⇨ *First Peoples used specific estimating and measuring techniques in daily life (e.g., seaweed drying and baling)* **Connect mathematical concepts to each other and to other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, the environment, popular media and news events, social justice, and cross-curricular integration)*

	Explicit	Implicit
Content		**number concepts to 10** ⇨ *counting to 10 in more than one language, including local First Peoples language or languages* **ways to make 5** ⇨ *Traditional First Peoples counting methods involved using fingers to count to 5 and for groups of 5.* – *aboriginalperspectives.uregina.ca/rosella/lessons/math/numberconcepts.shtml* – *ankn.uaf.edu/curriculum/Tlingit/Salmon/graphics/mathbook.pdf* **repeating patterns with two or three elements** ⇨ *noticing and identifying repeating patterns in First Peoples and local art and textiles, including beadwork and beading, and frieze work in borders*

	Explicit	Implicit
Big Ideas		**Numbers to 20 represent quantities that can be decomposed into 10s and 1s.** ⇨ *What stories live in numbers?* ⇨ *How do numbers help us communicate and think about place?* **Objects and shapes have attributes that can be described, measured, and compared.** ⇨ *What stories live in these shapes?* **Concrete graphs help us to compare and interpret data and shoe one-to-one correspondence.** ⇨ *What stories can data tell us*
Curricular Competencies	**Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration* ⇨ *Patterns are important in First Peoples technology, architecture, and artwork.* ⇨ *Have students pose and solve problems or ask questions connected to place, stories, and cultural practices.* **Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts** ⇨ *Incorporate:* – *how and ovoid has a different look to represent different animal parts* – *Invite local First Peoples Elders and knowledge keepers to share their knowledge* ⇨ *make connections:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *aboriginaleducation.ca* – *Teaching Mathematics in a First Nations Context, FNESC fnesc.ca/k-7/*	**Estimate reasonably** ⇨ *First Peoples people used specific estimating and measuring techniques in daily life* *(e.g., estimating time using environmental references and natural daily/seasonal cycles, estimating temperatures based on weather systems)* **Connect mathematical concepts to each other and to other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, the environment, popular media and news events, social justice, and cross-curricular integration*

	Explicit	Implicit
Content		**number concepts to 20** ⇨ *books published by Native Northwest: Learn to Count, by various artists; Counting Wild Bears, by Gryn White; We All Count, by Jason Adair; We All Count, by Julie Flett (nativenorthwest.com) using counting collections made of local materials; counting in different languages; different First Peoples counting systems (e.g., Tsimshian)* ⇨ *Tlingit Math Book (yukon-ed-show-me-your-math.wikispaces.com/file/detail/Tlingit Math Book.pdf)* **ways to make 10** ⇨ *Traditional First Peoples counting methods involved using fingers to count to 5 and for groups of 5* ⇨ *traditional songs/singing and stories* **addition and subtraction to 20** ⇨ *nature scavenger hunt in Kaska Counting Book (yukon-ed-show-me-your-math.wikispaces.com/file/detail/Kaska Counting Book.pdf)* **repeating patterns** ⇨ *beading using 3–5 colours* **direct measurement with non-standard units (non-uniform and uniform)** ⇨ *book: An Anishnaabe Look at Measurement, by Rhonda Hopkins and Robin King-Stonefish (strongnations.com/store/item_display.php?i=3494&f=)* ⇨ *hand/foot tracing for mitten/moccasin making* **likelihood of familiar life events, using comparative language** ⇨ *cycles (Elder or knowledge keeper to speak about ceremonies and life events)* **financial literacy — values of coins, and monetary exchanges** ⇨ *trade games, with understanding that objects have variable value or worth (shells, beads, furs, tools)*

	Explicit	Implicit
Big Ideas		**Numbers to 100 represent quantities that can be decomposed into 10s and 1s.** ⇨ *What stories live in numbers?* ⇨ *How do numbers help us communicate and think about place?* **The regular change in increasing patterns can be identified and used to make generalizations.** ⇨ *What stories live in patterns?*
Curricular Competencies	**Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration* ⇨ *Have students pose and solve problems or ask questions connected to place, stories, and cultural practices* ⇨ *Elder communication to explain harvest traditions and sharing practices* **Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts** ⇨ *Incorporate:* – *Invite local First Peoples Elders and knowledge keepers to share their knowledge* ⇨ *make connections:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *aboriginaleducation.ca* – *Teaching Mathematics in a First Nations Context, FNESC fnesc.ca/k-7/*	**Connect mathematical concepts to each other and to other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, the environment, popular media and news events, social justice, and cross-curricular integration)*
Content		**benchmarks of 25, 50, and 100 and personal referents** ⇨ *seating arrangements at ceremonies/feasts* **repeating and increasing patterns** ⇨ *Métis finger weaving* ⇨ *First Peoples head/armband patterning* ⇨ *online video and text: Small Number Counts to 100 (mathcatcher.irmacs.sfu.ca/story/small-number-counts-100)* **multiple attributes of 2D shapes and 3D objects** ⇨ *using traditional northwest coast First Peoples shapes (ovoids, U, split U, and local art shapes) reflected in the natural environment*

	Explicit	Implicit
Big Ideas		**Fractions are a type of number that can represent quantities.** ⇨ *What stories live in numbers?* ⇨ *How do numbers help us communicate and think about place?*
Curricular Competencies	**Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration* ⇨ *Have students pose and solve problems or ask questions connected to place, stories, and cultural practices.* **Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts** ⇨ *Incorporate:* – *Invite local First Peoples Elders and knowledge keepers to share their knowledge* ⇨ *make connections:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *aboriginaleducation.ca* – *Teaching Mathematics in a First Nations Context, FNESC fnesc.ca/k-7/*	**Connect mathematical concepts to each other and to other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, the environment, popular media and news events, social justice, and cross-curricular integration)*
Content		**number concepts to 1000** ⇨ *instructional resource: Math in a Cultural Context, by Jerry Lipka* **fraction concepts** ⇨ *equal sharing, pole ratios as visual parts, medicine wheel, seasons* **multiplication and division concepts** ⇨ *fish drying on rack; sharing of food resources in First Peoples communities* **pattern rules using words and numbers, based on concrete experiences** ⇨ *Share examples of local First Peoples art with the class, and ask students to notice patterns in the artwork* **time concepts** ⇨ *estimating time, using environmental references and natural daily/seasonal cycles, temperatures based on weather systems, traditional calendar*

	Explicit	Implicit
Content (continued)		**construction of 3D objects** ⇨ *jingle dress bells, bentwood box, birch bark baskets, pithouses* **likelihood of simulated events, using comparative language** ⇨ *story: The Snowsnake Game (yukon-ed-show-me-your-math.wikispaces.com/file/view/The%20Snowsnake%20Game.pdf/203828506/The%20Snowsnake%20Game.pdf)* **financial literacy — fluency with coins and bills to 100 dollars, and earning and payment** ⇨ *Using pictures of First Peoples trade items (e.g., dentalium shells, dried fish, or tools when available) with the values indicated on the back, have students play a trading game.*

	Explicit	Implicit
Big Ideas		**Fractions and decimals are types of number that can represent quantities.** ⇨ *What stories live in numbers?* ⇨ *How do numbers help us communicate and think about place?*
Curricular Competencies	**Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration* ⇨ *Have students pose and solve problems or ask questions connected to place, stories, and cultural practices.* **Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts** ⇨ *Incorporate:* – *Invite local First Peoples Elders and knowledge keepers to share their knowledge* ⇨ *make connections:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *aboriginaleducation.ca* – *Teaching Mathematics in a First Nations Context, FNESC fnesc.ca/k-7/*	**Connect mathematical concepts to each other and to other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, the environment, popular media and news events, social justice, and cross-curricular integration)*
Content		**increasing and decreasing patterns, using tables and charts** ⇨ *fish stocks in lakes, life expectancies* **how to tell time with analog and digital clocks, using 12- and 24-hour clocks** ⇨ *First Peoples use of numbers in time and seasons, represented by seasonal cycles and moon cycles (e.g., how position of sun, moon, and stars is used to determine times for traditional activities, navigation)* **regular and irregular polygons** ⇨ *Yup'ik border patterns* **line symmetry** ⇨ *First Peoples art, borders, birchbark biting, canoe building* ⇨ *Visit a structure designed by First Peoples in the local community and have the students examine the symmetry, balance, and patterns within the structure, then replicate simple models of the architecture focusing on the patterns they noted in the original.* **probability experiments** ⇨ *Dene/Kaska hand games, Lahal stick games*

	Explicit	Implicit
Big Ideas		**Numbers describe quantities that can be represented by equivalent fractions.** ⇨ *What stories live in numbers?* ⇨ *How do numbers help us communicate and think about place?*
Curricular Competencies	**Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration* ⇨ *First Peoples people value, recognize and utilize balance and symmetry within art and structural design; have students pose and solve problems or ask questions connected to place, stories, and cultural practices.* **Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts** ⇨ *Incorporate:* – *Invite local First Peoples Elders and knowledge keepers to share their knowledge* ⇨ *make connections:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *aboriginaleducation.ca* – *Teaching Mathematics in a First Nations Context, FNESC fnesc.ca/k-7*	**Connect mathematical concepts to each other and to other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, the environment, popular media and news events, social justice, and cross-curricular integration)*
Content		**number concepts to 1 000 000** ⇨ *First Peoples use unique counting systems (e.g., Tsimshian use of three counting systems, for animals, people and things; Tlingit counting for the naming of numbers e.g., 10 = two hands, 20 = one person)* **relationships between area and perimeter** ⇨ *use traditional dwellings* ⇨ *Invite a local Elder or knowledge keeper to talk about traditional measuring and estimating techniques for hunting, fishing, and building.* **duration, using measurement of time** ⇨ *daily and seasonal cycles, moon cycles, tides, journeys, events* **single transformations** ⇨ *weaving, cedar baskets, designs*

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration* ⇨ *Patterns are important in First Peoples technology, architecture, and art.* ⇨ *Have students pose and solve problems or ask questions connected to place, stories, and cultural practices* **Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts** ⇨ *Incorporate:* – *Invite local First Peoples Elders and knowledge keepers to share their knowledge* ⇨ *make connections:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *aboriginaleducation.ca* – *Teaching Mathematics in a First Nations Context, FNESC fnesc.ca/k-7/*	**Connect mathematical concepts to each other and to other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., cross-discipline, daily activities, local and traditional practices, the environment, popular media and news events, and social justice)*
Content		**improper fractions and mixed numbers** ⇨ *birchbark biting* **increasing and decreasing patterns, using expressions, tables, and graphs as functional relationships** ⇨ *graphing data on First Peoples language loss, effects of language intervention* **area of triangles, parallelograms, and trapezoids** ⇨ *birchbark biting* **volume and capacity** ⇨ *berry baskets, seaweed drying* **combinations of transformations** ⇨ *Use shapes in First Peoples art to integrate printmaking (e.g., Inuit, Northwest coastal First Nations, frieze work) (mathcentral.uregina.ca/RR/database/RR.09.01/mcdonald1/)* **single-outcome probability, both theoretical and experimental** ⇨ *Lahal stick games*

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration* ⇨ *Patterns are important in First Peoples technology, architecture, and art.* ⇨ *Have students pose and solve problems or ask questions connected to place, stories, and cultural practices* **Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts** ⇨ *Incorporate:* – *Invite local First Peoples Elders and knowledge keepers to share their knowledge* ⇨ *make connections:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *aboriginaleducation.ca* – *Teaching Mathematics in a First Nations Context, FNESC fnesc.ca/k-7/*	**Connect mathematical concepts to each other and to other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., cross-discipline, daily activities, local and traditional practices, the environment, popular media and news events, and social justice)*
Content		**discrete linear relations, using expressions, tables, and graphs** ⇨ *Small Number stories: Small Number and the Old Canoe, Small Number Counts to 100 (mathcatcher.irmacs.sfu.ca/stories)* **two-step equations with whole-number coefficients, constants, and solutions** ⇨ *Small Number stories: Small Number and the Big Tree (mathcatcher.irmacs.sfu.ca/stories)* **circumference and area of circles** ⇨ *drummaking, dreamcatcher making, stories of SpiderWoman (Dene, Cree, Hopi, Tsimshian), basket making, quill box making (Note: Local protocols should be considered when choosing an activity.)* **volume of rectangular prisms and cylinders** ⇨ *Exploring Math through Haida Legends: Culturally Responsive Mathematics*

	Explicit	Implicit
Content (continued)		**Cartesian coordinates and graphing** ⇨ *overlaying coordinate plane on medicine wheel, beading on dreamcatcher, overlaying coordinate plane on traditional maps* **combinations of transformations** ⇨ *First Peoples art, jewelry making, birchbark biting* **circle graphs** ⇨ *visual representations of tidepools or traditional meals on plates* **experimental probability** ⇨ *dice games (web.uvic.ca/~tpelton/fn-math/fn-dicegames.html)*

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration* ⇨ *Patterns are important in First Peoples technology, architecture, and art.* ⇨ *Have students pose and solve problems or ask questions connected to place, stories, and cultural practices* **Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts** ⇨ *Incorporate:* – *Invite local First Peoples Elders and knowledge keepers to share their knowledge* ⇨ *make connections:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *aboriginaleducation.ca* – *Teaching Mathematics in a First Nations Context, FNESC fnesc.ca/k-7/*	**Connect mathematical concepts to each other and to other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., cross-discipline, daily activities, local and traditional practices, the environment, popular media and news events, and social justice)*

	Explicit	Implicit
Content		**percents less than 1 and greater than 100 (decimal and fractional percents)** ⇨ *beading* **numerical proportional reasoning (rates, ratio, proportions, and percent)** ⇨ *creating a cedar drum box of proportions that use ratios to create differences in pitch and tone* ⇨ *paddle making* **operations with fractions (addition, subtraction, multiplication, division, and order of operations)** ⇨ *drumming and song: 1/2, 1/4, 1/8, whole notes, dot bars, rests = one beat* ⇨ *changing tempos of traditional songs dependent on context of use* ⇨ *proportional sharing of harvests based on family size* **two-step equations with integer coefficients, constants, and solutions** ⇨ *spirit canoe journey calculations* **Pythagorean theorem** ⇨ *constructing canoe paths and landings given current on a river* ⇨ *First Peoples constellations* **construction, views, and nets of 3D objects** ⇨ *bentwood boxes, lidded baskets, packs*

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *in daily activities, local and traditional practices, the environment, popular media and news events, cross-curricular integration* ⇨ *Patterns are important in First Peoples technology, architecture, and art.* ⇨ *Have students pose and solve problems or ask questions connected to place, stories, and cultural practices* **Incorporate First Peoples worldviews and perspectives to make connections to mathematical concepts** ⇨ *Incorporate:* – *Invite local First Peoples Elders and knowledge keepers to share their knowledge* ⇨ *make connections:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *aboriginaleducation.ca* – *Teaching Mathematics in a First Nations Context, FNESC fnesc.ca/k-7/*	**Connect mathematical concepts to each other and to other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., cross-discipline, daily activities, local and traditional practices, the environment, popular media and news events, and social justice)*
Content		**operations with rational numbers (addition, subtraction, multiplication, division, and order of operations)** ⇨ *paddle making* **two-variable linear relations, using graphing, interpolation, and extrapolation** ⇨ *spirit canoe journey predictions and daily checks* **spatial proportional reasoning** ⇨ *integration of scale for First Peoples mural work, use of traditional design in current First Peoples fashion design, use of similar triangles to create longhouses/models* **statistics in society** ⇨ *using First Peoples data on water quality, Statistics Canada data on income, health, housing, population* **financial literacy – simple budgets and transactions** ⇨ *creating a budget/plan to host a First Peoples event*

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with mathematical concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply mathematical understanding through play, story, inquiry, and problem solving** **Connect mathematical concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with mathematical concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, inquiry, and problem solving** **Connect mathematical concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* ⇨ *through cryptography (e.g., Navajo Code Talkers from WWII)* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with computer science concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Connect mathematical and computer science concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how computer science helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		**Optimization informs the decision-making process in situations involving extreme values.** ⇨ *Can we think of a story where a conflict can be resolved through optimization?* **Statistical analysis allows us to notice, wonder about, and answer questions about variation.** ⇨ *Can we think of a story that involves variation? How would we describe that variation?*
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with computer science concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply mathematical understanding through play, story, inquiry, and problem solving** **Connect mathematical concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		**Mathematics has developed over many centuries and continues to evolve.** ⇨ *What is the connection between the development of mathematics and the history of humanity?* ⇨ *Where have similar mathematical developments occurred independently because of geographical separation?* **Mathematics is a global language used to understand the world.** *Sample questions to support inquiry with students:* ○ *How universal is the language of mathematics?* ○ *How is learning a language similar to learning mathematics?* ○ *How does oral language influence our conceptual understanding of mathematics?* **Societal needs across cultures have influenced the development of mathematics** *Societal needs:* *Sample questions to support inquiry with students:* ○ *Have societal needs always had a positive impact on mathematics?* ○ *How have politics influenced the development of mathematics?* ○ *How might mathematics influence decisions regarding social justice issues?* **Tools and technology are catalysts for mathematical development.** *Sample questions to support inquiry with students:* ○ *Did tools and technology affect mathematical development, or did mathematics affect the development of tools and technology?* ○ *What does technology enable us to do and how does this lead to deeper mathematical understanding?*

	Explicit	Implicit
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, and cultural practices, including local First Peoples** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with computer science concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Connect mathematical concepts with each other, with other areas and with personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		**number and number systems** ⇨ *Egyptian, Babylonian, Roman, Greek, Arabic, Mayan, Indian, Chinese, First Peoples*

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with mathematical concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, inquiry, and problem solving** **Connect mathematical concepts with each other, with other areas and with personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		**Flexibility with number builds meaning, understanding, and confidence.** **understanding:** *Sample questions to support inquiry with students:* ○ *How does solving puzzles and playing games relate to mathematics?* ○ *How does experiential learning facilitate deeper understanding?*
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with mathematical concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, inquiry, and problem solving** **Connect mathematical concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with mathematical concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, inquiry, and problem solving** **Connect mathematical concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with mathematical concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, inquiry, and problem solving** **Connect mathematical concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with mathematical concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply conceptual understanding through experimentation, inquiry, and problem solving** **Connect mathematical and computer science concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how computer science helps us understand the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with mathematical concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, inquiry, and problem solving** **Connect mathematical concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		**Geometry stories and applications vary across cultures and time.** ⇨ *Can we find geometric relationships in local First Peoples art or culture?* ⇨ *What do we notice about and how would we construct common shapes found in local First Peoples art?*
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with mathematical concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, inquiry, and problem solving** **Connect mathematical concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in problem-solving experiences connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with mathematical concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply conceptual understanding of mathematical ideas through play, story, inquiry, and problem solving** **Connect mathematical concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		

	Explicit	Implicit
Big Ideas		
Curricular Competencies	**Engage in statistical thinking to answer questions connected with place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures** ⇨ *through daily activities, local and traditional practices, popular media and news events, cross-curricular integration* ⇨ *by posing and solving problems or asking questions about place, stories, and cultural practices* **Incorporate First Peoples worldviews, perspectives, knowledge, and practices to make connections with mathematical concepts** ⇨ *Incorporate:* – *collaborating with Elders and knowledge keepers among local First Peoples* – *exploring the First Peoples Principles of Learning (http://www.fnesc.ca/wp/wp-content/uploads/2015/09/PUB-LFP-POSTER-Princip... e.g., Learning is holistic, reflexive, reflective, experiential, and relational [focused on connectedness, on reciprocal relationships, and a sense of place]; Learning involves patience and time)* – *making explicit connections with learning mathematics* – *exploring cultural practices and knowledge of local First Peoples and identifying mathematical connections* ⇨ *knowledge:* – *local knowledge and cultural practices that are appropriate to share and that are non-appropriated* ⇨ *practices:* – *Bishop's cultural practices: counting, measuring, locating, designing, playing, explaining (csus.edu/indiv/o/oreyd/ACP.htm_files/abishop.htm)* – *Aboriginal Education Resources (www.aboriginaleducation.ca)* – *Teaching Mathematics in a First Nations Context, FNESC (http://www.fnesc.ca/resources/math-first-peoples/)*	**Develop, demonstrate, and apply conceptual understanding of statistical ideas through play, story, inquiry, and research** **Connect statistical concepts with each other, other areas and personal interests** ⇨ *to develop a sense of how mathematics helps us understand ourselves and the world around us (e.g., daily activities, local and traditional practices, popular media and news events, social justice, cross-curricular integration)*
Content		