

Unpacking the New Grade 5 Math: Architecture, Concepts and Key Documents



In the spirit of reconciliation, we want to acknowledge that this gathering is taking place on traditional lands across the province of Alberta, home to many diverse First Nations, Métis and Inuit peoples. We acknowledge that this land is a traditional meeting ground giving voice to its original peoples and the story of creation of this country in a way that history has forgotten.



Before we start:

- list the activities/assessments you undertake when you start Grade 5 in any given year.
- Why do you start at these points?



Kindergarten
... What's new?

Grade 1
... What's new?

Grade 2
... What's new?

Grade 3
... What's new?

Grade 4
... What's new?

Grade 5
... What's new?

Grade 6
... What's new?

Consider Bridging

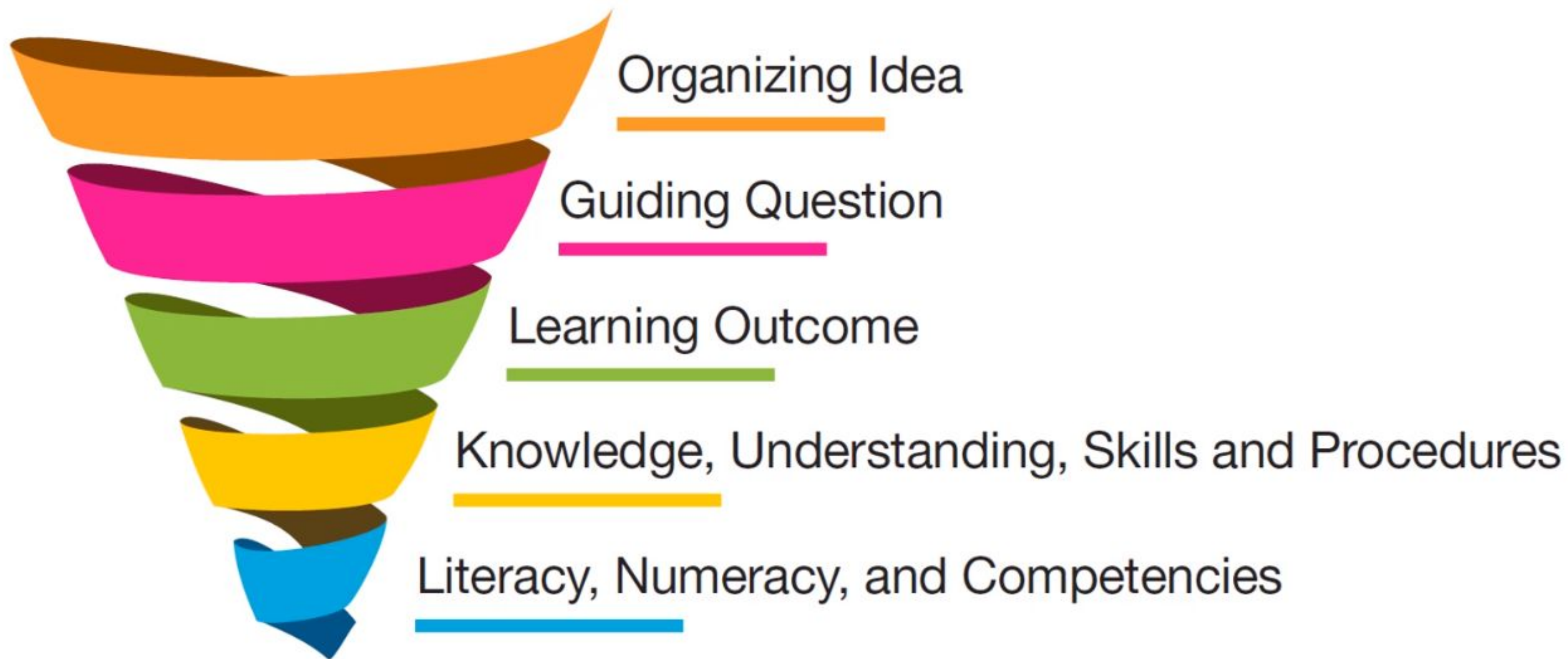
Jr. High Links



Grade 5 Document Overview

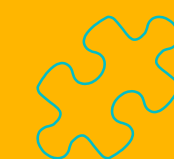


Architecture and Design of Provincial K–12 Curriculum



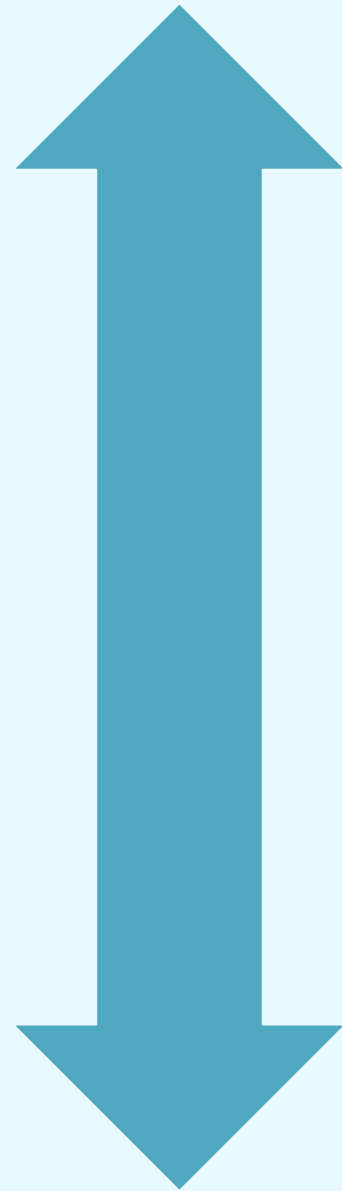
Document Overview

Numbered Outcomes
including Financial
Literacy Outcomes



Architecture of the Curriculum

Broad/General Idea or Understanding
More Specific Knowledge, Understandings,
and Skills



Broad/General Idea or Understanding

Organizing Idea

Guiding Question
&
Learner Outcome

- KUSPs
- Knowledge
 - Understanding
 - Skills & Processes

Organizing Idea

- statement of the learning
- spans all or most grades
- main concepts

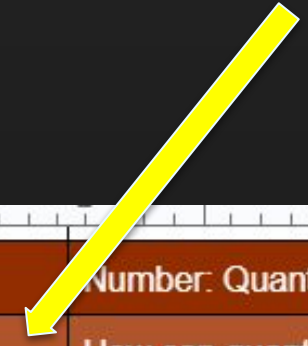
Organizing Idea	Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.								
Guiding Question	How can quantity contribute meaning to daily life?			How can quantity be communicated?			How can quantity contribute to a sense of number?		
Learning Outcome	KN1.1 Children investigate quantities to 10.			1N1.1 Students interpret and explain quantities to 100.			2N 1.1 Students analyze quantity to 1000.		
	Knowledge	Understanding	Skills & Procedures	Knowledge	Understanding	Skills & Procedures	Knowledge	Understanding	Skills & Procedures
	Quantity can be represented using objects pictures words numerals	Quantity can be the number of objects in a set.	Recognize a number of familiar objects as a quantity. Represent a quantity in different ways. Relate a numeral to a specific quantity.	A numeral is a symbol or group of symbols used to represent a number. The absence of quantity is represented by 0.	Quantity is expressed in words and numerals based on patterns. Quantity in the world is represented in multiple ways.	Represent quantities using words, numerals, objects, or pictures. Identify a quantity of 0 in familiar situations.	Any number of objects in a set can be represented by a natural number. The values of the places in a four-digit natural number are thousands, hundreds, tens, and ones. Places that have no value within a given number use zero as a placeholder. The number line is a spatial representation of quantity.	There are infinitely many natural numbers. Every digit in a natural number has a value based on its place. Each natural number is associated with exactly one point on the number line.	Represent quantities using words and natural numbers. Identify the digits representing thousands, hundreds, tens, and ones based on place in a natural number. Relate a number, including zero, to its position on the number line.

Organizing Ideas

Organizing Ideas	K	1	2	3	4	5	6
Number							
Algebra							
Geometry							
Coordinate Geometry							
Measurement							
Patterns							
Time							
Statistics							

Guiding Question

- informed by the organizing idea and frames the learning outcome
- intended to spark curiosity and wonder about the LO
- identifies more specific concepts



Organizing Idea									
Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.									
Guiding Question			How can quantity be communicated?				How can quantity contribute to a sense of number?		
Learning Outcome			1N1.1 Students interpret and explain quantities to 100.				2N 1.1 Students analyze quantity to 1000.		
Knowledge	Understanding	Skills & Procedures	Knowledge	Understanding	Skills & Procedures	Knowledge	Understanding	Skills & Procedures	
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Learning Outcome



- describes what students are required to know, understand, and be able to do by the end of a grade.
- must be assessed and reported.
- discipline (subject) specific
- key concepts to be learned and assessed are identified.

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KUSPs: Knowledge

- how facts and knowledge fit together in a logical and meaningful order
- organized knowledge to understand concepts, skills, and procedures which can be applied to new situations

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KUSPs: Understanding

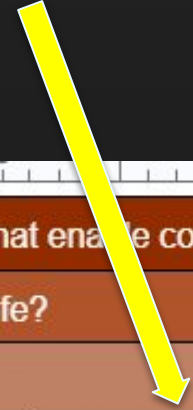
- Knowledge includes the facts, symbols, rules, principles, and concepts.



Organizing Idea	Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.								
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Learning Outcome	KN1.1 Children investigate quantities to 10.			1N1.1 Students interpret and explain quantities to 100.			2N 1.1 Students analyze quantity to 1000.		
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KUSPs: Skills & Procedures

- what students do to demonstrate their knowledge and understanding



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Numbered Outcomes

Mathematics K-6 Numbered Outcomes



Mathematics Kindergarten to Grade 6 Curriculum & Financial Literacy for K-2

	Grade 5			Grade 6		
Organizing Idea	Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.					
Guiding Question	How can the infinite nature of place value enhance insight into number?			How can the infinite nature of the number line broaden the perception of number?		
Learning Outcome	5N1 Students analyze patterns in place value.			6N1.1 Students investigate magnitude with positive and negative numbers.		
	Knowledge	Understanding	Skills & Procedures	Knowledge	Understanding	Skills & Procedures
	<p>A number expressed with more decimal places is more precise.</p> <p>A zero in the rightmost place of a decimal number does not change the value of the number.</p> <p>There are infinitely many decimal numbers between any two decimal numbers.</p>	<p>Place value symmetry extends infinitely to the left and right of the ones place.</p>	<p>Relate the names of place values that are the same number of places to the left and right of the ones place.</p> <p>Express numbers within 10 000 000, including decimal numbers to thousandths, using words and numerals.</p> <p>Relate a decimal number to its position on the number line.</p> <p>Determine a decimal number between any two other decimal numbers.</p> <p>Compare and order numbers, including decimal numbers.</p> <p>Express the relationship between two numbers, including decimal numbers, using $<$, $>$, or $=$.</p> <p>Round numbers, including decimal numbers, to various places according to context.</p>	<p>Negative numbers are to the left of zero on the number line visualized horizontally, and below zero on the number line visualized vertically.</p> <p>Positive numbers can be represented symbolically with or without a positive sign (+).</p> <p>Negative numbers are represented symbolically with a negative sign (-).</p> <p>Zero is neither positive nor negative.</p> <p>Negative numbers communicate meaning in context, including</p> <ul style="list-style-type: none"> ◦ temperature ◦ debt ◦ elevation <p>Magnitude is a number of units counted or measured from zero on the number line.</p> <p>Every positive number has an opposite negative number with the</p>	<p>Symmetry of the number line extends infinitely to the left and right of zero or above and below zero.</p> <p>Direction relative to zero is indicated symbolically with a positive or negative sign.</p> <p>Magnitude with direction distinguishes between positive and negative numbers.</p>	<p>Identify negative numbers in familiar contexts, including contexts that use vertical or horizontal models of the number line.</p> <p>Express positive and negative numbers symbolically, in context.</p> <p>Relate magnitude to the distance from zero on the number line.</p> <p>Relate positive and negative numbers, including additive inverses, to their positions on horizontal and vertical models of the number line.</p> <p>Compare and order positive and negative numbers.</p> <p>Express the relationship between two numbers, including positive and negative numbers, using $<$, $>$, or $=$.</p>

**Mathematics Kindergarten to Grade 6 Curriculum
& Financial Literacy for K-2**

	Grade 5			Grade 6		
Organizing Idea	Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.					
Guiding Question	How can the infinite nature of place value enhance insight into number?			How can the infinite nature of the number line broaden the perception of number?		
				6N1.2 Students investigate <u>magnitude</u> with positive and negative numbers.		
				Knowledge	Understanding	Skills & Procedures
				<p>The set of integers includes all natural numbers, their additive inverses, and zero.</p> <p>The sum of any number and its additive inverse is zero.</p> <p>The sum of two positive numbers is a positive number.</p> <p>The sum of two negative numbers is a negative number.</p> <p>The sum of a positive number and a negative number can be interpreted as the sum of zero and another number.</p>	<p>Any number can be expressed as a sum in infinitely many ways.</p>	<p>Investigate addition of an integer and its additive inverse.</p> <p>Express zero as the sum of integers in multiple ways.</p> <p>Model the sum of two positive integers.</p> <p>Model the sum of two negative integers.</p> <p>Model the sum of a positive and negative integer as the sum of zero and another integer.</p> <p>Add any two integers.</p>
				6N1.3 Students investigate <u>magnitude</u> with positive and negative numbers.		
				Knowledge	Understanding	Skills & Procedures
				<p>Subtracting a number is the same as adding its additive inverse.</p>	<p>The difference of any two numbers can be interpreted as a sum.</p>	<p>Express a difference as a sum.</p>

**Mathematics Kindergarten to Grade 6 Curriculum
& Financial Literacy for K-2**

	Grade 5			Grade 6		
Organizing Idea	Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.					
Guiding Question	How can the infinite nature of place value enhance insight into number?			How can the infinite nature of the number line broaden the perception of number?		
				6N1.2 Students investigate magnitude with positive and negative numbers.		
				Knowledge	Understanding	Skills & Procedures
				<p>The set of integers includes all natural numbers, their additive inverses, and zero.</p> <p>The sum of any number and its additive inverse is zero.</p> <p>The sum of two positive numbers is a positive number.</p> <p>The sum of two negative numbers is a negative number.</p> <p>The sum of a positive number and a negative number can be interpreted as the sum of zero and another number.</p>	<p>Any number can be expressed as a sum in infinitely many ways.</p>	<p>Investigate addition of an integer and its additive inverse.</p> <p>Express zero as the sum of integers in multiple ways.</p> <p>Model the sum of two positive integers.</p> <p>Model the sum of two negative integers.</p> <p>Model the sum of a positive and negative integer as the sum of zero and another integer.</p> <p>Add any two integers.</p>
				6N1.3 Students investigate magnitude with positive and negative numbers.		
				Knowledge	Understanding	Skills & Procedures
				<p>Subtracting a number is the same as adding its additive inverse.</p>	<p>The difference of any two numbers can be interpreted as a sum.</p>	<p>Express a difference as a sum.</p>

Language Conventions in the Curriculum



Language Conventions

Language Convention	Interpretation for Implementation	Example from Curriculum
including/include(s)	A list following “including” or “include(s)” contains required knowledge. Students must know all elements of the list in order to achieve the learning outcome.	Subtraction can be applied in various contexts, including <ul style="list-style-type: none">• comparing two quantities• taking away one quantity from another• finding a part of a whole
such as	A list following “such as” provides a list of illustrative examples that support the learning outcome. Teachers may use any of these examples, or they may choose others.	Right angles can be identified using various referents, such as <ul style="list-style-type: none">• the corner of a piece of paper• the angle between the hands on an analog clock at 3:00• a capital letter L
content in parentheses	Words in parentheses are subject-specific terms for teachers and parents. These words follow the associated age-appropriate terms for students.	A shape can change orientation or position through slides (translations), turns (rotations), or flips (reflections).

Verbs Are Defined by Context

Kindergarten: Number

LO: Children **interpret** compositions of quantities within 10.

Verbs from Associated Skills and Procedures

Identify
Compose
Recognize

Grade 1: Geometry

LO: Students **interpret** shape in two and three dimensions.

Verbs from Associated Skills and Procedures

Identify
Model
Sort
Compose
Decompose
Investigate

Grade 3: Number

LO: Students **interpret** fractions in relation to one whole.

Verbs from Associated Skills and Procedures

Model
Visualize
Identify
Name
Express
Compare

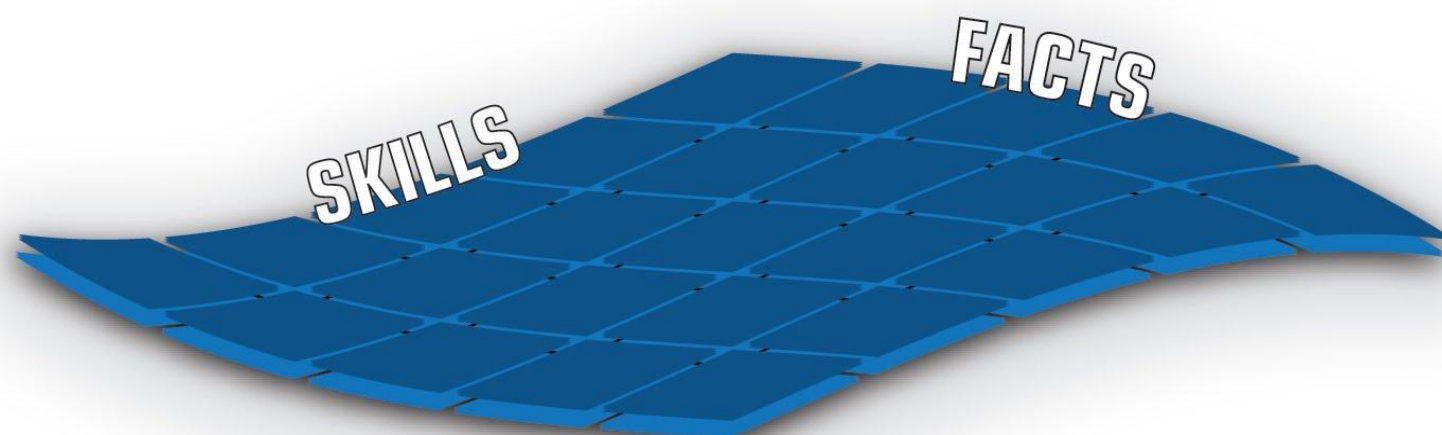
Finding Concepts



2D vs 3D

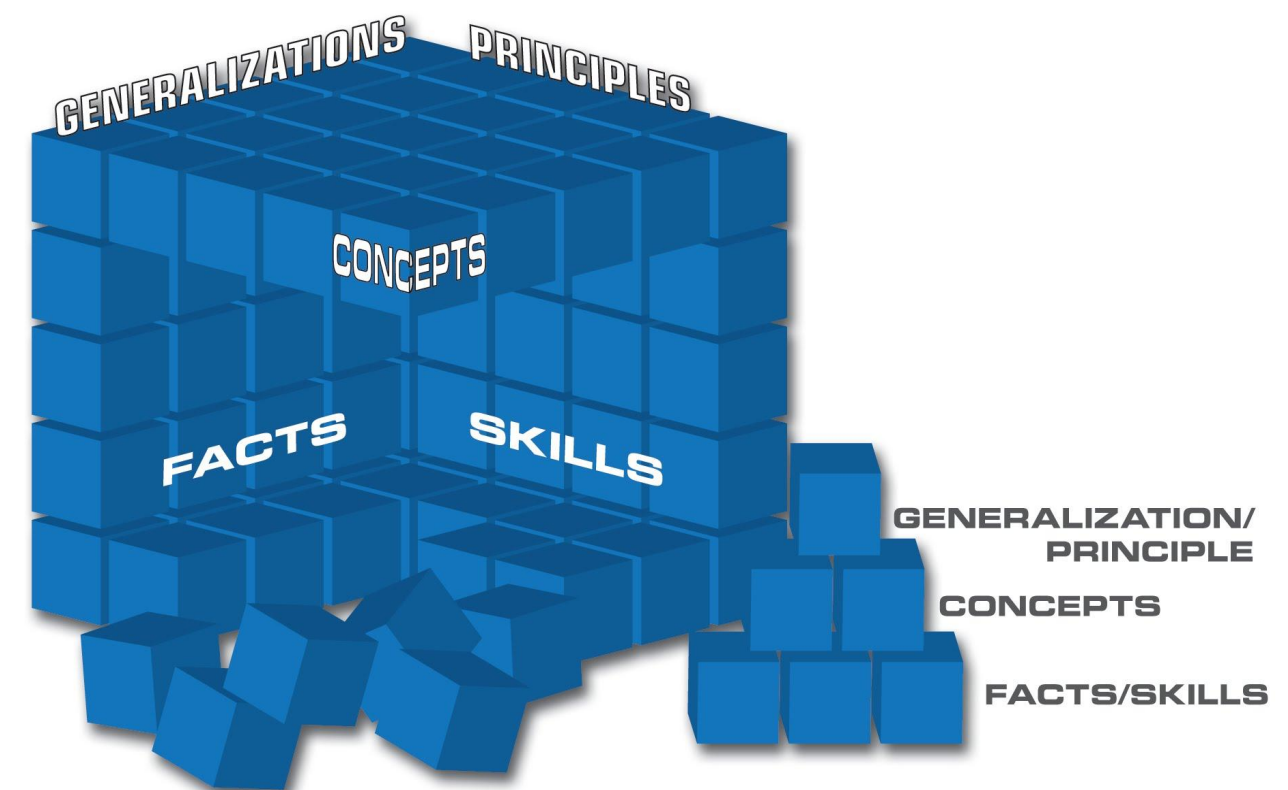
- ◆ **Coverage-centered**
“inch deep, mile wide”

2D CURRICULUM/INSTRUCTION TOPIC/SKILL-BASED MODEL



- ◆ **Idea-centered**
facts and skills provide a foundation to understand conceptual, transferable ideas

3D CURRICULUM/INSTRUCTION CONCEPT-BASED MODEL



2D vs 3D

2D

- ◆ **Intellectually shallow**

lacks a conceptual focus to ignite synergistic thinking

3D

- ◆ **Intellectual depth**

a “conceptual lens” or focus, requires mental processing between the lower and conceptual levels of thinking - producing intellectual depth and understanding

2D vs 3D

2D

- ◆ **Inability to transfer factual knowledge**
facts do not transfer; locked in time, place, or situation

3D

- ◆ **Intellectual depth**
a “conceptual lens” or focus, requires mental processing between the lower and conceptual levels of thinking - producing intellectual depth and understanding

So What is a Concept?



Concepts are...

- ◆ Timeless
- ◆ Universal
- ◆ Abstract
- ◆ Transferable



A concept is ...

- an organizing idea of 1 -2 words
- with distinct attributes
- that are shared across multiple examples



Chair is a Concept

Macroconcept
Character
English Language Arts

Micro-concepts

Protagonist

Antagonist

Confidante

Foil

Dynamic Character

Static Character

Macroconcept
Region
Geography

Micro-concepts

Physical
Environment

Landforms

Growth Rates

Cultural
Landscape

Topography

Macroconcept
Measurement
Mathematics

Micro-concepts

Units of Measure

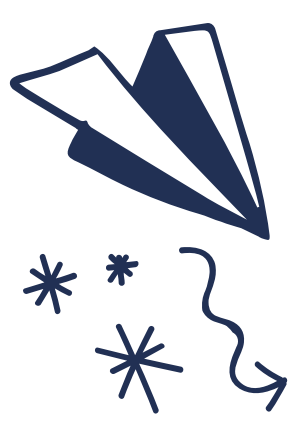
Standard unit

Conversion

Estimation

Linear Measure

Vectors



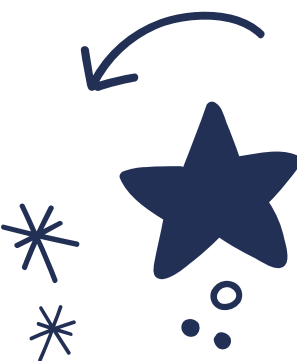
Concepts



Stern, J. *Conceptual Understanding in Classroom Practice*. Delivered 27 April 2020

“The reason experts remember more is that what novices see as separate pieces of information, experts see as organized sets of ideas.”

How Students Learn, 2001
National Research Council



Organizing Idea	Number: Quantity is measured with numbers that enable counting, labelling, comparing, and operating.
Guiding Question	How can the infinite nature of place value enhance insight into number?
Learning Outcome	5N1 Students analyze patterns in place value.

	Knowledge	Understanding	Skills & Procedures
	<p>A number expressed with more decimal places is more precise.</p> <p>A zero in the rightmost place of a decimal number does not change the value of the number.</p> <p>There are infinitely many decimal numbers between any two decimal numbers.</p>	<p>Place value symmetry extends infinitely to the left and right of the one's place.</p>	<p>Relate the names of place values that are the same number of places to the left and right of the ones place.</p> <p>Express numbers within 10 000 000, including decimal numbers to thousandths, using words and numerals.</p> <p>Relate a decimal number to its position on the number line.</p> <p>Determine a decimal number between any two other decimal numbers.</p> <p>Compare and order numbers, including decimal numbers.</p> <p>Express the relationship between two numbers, including decimal numbers, using $<$, $>$, or $=$.</p> <p>Round numbers, including decimal numbers, to various places according to context.</p>

5N1 Students analyze **patterns** in **place value**.

Knowledge	Understanding	Skills & Procedures
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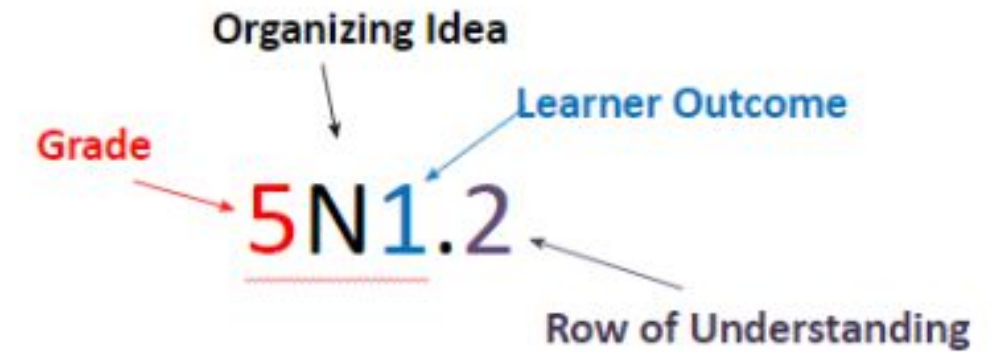


**Curriculum
Comparison
Document**



**Alberta Grade 5 Mathematics
Curriculum Comparison
Document
2023 - 2024**

Grade 5 Curriculum Comparison to the New Alberta Curriculum



N = Number

P= Patterns

M = Measurement

Geometry = G

Statistics = ST

Coordinate Geometry = CG

Outcomes from 2007 Curriculum	Understandings from April Draft (New Understandings)	Draft Outcomes, Knowledge, Skills and Procedures	
Number Strand	NUMBER (N)		
<p>Specific Outcome 1 Represent and describe whole numbers to 1 000 000.</p> <p>Specific Outcome 2 Use estimation strategies in problem-solving contexts</p> <p>Specific Outcome 11 Demonstrate an understanding of addition and subtraction of decimals (limited to</p>	<p>UNDERSTANDING Addition and subtraction of numbers with many digits is facilitated by standard algorithms.</p>	<p>LEARNING OUTCOME 5N2 Students add and subtract within 1 000 000, including decimal numbers to thousandths, using standard algorithms.</p> <p>KNOWLEDGE Standard algorithms are efficient procedures for addition and subtraction.</p>	<p>SKILLS & PROCEDURES Add and subtract numbers, including decimal numbers, using standard algorithms.</p> <p>Assess the reasonableness of a sum or difference by estimating.</p> <p>Solve problems using addition and subtraction, including problems involving money.</p>

<p>division facts.</p>			
<p>Specific Outcome 4 Apply mental mathematics strategies for multiplication.</p> <p>Specific Outcome 5 Demonstrate, with and without concrete materials, an understanding of multiplication (2-digit by 2-digit) to solve problems.</p> <p>Specific Outcome 6 Demonstrate, with and without concrete materials, an understanding of division (3-digit by 1-digit), and interpret remainders to solve problems.</p>	<p>UNDERSTANDING Standard algorithms are efficient procedures for multiplication and division.</p>	<p>LEARNING OUTCOME 5N4 Students multiply and divide natural numbers within 100 000, including with standard algorithms.</p> <p>KNOWLEDGE Multiplication and division of numbers with many digits is facilitated by standard algorithms</p>	<p>SKILLS & PROCEDURES Explain the standard algorithms for multiplication and division of natural numbers.</p> <p>Multiply up to 3-digit by 2-digit natural numbers using standard algorithms.</p> <p>Divide 3-digit by 1-digit natural numbers using standard algorithms.</p> <p>Express a quotient with or without a remainder according to context.</p> <p>Assess the reasonableness of a product or quotient using estimation.</p> <p>Solve problems using multiplication and division of natural numbers.</p>
<p>Specific Outcome 7</p> <p>Demonstrate an understanding of fractions by using concrete, pictorial and symbolic representations to:</p> <ul style="list-style-type: none"> • create sets of equivalent fractions • compare fractions with like and unlike denominators. 			
<p>Specific Outcome 8</p> <p>Describe and represent decimals (tenths, hundredths, thousandths) concretely</p>			

Specific Outcome 10

Compare and order decimals (to thousandths) by using:

- benchmarks
- place value
- equivalent decimals.

UNDERSTANDING

Place value symmetry extends infinitely to the left and right of the one's place.

LEARNING OUTCOME

5N1 Students analyze patterns in place value.

KNOWLEDGE

A number expressed with more decimal places is more precise.

A zero in the rightmost place of a decimal number does not change the value of the number.

There are infinitely many decimal numbers between any two decimal numbers.

SKILLS & PROCEDURES

Relate the names of place values that are the same number of places to the left and right of the ones place.

Express numbers within 10 000 000, including decimal numbers to thousandths, using words and numerals.

Relate a decimal number to its position on the number line.

Determine a decimal number between any two other decimal numbers.

Compare and order numbers, including decimal numbers.

Express the relationship between two numbers, including decimal numbers, using $<$, $>$, or $=$.

Round numbers, including decimal numbers, to various places according to context.

UNDERSTANDING

A number is divisible by another number if it can be divided with a remainder of 0

LEARNING OUTCOME

5N3 Students determine divisibility of natural numbers.

KNOWLEDGE

A divisibility test can be used to determine factors of a natural number.

Division by zero is not possible

SKILLS & PROCEDURES

Investigate divisibility by natural numbers to 10, including 0.

Generalize divisibility tests for 2, 3, and 5.

Determine factors of natural numbers using divisibility test

UNDERSTANDING

Fractions allow counting and measuring between whole quantities.

Improper fractions and mixed numbers that represent the same number are associated with the same point on the number line.

LEARNING OUTCOME

5N5 Students interpret improper fractions.

KNOWLEDGE

A fraction can represent quantities greater than one.

An improper fraction has a numerator that is greater than its denominator.

SKILLS & PROCEDURES

Relate fractions, improper fractions, and mixed numbers to their positions on the number line.

Count beyond 1 using fractions with the same denominator.

Model fractions, including improper fractions and mixed numbers, using quantities, lengths, and areas.

[LINK](#)



**Sample Year
at a Glance**

The purpose of this document is to provide

- a possible Year Plan for organizing your units of instruction
- a possible approach to scaffolding the learning that students will need if they do not have the prerequisite knowledge. Sections highlighted in yellow suggest starting points for addressing the Learner Outcome at a more appropriate entry level.
- a tool to access definitions and meanings of mathematical terms. Click on any word in blue for a definition. .

Alberta Mathematics Sample Interactive Year Plan

Grade 5

What is Mathematics?

Mathematics is a universal language relying on a shared understanding of symbols and procedures to communicate ideas efficiently. It is a powerful tool used every day to solve real-life problems. The beauty of mathematics inspires curiosity about our world and the universe. As a subject, mathematics has historical roots in many cultures and continues to evolve in support of innovations. Mathematics involves learning across various disciplines, including arithmetic, algebra, geometry, statistics, and probability. In all disciplines, procedures may range from counting, calculating, and measuring to analyzing, modelling, and generalizing. Engaging with mathematics allows students to develop logical thinking skills, which contribute to effective decision making and problem solving. Students are able to extend their thinking beyond personal experiences through flexible and collaborative learning opportunities. Experiences with mathematics help students develop appreciation for the patterns and relationships that describe multiple aspects of the world and its future possibilities. Numeracy is a foundational building block of learning and is developed in all subjects in different ways. Central to the development of numeracy, the mathematics curriculum helps students acquire and apply the knowledge and skills necessary to interact with quantitative and spatial information in a variety of situations. Foundational numeracy focuses on counting, comparing, and calculating* with numbers; describing, representing, and measuring shapes and objects; collecting, organizing, and interpreting data; and creating and interpreting diagrams, graphs, and tables. Numeracy skills support real-life pursuits, including telling time, using and managing money, following instructions, finding an address, and reading a schedule. With a focus on numeracy, the mathematics curriculum provides all students with a solid foundation of mathematical knowledge, understanding, and skills to set them up for future success.

Mathematics education is an ongoing process of connecting students' concrete experiences to their comprehension of abstract concepts. A recognition of numbers and their application to counting and comparing form foundational knowledge and skills for students as they encounter a variety of quantitative information in their lives. The development of these skills supports students as they participate in family, community, and cultural activities. As their experiences broaden, students also learn that operations with numbers provide reliable and efficient options to counting and comparing. Students acquire knowledge of basic number facts that can be applied to addition, subtraction, multiplication, and division of larger numbers using commonly recognized algorithms. Students also communicate using conventional mathematical symbols and vocabulary. As students are exposed to more and varied quantitative information, they learn about different number systems and their applications to various situations, such as decimals for money and integers for temperature. In developing algebraic thinking skills, students transfer their understanding of properties of numbers to new or abstract problems.

September 2023

November 2023

September

October

November

Number: Quantity is measured with numbers that enable counting, labelling, comparing and operating. (use money as concept/manipulative and consider FL)

5N1 Students analyze patterns in place value

- Place value symmetry extends infinitely to the left and right of the ones place. (introduce with basic money skills/fractions initially - unit fractions of denominator 10 & 100, number lines)
*** students will need time to learn and be fluent with money concepts first

5N2 Students add and subtract within 1 000 000, including decimal numbers to thousandths, using standard algorithms.

- Addition and subtraction of numbers with many digits is facilitated by standard algorithms. (initially whole numbers to 100 - 1 000)

5N4 Students multiply and divide natural numbers within 100 000, including with standard algorithms. (limit to math facts of 12x12 review, 2 digit x 1 and 2 digit multiplication)

- Standard algorithms are efficient procedures for multiplication and division.

* Review of math facts with different strategies should be ongoing

5N1 Students analyze patterns in place value

- Place value symmetry extends infinitely to the left and right of the one's place. (introduce to hundredths in context, number lines, finding numbers between, compare and order with emphasis on money, dollars and cents)
*** students will need time to learn and be fluent with money concepts first

5N2 Students add and subtract within 1 000 000, including decimal numbers to thousandths, using standard algorithms.

- Addition and subtraction of numbers with many digits is facilitated by standard algorithms. (money values (\$1.00 - \$1000.00))

5N4 Students multiply and divide natural numbers within 100 000, including with standard algorithms. (limit to math facts of 12 x12 review, 2 digit x 1 and 2 digit multiplication)

- Standard algorithms are efficient procedures for multiplication and division.

* Review of math facts with different strategies should be ongoing

5N1 Students analyze patterns in place value

- Place value symmetry extends infinitely to the left and right of the one's place. (introduce to thousandths in context, number lines, finding numbers between, compare and order, rounding)

5N2 Students add and subtract within 1 000 000, including decimal numbers to thousandths, using standard algorithms.

- Addition and subtraction of numbers with many digits is facilitated by standard algorithms. (estimation included)

5N3 Students determine divisibility of natural numbers

- A number is divisible by another number if it can be divided with a remainder of 0.

5N4 Students multiply and divide natural numbers within 100 000, including with standard algorithms.

- Standard algorithms are efficient procedures for multiplication and division (2 digit by 1 digit).

* Review of math facts with different strategies should be ongoing

Sample Year at a Glance: Mathematics - Grade 5

September 2023 ----- November 2023		
September	October	November
<p>Geometry: Shapes are defined and related by geometric attributes.</p>		
<p>5G1.1 Students investigate symmetry as a geometric property (also tie into number line and place value, no rotational symmetry - see grade 2 folder for some ideas as well)</p> <ul style="list-style-type: none"> • Symmetry is a property of shapes. • Symmetry can be created and can occur in nature. (ensure use of visuals for symmetry- see Grade 2 folder for some ideas as well) 		<p>5G1.1 Students investigate symmetry as a geometric property</p> <ul style="list-style-type: none"> • Symmetry is a property of shapes. • Symmetry can be created and can occur in nature. <p>5G1.2 Students investigate symmetry as a geometric property.</p> <ul style="list-style-type: none"> • Symmetry is related to other geometric properties.
<p>Coordinate Geometry: Location and movement of objects in space can be communicated using a coordinate grid.</p>		
	<p>5CG1 Students relate location to position on a grid.</p> <ul style="list-style-type: none"> • Location can describe the position of shapes in space. • Location can be described precisely using a coordinate grid. 	
<p>Algebra: Equations express relationships between quantities.</p>		
	<p>5A1.1 Students interpret numerical and algebraic expressions. (tie into math facts, review order of operations)</p> <ul style="list-style-type: none"> • Numerical expressions represent a quantity of known value. • Parentheses change the order of operations in a numerical expression 	<p>5A1.1 Students interpret numerical and algebraic expressions (5N2 link)</p> <ul style="list-style-type: none"> • Numerical expressions represent a quantity of known value. • Parentheses change the order of operations in a numerical expression

Sample Year at a Glance: Mathematics - Grade 5

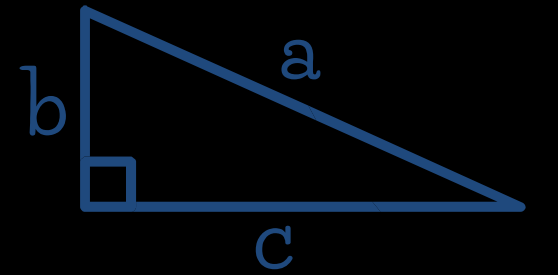
December 2023 ----- January 2024		
December	January	February
<p>Number: Quantity is measured with numbers that enable counting, labelling, comparing and operating.</p>		
<p>5N4 Students multiply and divide natural numbers within 100 000, including with standard algorithms.</p> <ul style="list-style-type: none"> Standard algorithms are efficient procedures for multiplication and division (begin with 3 digit by 1 digit, include alternate strategies for division). <p>* Review of math facts with different strategies should be ongoing</p>	<p>5N5 Students interpret improper fractions.</p> <ul style="list-style-type: none"> Fractions allow counting and measuring between whole quantities. (begin with review of multiple different unit fractions on a number line, money could be the starting focus) Improper fractions and mixed numbers that represent the same number are associated with the same point on the number line. (leave for later) <p>* Review of math facts with different strategies should be ongoing</p>	<p>5N5 Students interpret improper fractions.</p> <ul style="list-style-type: none"> Fractions allow counting and measuring between whole quantities. Improper fractions and mixed numbers that represent the same number are associated with the same point on the number line. (interpret related to money initially) <p>5N6 Students add and subtract fractions with common denominators.</p> <ul style="list-style-type: none"> Fractions with common denominators are multiples of the same unit fraction. Properties for addition and subtraction of natural numbers apply to fractions. <p>* Review of math facts with different strategies should be ongoing</p>
<p>Algebra: Equations express relationships between quantities.</p>		
<p>5A1.1 Students interpret numerical and algebraic expressions (link with 5N4)</p> <ul style="list-style-type: none"> Numerical expressions represent a quantity of known value. Parentheses change the order of operations in a numerical expression <p>LINKS</p>		<p>5A1.2 Students interpret numerical and algebraic expressions.</p> <ul style="list-style-type: none"> Algebraic expressions use variables to represent quantities of unknown value. Algebraic expressions may be composed of one algebraic term or the sum of algebraic and constant terms. (focus more on expressions and writing them in real contexts)

$2+2=4$

$42:9$

x

Taking Inventory



+

+

%

5N1 Students analyze patterns in place value.

Knowledge	Understanding	Skills & Procedures
<p>A number expressed with more decimal places is more precise.</p> <p>A zero in the rightmost place of a decimal number does not change the value of the number.</p> <p>There are infinitely many decimal numbers between any two decimal numbers.</p>	<p>Place value symmetry extends infinitely to the left and right of the one's place.</p>	<p>Relate the names of place values that are the same number of places to the left and right of the ones place.</p> <p>Express numbers within 10 000 000, including decimal numbers to thousandths, using words and numerals.</p> <p>Relate a decimal number to its position on the number line.</p> <p>Determine a decimal number between any two other decimal numbers.</p> <p>Compare and order numbers, including decimal numbers.</p> <p>Express the relationship between two numbers, including decimal numbers, using <, >, or =.</p> <p>Round numbers, including decimal numbers, to various places according to context.</p>

Notes: How do you leverage money? $2+2=4$

- Work within 100, leave decimals out initially
- Learn money and values
- Put together 2 digit whole number dollar amounts
- Count out bills to end in a 2-digit whole dollar amount
- Make change to a dollar, \$5.00, \$10.00, change for \$100.00
- Addition and subtraction by counting back change
- Compare money amounts
- Describe a 2 digit/3 digit dollar, amount in place value terms
- Practice reading and writing 3 digit numbers - relate to \$100/\$10/loonies
- Regroup money - use mats *** must be comfortable and fluent in money
- Dice rolling, write largest number and smallest number
- Multiply dice
- Subitizing cards

5N1 Students analyze patterns in place value

- Place value symmetry extends infinitely to the left and right of the ones place. (introduce with basic money skills/fractions initially - unit fractions of denominator 10 & 100, number lines)

5N1 Students analyze patterns in place value

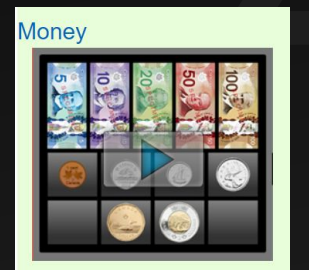
- Place value symmetry extends infinitely to the left and right of the one's place. (introduce to hundredths in context, number lines, finding numbers between, compare and order)

Additional Starting Points






MONEY

APP



Place Value Chart Beginning with Money (Loonie, \$5, \$10, \$50, \$100)

$$\square + \square + \square + \square + \square$$

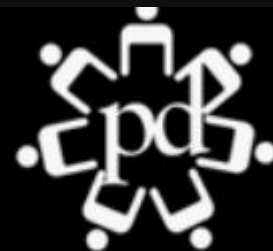


Resource Folder

Parent [Summary](#)

www.arpdc.ab.ca

www.movingforwardcurriculum.ca (Shutting down June 30)



Alberta Regional Consortium

Planning Sessions

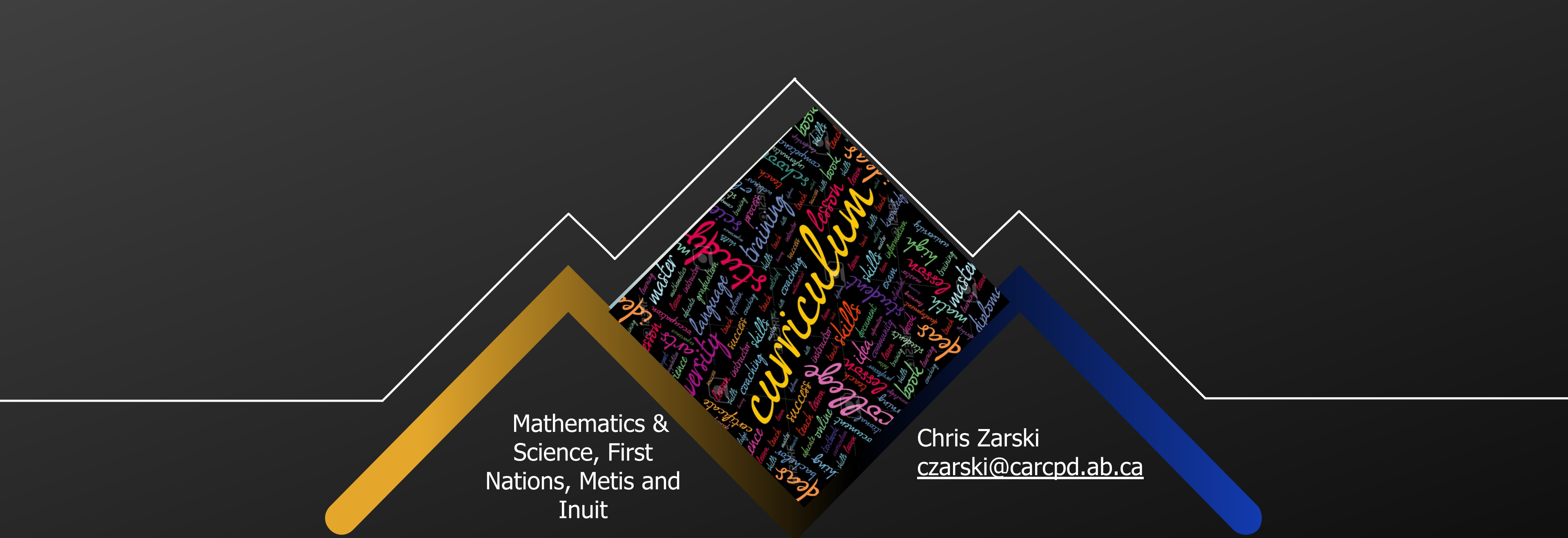
Session 1 - Sept/Oct June 6

Session 2 - Nov/Dec Oct 24

Session 3 - Jan/Feb Dec 5

Session 4 - Mar/Apr Feb 20

Session 5 - May/June April 17



Mathematics &
Science, First
Nations, Metis and
Inuit

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Thank You!

Please don't hesitate to connect.