The purpose of this document is to provide a possible Year Plan for organizing your units of instruction but more importantly, it provides 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. Students will require sufficient time to access prior knowledge so a spiralled approach to the Learner Outcomes will likely be necessary.

Alberta Mathematics Sample Year Plan

Grade 2

This resource has been created by Teachers/Administrators/Directors/Consultants from Zone 4 and SAPDC. The purpose is to provide a common starting point for the new K-3 Mathematics Curriculum being implemented in September 2022. This is a guide which will also be used to offer targeted Professional learning based on the approximate schedules contained within.

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, Quantitative Information and Spatial Infor mation

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 understandings of properties of number to new or abstract problems.

Although mathematics is often considered the study of numbers, it also provides the tools to interpret spatial information in the world. The earliest mathematical experiences of children involve exploration of the space and objects around them. Mathematics provides the foundations for precisely describing, defining, and measuring spatial information. Students will learn geometric properties that relate to and distinguish shapes. They will also develop an understanding of measurement, progressing from direct comparison, to the use of non-standard units of measure, to accurately measuring with various standard units and tools. Examining shapes through measures and calculations of length, area, volume, and angle will allow students to build a broad understanding of spatial information. Students will extend their application of spatial knowledge and skills from concrete to abstract situations, precisely describing location and movement of shapes in a plane. They will develop knowledge of geometric properties, theorems, and formulas to appreciate complex patterns within traditional cultural designs, to solve immediate real-life problems, and to propose innovations.

Throughout the study of mathematics, students apply their foundational knowledge, understandings, skills, and procedures to solve problems. They visualize and reason to move from what is known to what is sought. Thinking logically about a problem, choosing a strategy, reaching a conclusion, and justifying the solution helps students develop confidence in their mathematical thinking and decision making. These processes are reinforced by both literacy and numeracy skills and continue to develop throughout students' lives to support a wide variety of needs, such as financial literacy.

The foundational knowledge and skills provided by the mathematics curriculum are important contributions to the future success of students. Students will apply abilities in computation, managing information, reasoning, and problem solving in daily life and in future educational pursuits and careers. Mathematics will help students interact in society with confidence and intellectual curiosity. Students will rely on their mathematical knowledge and skills as they continue into adulthood in our interconnected and ever changing world. *Note: Learning outcomes in the Mathematics Kindergarten to Grade 6 Curriculum are intended to be achieved without the support of calculators.

Sample Year Plan: Mathematics - Grade 2

September 2022 ---------- November 2022

September	October	November
Number: Quantity is measured with numbers that enable counting, labelling, comparing and operating.		
2N1.1 Students analyze quantity to 1000. (20-50) ● 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. 2N1.3 Students analyze quantity to 1000.(100) ● All natural numbers are either even or odd.	2N1.1 Students analyze quantity to 1000.(100) ● 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. 2N1.2 Students analyze quantity to 1000.(20-50) ● A quantity can be interpreted as a composition of groups. 2N1.3 Students analyze quantity to 1000.(100) ● All natural numbers are either even or odd.	2N1.1 Students analyze quantity to 1000. ● 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. 2N1.2 Students analyze quantity to 1000.(100) ● A quantity can be interpreted as a composition of groups. 2N1.3 Students analyze quantity to 1000.(100) ● All natural numbers are either even or odd. 2N1.4 Students analyze quantity to 1000.(100) ● A quantity can be estimated when an exact count is not needed. 2N2.1 Students investigate addition and subtraction within 100. ● A sum can be composed in multiple ways. (no regrouping) 2N3.1 Students interpret part whole relationships using unit fractions. ● Fractions can represent part-to- whole relationships.

September 2022 ---------- November 2022

September	October	November
		• One whole can be interpreted as a number of unit fractions. (example: 2 50cents pieces make 100 • 10 dimes $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ …)
Patterns: Awareness of patterns supports problem solving in various situations.		
		2P1.1 Students explain and generalize patterns in a variety of contexts.. • A pattern can show increasing or decreasing change. • A pattern is more evident when the elements are represented, organized, aligned, or oriented in familiar ways.
Time: Duration is described and quantified with time.		
2T1.1 Students relate duration to time. • Time can be communicated in various ways. • Duration is the measure of an amount of time from beginning to end. Ongoing	2T1.1 Students relate duration to time. • Time can be communicated in various ways. • Duration is the measure of an amount of time from beginning to end. Ongoing	2T1.1 Students relate duration to time. • Time can be communicated in various ways. • Duration is the measure of an amount of time from beginning to end. Ongoing
Measurement: Attributes such as length, area, volume, and angle are quantified by measurement		

Sample Year Plan: Mathematics - Grade 2

September 2022 ---------- November 2022

September	October	November
Geometry: Shapes are defined by geometric attributes.		
2G1.1a Students analyze and explain geometric attributes of shape. ● Shapes are defined according to geometric attributes.	2G1.1a Students analyze and explain geometric attributes of shape. ● Shapes are defined according to geometric attributes.	2G1.1a Students analyze and explain geometric attributes of shape. ● Shapes are defined according to geometric attributes.

Sample Year Plan: Mathematics - Grade 2

December 2022 ---------- February 2023

December	January	February
Number: Quantity is measured with numbers that enable counting, labelling, comparing and operating.		
2N1.1 Students analyze quantity to 1000. ● 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. 2N1.2 Students analyze quantity to 1000.(100) ● A quantity can be interpreted as a composition of groups. 2N1.3 Students analyze quantity to 1000. ● All natural numbers are either even or odd. 2N1.4 Students analyze quantity to 1000. ● A quantity can be estimated when an exact count is not needed. 2N1.5 Students analyze quantity to 1000. ● Inequality is an imbalance between two quantities. 2N2.1 Students investigate addition and subtraction within 100. ● A sum can be composed in multiple ways. (no regrouping) 2N3.1 Students interpret part whole relationships using unit fractions. ● Fractions can represent part-to-whole relationships.	2N1.1 Students analyze quantity to 1000. ● 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. 2N1.2 Students analyze quantity to 1000.(100 working to 1000) ● A quantity can be interpreted as a composition of groups. 2N1.3 Students analyze quantity to 1000. ● All natural numbers are either even or odd. 2N1.4 Students analyze quantity to 1000. ● A quantity can be estimated when an exact count is not needed. 2N1.5 Students analyze quantity to 1000. ● Inequality is an imbalance between two quantities. 2N2.1 Students investigate addition and subtraction within 100. ● A sum can be composed in multiple ways. (no regrouping) . 2N3.1 Students interpret part whole relationships using unit fractions. ● Fractions can represent part-to-whole relationships.	2N1.1 Students analyze quantity to 1000. ● 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. 2N1.2 Students analyze quantity to 1000.(100 working to 1000) ● A quantity can be interpreted as a composition of groups. 2N1.3 Students analyze quantity to 1000. ● All natural numbers are either even or odd. 2N1.4 Students analyze quantity to 1000. ● A quantity can be estimated when an exact count is not needed. 2N1.5 Students analyze quantity to 1000. ● Inequality is an imbalance between two quantities. 2N2.1 Students investigate addition and subtraction within 100. (start regrouping) ● A sum can be composed in multiple ways. 2N3.1 Students interpret part whole relationships using unit fractions. ● Fractions can represent part-to-whole relationships.

December 2022 ---------- ---------- February 2023

December	January	February
• One whole can be interpreted as a number of unit fractions.	• One whole can be interpreted as a number of unit fractions.	• One whole can be interpreted as a number of unit fractions.
Patterns: Awareness of patterns supports problem solving in various situations.		
2P1.1 Students explain and analyze patterns in a variety of contexts. • A pattern can show increasing or decreasing change. • A pattern is more evident when the elements are represented, organized, aligned, or oriented in familiar ways.	2P1.2 Students explain and analyze patterns in a variety of contexts. • A pattern core can vary in complexity.	2P1.2 Students explain and analyze patterns in a variety of contexts. • A pattern core can vary in complexity.
Time: Duration is described and quantified with time.		
2T1.2 Students relate duration to time. • Duration is quantified by measurement.(calendar related)	2T1.2 Students relate duration to time. • Duration is quantified by measurement. (calendar related)	2T1.2 Students relate duration to time. • Duration is quantified by measurement. (calendar related)
Measurement: Attributes such as length, area, volume, and angle are quantified by measurement.		
1M1.1 Students relate length to the understanding of size. • Length is quantified by measurement. • Length is measured with equal-sized units that themselves have length. • The number of units required to measure a length is inversely related to the size of the unit.	1M1.1 Students relate length to the understanding of size. • Length is quantified by measurement. • Length is measured with equal-sized units that themselves have length. • The number of units required to measure a length is inversely related to the size of the unit.	1M1.1 Students relate length to the understanding of size. • Length is quantified by measurement. • Length is measured with equal-sized units that themselves have length. • The number of units required to measure a length is inversely related to the size of the unit.

Sample Year Plan: Mathematics - Grade 2

December 2022 ---------- February 2023

December	January	February
1M1.2 Students relate length to the understanding of size ● Length can be estimated when a measuring tool is not available.	1M1.2 Students relate length to the understanding of size ● Length can be estimated when a measuring tool is not available.	1M1.2 Students relate length to the understanding of size ● Length can be estimated when a measuring tool is not available.
Geometry: Shapes are defined by geometric attributes.		
.		2G1.1 Students analyze and explain geometric attributes of shape. ● Shapes are defined according to geometric attributes. ● A shape can be visualized as a composition of other shapes.

Sample Year Plan:Mathematics Grade 2

March 2023 ---------- June 2023

March	April	May	June
Number: Quantity is measured with numbers that enable counting, labelling, comparing and operating.			
2N1.3 Students analyze quantity to 1000. ● All natural numbers are either even or odd. 2N1.4 Students analyze quantity to 1000. ● A quantity can be estimated when an exact count is not needed. 2N2.1 Students investigate addition and subtraction within 100. ● A sum can be composed in multiple ways. 2N2.2 Students investigate addition and subtraction within 100. ● Addition and subtraction can represent the sum or difference of countable quantities or measurable lengths.(with and without regrouping)	2N1.3 Students analyze quantity to 1000. ● All natural numbers are either even or odd. 2N1.4 Students analyze quantity to 1000. ● A quantity can be estimated when an exact count is not needed. 2N2.1 Students investigate addition and subtraction within 100. ● A sum can be composed in multiple ways. 2N2.2 Students investigate addition and subtraction within 100. ● Addition and subtraction can represent the sum or difference of countable quantities or measurable lengths. .	2N1.4 Students analyze quantity to 1000. ● A quantity can be estimated when an exact count is not needed. 2N2.1 Students explain addition and subtraction within 100. ● A sum can be composed in multiple ways. 2N2.2 Students explain addition and subtraction within 100. ● Addition and subtraction can represent the sum or difference of countable quantities or measurable lengths. 2N3.1 Students interpret part whole relationships using unit fractions. ● Fractions can represent part-to-whole relationships. ● One whole can be interpreted as a number of unit fractions.	2N1.4 Students analyze quantity to 1000. ● A quantity can be estimated when an exact count is not needed. 2N2.1 Students explain addition and subtraction within 100. ● A sum can be composed in multiple ways. 2N2.2 Students explain addition and subtraction within 100. ● Addition and subtraction can represent the sum or difference of countable quantities or measurable lengths. 2N3.1 Students interpret part whole relationships using unit fractions. ● Fractions can represent part-to-whole relationships. ● One whole can be interpreted as a number of unit fractions.
Patterns: Awareness of patterns supports problem solving in various situations.			

Sample Year Plan:Mathematics Grade 2

March 2023 ---------- June 2023

March	April	May	June
Time: Duration is described and quantified with time.			
2T1.2 Students relate duration to time. ● Duration is quantified by measurement. (clock related)	2T1.2 Students relate duration to time. ● Duration is quantified by measurement. (clock related)		
Geometry: Shapes are defined by geometric attributes.			
2G1.1 Students analyze and explain geometric attributes of shape. ● Shapes are defined according to geometric attributes. ● A shape can be visualized as a composition of other shapes. 2G1.2 Students analyze and explain geometric attributes of shape. ● Geometric attributes do not change when a shape is translated, rotated, or reflected.	2G1.1 Students analyze and explain geometric attributes of shape. ● Shapes are defined according to geometric attributes. ● A shape can be visualized as a composition of other shapes. 2G1.2 Students analyze and explain geometric attributes of shape. ● Geometric attributes do not change when a shape is translated, rotated, or reflected..		
Measurement: Attributes such as length, area, volume, and angle are quantified by measurement.			

Sample Year Plan:Mathematics Grade 2

March 2023 ---------- June 2023

March	April	May	June
2M1.2 Students communicate length using units. ● Length can be estimated when a measuring tool is not available. <Revisit and align with Geometry>	2M1.2 Students communicate length using units. ● Length can be estimated when a measuring tool is not available. <Revisit and align with Geometry>		
Statistics: The science of collecting, analyzing, visualizing and interpreting data can inform understanding and decision making.			
	2ST1.1 Students relate data to a variety of representations. ● Data can be collected to answer questions.	2ST1.1 Students relate data to a variety of representations. ● Data can be collected to answer questions. 2ST1.2 Students relate data to a variety of representations. ● Data can be represented in various ways.	