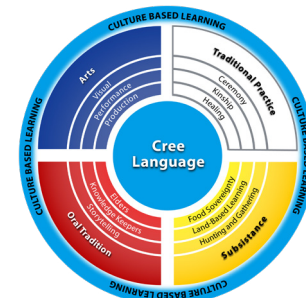









# Math



 Knowledge	Understanding	Skills & Procedures	ᐅᐃᐅᐅᐅ Nehiyaw Ways of Knowing	Other Suggestions
<b>ORGANIZING IDEA</b>				
<b>NUMBER: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.</b>				
<b>GUIDING QUESTION</b>				
<b>How can place value facilitate interpretation of number?</b>				
<b>LEARNING OUTCOME</b>				
<b>4N1 Students apply place value to decimal number.</b>				
<p><b>For numbers in base-10, each place has one-tenth the value of the place to its left.</b></p> <p><b>Multiplying or dividing a number by 10 corresponds to moving the decimal point one position to the right or left, respectively.</b></p> <p>The decimal separator is a point in English and a comma in French.</p> <p><b>Numbers, including decimal numbers, can be composed in various ways using place value.</b></p> <p>A zero placed to the right of the last digit in a decimal number does not change the value of the number.</p> <p>[continued...]</p>	<p><b>Decimal numbers are numbers between natural numbers.</b></p> <p><b>Decimal numbers are fractions with denominators of 10, 100, etc.</b></p> <p><b>The separation between wholes and parts can be represented using decimal notation.</b></p> <p><b>Patterns in place value are used to read and write numbers, including wholes and parts.</b></p>	<p><b>Identify the place value of each digit in a number, including tenths and hundredths.</b></p> <p><b>Relate the values of adjacent places, including tenths and hundredths.</b></p> <p><b>Determine the value of each digit in a number, including tenths and hundredths.</b></p> <p><b>Express numbers, including decimal numbers, using words and numerals.</b></p> <p>Express various compositions of a number, including decimal numbers, using place value.</p> <p>Recognize decimal notation <b>expressed in English and in French.</b></p> <p><b>Round numbers to various places, including tenths.</b></p> <p><b>Compare and order numbers, including decimal numbers.</b></p> <p>[continued...]</p>		<p><b>Discuss how units of measurement came with Europeans. Prior to that, the Cree used skills related to estimation, trial and error, and experience.</b></p> <p><b>Use both current life and historical (e.g., fur trading) examples to explore monetary values.</b></p>

 Knowledge	Understanding	Skills & Procedures	ᑭᑭᑭᑭ Nehiyaw Ways of Knowing	Other Suggestions
[continued...]  The word and is used to indicate the decimal point when reading a number.		[continued...]  <b>Express the relationship between two numbers, including decimal numbers, using <math>&lt;</math>, <math>&gt;</math>, or <math>=</math>.</b>  <b>Express a monetary value in cents as a monetary value in dollars using decimal.</b>		
<b>GUIDING QUESTION</b> <b>How can understanding of addition and subtraction be extended to decimal numbers?</b>				
<b>LEARNING OUTCOME</b> <b>4N2 Students add and subtract within 10 000, including decimal numbers to hundredths.</b>				
Standard algorithms for addition and subtraction of decimal numbers are conventional procedures based on place value.  Estimation can be used to check the reasonableness of a sum or difference.	Standard algorithms for addition and subtraction may be used for any decimal number.	<b>Add and subtract numbers, including decimal numbers, using standard algorithms.</b>  <b>Assess the reasonableness of a sum or difference by estimation.</b>  <b>Solve problems using addition and subtraction, including problems involving money.</b>	  <b>Legend of Night and Day</b>   <b>13 Moons</b>  <b>Distance – Concept of Zero</b>	
<b>GUIDING QUESTION</b> <b>How can multiplication and division characterize the composition of numbers?</b>				
<b>LEARNING OUTCOME</b> <b>4N3 Students explain properties of prime and composite numbers using multiplication and division.</b>				
<b>A factor of a number is a divisor of that number.</b>  <b>A number is a multiple of any of its factors.</b>  <b>A prime number has factors of only itself and one.</b>  <b>A composite number has factors other than one and itself.</b>  <b>Zero and one are neither prime nor composite numbers</b>	<b>Different factors can compose the same product.</b>  <b>Different products can share factors.</b>  A number divided by one of its factors will result in a remainder of 0.	Determine the factors of a number within 100.  Describe a number as prime or composite.  Determine the first five multiples of a given number within 100.  Recognize the greatest common factor (greatest common divisor) of two numbers within 100.		<b>Zero is not represented in the Cree Language. However, “no more, all gone- mukway” is represented.</b>



Knowledge

Understanding

Skills &amp; Procedures

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Ways of Knowing
Other  
Suggestions

## GUIDING QUESTION

How can multiplication and division be interpreted?

## LEARNING OUTCOME

4N4 Students multiply and divide natural numbers within 10 000.

**Recall of multiplication and division number facts facilitates multiplication and division strategies.**

**Standard algorithms facilitate multiplication and division of natural numbers that have multiple digits.**

**Estimation can be used to check the reasonableness of a product or quotient.**

Multiplication and division strategies can be chosen based on the nature of the numbers.

**Recall and apply multiplication number facts, with factors to 12, and related division number facts.**

**Investigate patterns in multiplication and division of natural numbers by 10, 100, and 1000.**

Multiply and divide 3-digit natural numbers by 1-digit natural numbers using personal strategies.

**Examine standard algorithms for multiplication and division.**




Multiply and divide 3-digit natural numbers by 1-digit natural numbers using standard algorithms.


**Divide and express a quotient with or without a remainder.**






Investigate strategies for estimation of products and quotients.



Assess the reasonableness of a product or quotient using estimation.








**Solve problems using multiplication and division.**

 Knowledge	Understanding	Skills & Procedures	 Nehiyaw Ways of Knowing	Other Suggestions
<b>GUIDING QUESTION</b> <b>How can fractions be characterized in different ways?</b>				
<b>LEARNING OUTCOME</b> <b>4N5.1 Students apply equivalence to the interpretation of fractions.</b>				
<p><b>Equivalent fractions are associated with the same point on the number line.</b></p> <p><b>Equivalent fractions can be created by partitioning each equal part of a fraction in the same way.</b></p> <p><b>Partitioning a fraction can be interpreted as multiplying the numerator and denominator of a fraction by the same number.</b></p> <p><b>A fraction can be simplified to an equivalent form by dividing the numerator and denominator by a common factor.</b></p> <p><b>The numerator and denominator of a fraction in simplest form have no common factors.</b></p> <p><b>Dividing the numerator and denominator of a fraction by their greatest common factor will achieve simplest form.</b></p>	<p>There are infinitely many equivalent fractions that represent the same number.</p> <p>Exactly one of infinitely many equivalent fractions is in simplest form.</p>	<p>Model equivalent fractions by partitioning a whole in multiple ways.</p> <p>Determine fractions equivalent to a given fraction.</p> <p><b>Relate the position of equivalent fractions on the number line.</b></p> <p>Identify fractions in which the numerator and denominator have a common factor.</p> <p>Simplify a given fraction by dividing the numerator and denominator by a common factor.</p> <p><b>Express a fraction in simplest form.</b></p> <p><b>Compare and order fractions.</b></p>		<p> <b>Alberta Native Friendship Centres Association &amp; Be Fit For Life Network: Move &amp; Play Through Traditional Games (Inuit bone pull game)</b></p> <p><b>For a variation, with partners, place the object between your index fingers and each other. Tug of war with a partner. "Tug-off" with others until one person is left. Use data to explore the different fractions ie: girls who have the stick/ total students, boys with the object/ total.</b></p>


 Knowledge	Understanding	Skills & Procedures	ᑭᐱᑭᑦ Nehiyaw Ways of Knowing	Other Suggestions
<b>LEARNING OUTCOME</b> <b>4N5.2 Students apply equivalence to the interpretation of fractions.</b>				
<p><b>Fractions and decimal numbers can represent the same number.</b></p> <p><b>Decimals can be expressed as fractions with a denominator that is equivalent to the place value of the last non-zero digit of the decimal number.</b></p>	<p><b>Decimal numbers that terminate (do not repeat) are fractions with denominators of 10, 100, etc.</b></p> <p><b>Fractions and decimal numbers that represent the same number are associated with the same point on the number line.</b></p>	<p>Relate fractions and equivalent decimal numbers to their positions on the number line.</p> <p>Express fractions as decimal numbers and vice versa, limited to tenths and hundredths.</p>		
<b>GUIDING QUESTION</b> <b>How can percentages standardize part-whole relationships?</b>				
<b>LEARNING OUTCOME</b> <b>4N6 Students interpret percentages.</b>				
<p><b>Percentage is represented symbolically with %.</b></p> <p><b>Decimals can be expressed as percentages by multiplying by 100.</b></p> <p><b>Percentages can be expressed as decimals by dividing by 100.</b></p> <p><b>One percent represents one hundredth of a whole.</b></p>	<p><b>Fractions, decimals, and percentages can represent the same part-whole relationship.</b></p>	<p><b>Investigate percentage in familiar situations.</b></p> <p><b>Compare percentages within 100%.</b></p> <p><b>Express the fraction, decimal, and percentage representations of the same part-whole relationship.</b></p>		





 Knowledge	Understanding	Skills & Procedures	 Nehiyaw Ways of Knowing	Other Suggestions
<b>ORGANIZING IDEA</b>				
<b>PATTERNS: Awareness of patterns supports problem solving in various situations.</b>				
<b>GUIDING QUESTION</b>				
<b>How can sequences provide insight into change?</b>				
<b>LEARNING OUTCOME</b>				
<b>4P1.1 Students interpret and explain arithmetic and geometric sequences.</b>				
<p><b>The sequences of triangular and square numbers are examples of increasing sequences.</b></p> <p>The Fibonacci sequence is an increasing sequence that occurs in nature.</p>	<p><b>Sequences may increase or decrease.</b></p> <p>Different representations can provide new perspectives of the increase or decrease of a sequence.</p>	<p>Investigate increasing sequences, including the Fibonacci sequence, in multiple representations.</p> <p><b>Create and explain increasing or decreasing sequences, including numerical sequences.</b></p> <p>Express a numerical sequence to represent a concrete or pictorial sequence.</p>	<p>    <a href="#">Harvesting Medicines Series: Dandelion Harvest</a>      <a href="#">Legend of Dandelion</a> </p>	<p><b>Examine animal populations, finished bead work, diverse human populations.</b></p> <p><b>Identify sequences in games (e.g., stick game and bowl game); building activities (e.g., tipi, tripod), painting and patterning.</b></p>
<b>LEARNING OUTCOME</b>				
<b>4P1.2 Students interpret and explain arithmetic and geometric sequences.</b>				
<p><b>An arithmetic sequence progresses through addition or subtraction.</b></p> <p><b>A skip-counting sequence is an example of an arithmetic sequence.</b></p> <p><b>A geometric sequence progresses through multiplication.</b></p> <p><b>A geometric sequence begins at a number other than zero.</b></p>	<p><b>An arithmetic sequence has a constant difference between consecutive terms.</b></p> <p><b>A geometric sequence has a constant multiplicative change between consecutive terms.</b></p>	<p><b>Recognize arithmetic and geometric sequences.</b></p> <p><b>Describe the initial term and the constant change in an arithmetic sequence.</b></p> <p>Express the first five terms of an arithmetic sequence related to a given initial term and constant change.</p> <p><b>Describe the initial term and the constant change in a geometric sequence.</b></p> <p>Express the first five terms of a geometric sequence related to a given initial term and constant change.</p>		<p>    <a href="#">Gabriel Dumont Institute: Virtual Museum of Métis History and Culture: How to Fingerweave</a> </p>


 Knowledge	Understanding	Skills & Procedures	ᐅᐃᐅᐅᐅ Nehiyaw Ways of Knowing	Other Suggestions
<b>ORGANIZING IDEA</b>				
<b>ALGEBRA: Equations express relationships between quantities.</b>				
<b>GUIDING QUESTION</b>				
<b>How can equality create opportunities to reimagine number?</b>				
<b>LEARNING OUTCOME</b>				
<b>4A1.1 Students represent and apply equality in multiple ways.</b>				
<p>An expression can include multiple operations.</p> <p>The conventional order of operations provides a set of rules for evaluating expressions, including the following:</p> <ul style="list-style-type: none"> <li>• Multiplication and division are performed before addition and subtraction.</li> <li>• Multiplication and division are performed in order from left to right.</li> <li>• Addition and subtraction are performed in order from left to right.</li> </ul>	<p>There are infinitely many expressions that represent the same number.</p> <p>The order in which operations are performed can affect the value of an expression.</p>	<p>Evaluate expressions according to the order of operations.</p> <p>Create various expressions of the same number using one or more operations.</p>		
<b>LEARNING OUTCOME</b>				
<b>4A1.2 Students represent and apply equality in multiple ways.</b>				
<p>Equations can be solved through a process of adding, subtracting, multiplying, or dividing the same number on both sides of the equation (preservation of equality).</p>	<p>An equation is solved by determining an unknown value that makes the left and right sides of the equation equal.</p>	<p>Write equations to represent a situation involving one operation.</p> <p>Investigate preservation of equality using a <b>balance model</b>.</p> <p><b>Investigate preservation of equality using an equation without an unknown value.</b></p> <p><b>Apply preservation of equality to determine the unknown value in an equation, limited to equations with one operation.</b></p> <p><b>Solve problems using equations, limited to equations with one operation.</b></p>	<p> <b>Introduction to Traps and Snares Series: Rabbit Snares</b></p>	





 Knowledge	Understanding	Skills & Procedures	 Nehiyaw Ways of Knowing	Other Suggestions
<b>ORGANIZING IDEA</b>				
<b>TIME: Duration is described and quantified by time.</b>				
<b>GUIDING QUESTION</b>				
<b>What might be the relevance of duration to daily living?</b>				
<b>LEARNING OUTCOME</b>				
<b>4T1 Students communicate duration with standard units of time.</b>				
<p>Time of day can be expressed with fractions of a circle, including</p> <ul style="list-style-type: none"> <li>• quarter past the hour</li> <li>• half past the hour</li> <li>• quarter to the hour</li> </ul> <p>Duration can be determined by finding the difference between a start time and an end time.</p>	<p>Analog clocks can relate duration to a circle.</p>	<p>Relate durations of 15 minutes, 20 minutes, 30 minutes, 40 minutes, and 45 minutes to fractions of a circle.</p> <p>Express time of day using fractions.</p> <p>Determine duration in minutes using a clock.</p> <p>Apply addition and subtraction strategies to the calculation of duration.</p> <p>Convert between hours, minutes, and seconds.</p> <p>Compare the duration of events using standard units.</p> <p>Solve problems involving duration.</p>	<p>  <b>Legend of Night and Day</b></p> <p>  <b>13 Moons</b></p> <p> <b>Distance – Concept of Zero</b></p>	
<b>ORGANIZING IDEA</b>				
<b>MEASUREMENT: Attributes such as length, area, volume, and angle are quantified by measurement.</b>				
<b>GUIDING QUESTION</b>				
<b>How can area characterize space?</b>				
<b>LEARNING OUTCOME</b>				
<b>4M1.1 Students interpret and express area.</b>				
<p>Tiling is the process of measuring an area with many copies of a unit, without gaps or overlaps.</p> <p>The unit can be chosen based on the area to be measured.</p> <p>[continued...]</p>	<p>Area is a measurable attribute that describes the amount of two-dimensional space contained within a region.</p> <p>[continued...]</p>	<p>Model area by dragging a length using hands-on materials or digital applications.</p> <p>Recognize the rearrangement of area in First Nations, Métis, or Inuit design.</p> <p>[continued...]</p>		<p>Star blanket patterns</p>



 <b>Knowledge</b>	<b>Understanding</b>	<b>Skills &amp; Procedures</b>	ᐅᐃᐅ° <b>Nehiyaw Ways of Knowing</b>	<b>Other Suggestions</b>
<p>[continued...]</p> <p><b>Area can be measured with non-standard units or standard units.</b></p> <p><b>The area of a rectangle equals the product of its perpendicular side lengths.</b></p>	<p>[continued...]</p> <p><b>Area may be interpreted as the result of motion of a length.</b></p> <p><b>An area remains the same when decomposed or rearranged.</b></p> <p><b>Area is measured with equal-sized units that themselves have area and do not need to resemble the region being measured.</b></p> <p><b>The area of a rectangle can be perceived as square-shaped units structured in a two-dimensional array.</b></p>	<p>[continued...]</p> <p><b>Compare non-standard units that tile to non-standard units that do not tile.</b></p> <p><b>Measure area with non-standard units by tiling.</b></p> <p><b>Measure area with standard units by tiling with a square centimeter.</b></p> <p><b>Visualize and model the area of various rectangles as two-dimensional arrays of square-shaped units.</b></p> <p><b>Determine the area of a rectangle using multiplication.</b></p> <p><b>Solve problems involving area of rectangles.</b></p>		
<b>LEARNING OUTCOME</b> <b>4M1.2 Students interpret and express area.</b>				
<p>Area can be estimated using a referent for a square centimeter.</p>	<p><b>Area can be estimated when less accuracy is required.</b></p>	<p><b>Identify referents for a square centimeter.</b></p> <p><b>Estimate an area by visualizing a referent for a square centimeter.</b></p> <p><b>Estimate an area by rearranging or combining partial units.</b></p>		

 Knowledge	Understanding	Skills & Procedures	 Nehiyaw Ways of Knowing	Other Suggestions
<b>GUIDING QUESTION</b> <b>In what ways can angles be described?</b>				
<b>LEARNING OUTCOME</b> <b>4M2 Students determine and express angles using standard units.</b>				
<p><b>One degree represents 1/360 of the rotation of a full circle.</b></p> <p>Angles can be classified according to their measure:</p> <ul style="list-style-type: none"> <li>• <b>Acute angles measure less than 90°.</b></li> <li>• <b>Right angles measure 90°.</b></li> <li>• <b>Obtuse angles measure between 90° and 180°.</b></li> <li>• <b>Straight angles measure 180°.</b></li> </ul> <p>A benchmark is a known angle to which another angle can be compared.</p>	<p>Angles are quantified by measurement and based on the division of a circle.</p> <p>An angle is measured with equal- sized units that themselves are angles.</p>	<p><b>Measure an angle with degrees using a protractor.</b></p> <p><b>Describe an angle as acute, right, obtuse, or straight.</b></p> <p><b>Relate angles of 90°, 180°, 270°, and 360° to fractions of a circle.</b></p> <p><b>Estimate angles by comparing to benchmarks of 45°, 90°, 180°, 270°, and 360°.</b></p>	<p> <b>Introduction to Traps and Snares Series: Rabbit Snares</b></p>	<p><b>Determine angles in:</b></p> <ul style="list-style-type: none"> <li>• <b>Medicine Wheel (fractions, angles)</b></li> <li>• <b>Drum making (e.g., use sinew to measure and tie in angles; identify area, circumference)</b></li> </ul>
<b>ORGANIZING IDEA</b> <b>GEOMETRY: Shapes are defined and related by geometric attributes.</b>				
<b>GUIDING QUESTION</b> <b>In what ways can geometric properties define space?</b>				
<b>LEARNING OUTCOME</b> <b>4G1.1 Student analyze and explain geometric properties.</b>				
<p><b>Angle relationships, including supplementary and complementary, are geometric properties.</b></p> <p><b>Two angles that compose 90° are complementary angles.</b></p> <p><b>Two angles that compose 180° are supplementary angles.</b></p> <p>[continued...]</p>	<p><b>Geometric properties are measurable.</b></p> <p><b>Geometric properties define a hierarchy for classifying shapes.</b></p>	<p>Identify relationships between the sides of a polygon, including parallel, equal length, or perpendicular, by measuring.</p> <p>Identify relationships between angles within a polygon, including equal, supplementary, complementary, and sum of interior angles, by measuring.</p> <p>[continued...]</p>		<p> <b>Gabriel Dumont Institute: Virtual Museum of Métis History and Culture: How to Fingerweave</b></p>

 Knowledge	Understanding	Skills & Procedures	ᐅᐃᐅ° Nehiyaw Ways of Knowing	Other Suggestions
<p>[continued...]</p> <p><b>Quadrilaterals include</b></p> <ul style="list-style-type: none"> <li>• squares</li> <li>• rectangles</li> <li>• parallelograms</li> <li>• trapezoids</li> <li>• rhombuses</li> </ul> <p><b>Side length can be used to describe triangles as</b></p> <ul style="list-style-type: none"> <li>• equilateral</li> <li>• isosceles</li> <li>• Scalenes</li> </ul> <p><b>Triangles can be classified according to angle as</b></p> <ul style="list-style-type: none"> <li>• right</li> <li>• obtuse</li> <li>• acute</li> </ul>		<p>[continued...]</p> <p>Identify relationships between the faces of three-dimensional models of prisms, including parallel or perpendicular, by measuring.</p> <p>Describe triangles according to side length.</p> <p><b>Classify triangles as equilateral, isosceles, or neither using geometric properties related to sides.</b></p> <p><b>Classify triangles as right, acute, or obtuse using geometric properties related to angles.</b></p> <p><b>Classify quadrilaterals in a hierarchy according to geometric properties.</b></p>		
<b>LEARNING OUTCOME</b> <b>4G1.2 Student analyze and explain geometric properties.</b>				
<p>Many shapes in the environment resemble polygons.</p> <p><b>Transformations can be used to illustrate geometric properties of a polygon.</b></p>	<p>A shape resembling a polygon that does not share the defining geometric properties of the polygon is a close approximation.</p>	<p>Show, using geometric properties, that a close approximation of a polygon is not the same as the polygon.</p> <p><b>Verify geometric properties of polygons by translating, rotating, or reflecting using hands-on materials or digital applications.</b></p>		

	Knowledge	Understanding	Skills & Procedures	ᑭᐱᑦ Nehiyaw Ways of Knowing	Other Suggestions
<b>ORGANIZING IDEA</b>					
<b>STATISTICS: The science of collecting, analyzing, visualizing, and interpreting data can inform understanding and decision making.</b>					
<b>GUIDING QUESTION</b>					
<b>In what ways can communication be shaped by the choice of representation?</b>					
<b>LEARNING OUTCOME</b>					
<b>4ST1.1 Students evaluate the use of scale in graphical representations of data.</b>					
<p><b>A statistical problem-solving process includes</b></p> <ul style="list-style-type: none"> <li>• <b>formulating statistical questions</b></li> <li>• <b>collecting data</b></li> <li>• <b>representing data</b></li> <li>• <b>interpreting data</b></li> </ul>	<p><b>Representation is part of a statistical problem-solving process.</b></p>	<p>Engage in a statistical problem-solving process.</p>	<p>  <b>7 Year Cycle</b></p> <p> <b>Orienteering Series: Weather Indicators</b></p>	<p> <b>Alberta Native Friendship Centres Association &amp; Be Fit For Life Network: Move &amp; Play Through Traditional Games (Run and Scream game)</b></p> <p><b>Estimate and measure the distance one student can run, the distance the whole class can run. Graph the results with a bar graph, dot plots, circle graph.</b></p>	



Knowledge

Understanding

Skills &amp; Procedures

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 Ways of Knowing
Other  
Suggestions

## LEARNING OUTCOME

**4ST1.2 Students evaluate the use of scale in graphical representations of data.**

Many-to-one correspondence is the representation of many objects using one object or interval on a graph.

Graphs can include

- pictographs
- bar graphs
- dot plots

Representation can express many-to-one correspondence by defining a scale.

Different representations tell different stories about the same data.

Select an appropriate scale to represent data.

Represent data in a graph using many-to-one correspondence.

Describe the effect of scale on representation.

Justify the choice of graph used to represent certain data.

Compare different graphs of the same data.

Interpret data represented in various graphs.



[Learn Alberta: Science Grade 4 Lesson Plan](#) :

Collect, display and analyze data to solve problems. Construct and interpret pictographs and bar graphs involving many-to-one correspondence to draw conclusions.