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 3

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 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 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

## Numeracy, Quantitative Information and Spatial Information

the use of non-standard units of measure, to accurately measure 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.

source: *Final Curriculum: Kindergarten to Grade 3 will be implemented starting September 2022. Grades 4 to 6 are available for optional implementation starting September 2022, Introduction, page 1.*

# Sample Year at a Glance: Mathematics - Grade 3

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

| September | October | November |
|---|---|---|
| **Number:** Quantity is measured with numbers that enable counting, labelling, comparing and operating. | | |
| 3N1. Students interpret place value within 100 000.(100)<br>• Place value is the basis for the base-10 system. (bridging into 100 with Money)<br>• Place value determines the value of a digit based on its place in a number, relative to the one's place.<br>• Place value is used to read, write, and compare numbers.<br><br>3N2. Students apply addition and subtraction within 1000.(100)<br>• Addition and subtraction strategies can be chosen based on the nature of the numbers.<br>• Standard algorithms are universal tools for addition and subtraction and may be used for any natural numbers independently of their nature. | 3N1. Students interpret place value within 100 000. (100-1000)<br>• Place value is the basis for the base-10 system.<br>• Place value determines the value of a digit based on its place in a number, relative to the one's place.<br>• Place value is used to read, write, and compare numbers.<br><br>3N2. Students apply addition and subtraction within 1000.(100-1000)<br>• Addition and subtraction strategies can be chosen based on the nature of the numbers.<br>• Standard algorithms are universal tools for addition and subtraction and may be used for any natural numbers independently of their nature. | 3N1. Students interpret place value within 100 000. (1000 - 10 000)<br>• Place value is the basis for the base-10 system.<br>• Place value determines the value of a digit based on its place in a number, relative to the one's place.<br>• Place value is used to read, write, and compare numbers.<br><br>3N2. Students apply addition and subtraction within 1000.(100-1000)<br>• Addition and subtraction strategies can be chosen based on the nature of the numbers.<br>• Standard algorithms are universal tools for addition and subtraction and may be used for any natural numbers independently of their nature. |
| **Algebra: Equations express relationships between quantities.** | | |
| 3A1.1 Students illustrate equality with equations.<br>• Two expressions are equal if they represent the same number. (20-100 with money) | 3A1.1 Students illustrate equality with equations.<br>• Two expressions are equal if they represent the same number. (20-100 with money) | 3A1.1 Students illustrate equality with equations.<br>• Two expressions are equal if they represent the same number.(20-100 with money) |

# Sample Year at a Glance: Mathematics - Grade 3

| September 2022 ---------- November 2022 | | |
|---|---|---|
| **September** | **October** | **November** |
| ongoing | ongoing | ongoing |
| **Patterns: Awareness of patterns supports problem solving in various situations.** | | |
| 3P1.1 Students analyze patterns in numerical sequences.<br>• A sequence is a list of terms arranged in a certain order.<br>• Sequences may be finite or infinite<br>3P1.2 Students analyze patterns in numerical sequences.<br>• A sequence can progress according to a pattern.<br>Ongoing - begin with money | 3P1.1 Students analyze patterns in numerical sequences.<br>• A sequence is a list of terms arranged in a certain order.<br>• Sequences may be finite or infinite<br>3P1.2 Students analyze patterns in numerical sequences.<br>• A sequence can progress according to a pattern.<br>Ongoing - begin with money | 3P1.1 Students analyze patterns in numerical sequences.<br>• A sequence is a list of terms arranged in a certain order.<br>• Sequences may be finite or infinite<br>3P1.2 Students analyze patterns in numerical sequences.<br>• A sequence can progress according to a pattern.<br>Ongoing - begin with money |
| **Time: Duration is described and quantified with time.** | | |
| 3T1. Students tell time using clocks.<br>• Clocks are standard measuring tools used to communicate time.<br>Ongoing - use for number (skip counting, link to unit fractions, link to angles) | 3T1. Students tell time using clocks.<br>• Clocks are standard measuring tools used to communicate time.<br>Ongoing - use for number (skip counting, link to unit fractions, link to angles) | 3T1. Students tell time using clocks.<br>• Clocks are standard measuring tools used to communicate time.<br>Ongoing - use for number (skip counting, link to unit fractions, link to angles) |

# Sample Year at a Glance: Mathematics - Grade 3

December 2022 ---------- January 2023

| December | January | February |
|---|---|---|
| **Number:** Quantity is measured with numbers that enable counting, labelling, comparing and operating. | | |
| 3N2. Students apply addition and subtraction within 1000.(100-1000)<br>• Addition and subtraction strategies can be chosen based on the nature of the numbers.<br>• Standard algorithms are universal tools for addition and subtraction and may be used for any natural numbers independently of their nature.<br><br>3N3.1 Students analyze and apply strategies for multiplication and division within 100. (25)<br>• Quantities can be composed and decomposed through multiplication and division. (5x5)<br><br>3N3.2 Students analyze and apply strategies for multiplication and division within 100.<br>• Sharing and grouping situations can be interpreted as multiplication or division.(5x5)<br>• Multiplication and division strategies can be supported by addition and subtraction. | 3N2. Students apply addition and subtraction within 1000.(100-1000)<br>• Addition and subtraction strategies can be chosen based on the nature of the numbers.<br>• Standard algorithms are universal tools for addition and subtraction and may be used for any natural numbers independently of their nature.<br><br>3N3.1 Students analyze and apply strategies for multiplication and division within 100. (25)<br>• Quantities can be composed and decomposed through multiplication and division. (5x5)<br><br>3N3.2 Students analyze and apply strategies for multiplication and division within 100.<br>• Sharing and grouping situations can be interpreted as multiplication or division.(5x5)<br>• Multiplication and division strategies can be supported by addition and subtraction.<br>• | 3N2. Students apply addition and subtraction within 1000.(100-1 000)<br>• Addition and subtraction strategies can be chosen based on the nature of the numbers.<br>• Standard algorithms are universal tools for addition and subtraction and may be used for any natural numbers independently of their nature.<br><br>3N3.1Students analyze and apply strategies for multiplication and division within 100.<br>• Quantities can be composed and decomposed through multiplication and division.<br><br>3N3.2 Students analyze and apply strategies for multiplication and division within 100.<br>• Sharing and grouping situations can be interpreted as multiplication or division.(5x5 Mastery)<br>• Multiplication and division strategies can be supported by addition and subtraction.<br>•<br><br>3N3.3 Students analyze and apply strategies for multiplication and division within 100.<br>• Multiplication number facts have related division facts.<br><br>3N4 Students interpret fractions in relation to one whole. |

# Sample Year at a Glance: Mathematics - Grade 3

December 2022 ---------- January 2023

| December | January | February |
|---|---|---|
| | | • Fractions are numbers between natural numbers.<br>• Fractions can represent part-to- whole relationships.<br>• A unit fraction describes the size of the equal parts of a fraction. (begin with Unit Fractions linked to money)<br>• The size of the parts and the total number of equal parts in the whole are inversely related. |
| **Algebra: Equations express relationships between quantities.** | | |
| 3A1.2 Students illustrate equality with equations.<br>• Equations can include unknown values. | 3A1.2 Students illustrate equality with equations.<br>• Equations can include unknown values. | |
| **Patterns: Awareness of patterns supports problem solving in various situations.** | | |
| 3P1.1 Students analyze patterns in numerical sequences.<br>• A sequence is a list of terms arranged in a certain order.<br>• Sequences may be finite or infinite<br>3P1.2 Students analyze patterns in numerical sequences.<br>• A sequence can progress according to a pattern.<br>Ongoing - begin with money | 3P1.1 Students analyze patterns in numerical sequences.<br>• A sequence is a list of terms arranged in a certain order.<br>• Sequences may be finite or infinite<br>3P1.2 Students analyze patterns in numerical sequences.<br>• A sequence can progress according to a pattern.<br>Ongoing - begin with money | 3P1.1 Students analyze patterns in numerical sequences.<br>• A sequence is a list of terms arranged in a certain order.<br>• Sequences may be finite or infinite<br>3P1.2 Students analyze patterns in numerical sequences.<br>• A sequence can progress according to a pattern.<br>Ongoing - begin with money |

# Sample Year at a Glance: Mathematics - Grade 3

December 2022 ---------- January 2023

| December | January | February |
|---|---|---|
| | | |
| **Measurement: Attributes such as length, area, volume and angle are quantified by measure.** | | |
| | 3M1. 1 Students determine length using standard units.<br>● Length is measured in standard units according to the metric system and the imperial system.<br>● Length can be expressed in various units according to context and desired precision. | 3M1. 1 Students determine length using standard units.<br>● Length is measured in standard units according to the metric system and the imperial system.<br>● Length can be expressed in various units according to context and desired precision.<br>3M1.2 Students determine length using standard units.<br>● Length remains the same when decomposed or rearranged.<br>3M1.3 Students determine length using standard units.<br>● Length can be estimated when less accuracy is required. |
| **Time: Duration is described and quantified with time.** | | |
| 3T1. Students tell time using clocks.<br>● Clocks are standard measuring tools used to communicate time.<br>Ongoing - use for number (skip counting, link to unit fractions, link to angles) | 3T1. Students tell time using clocks.<br>● Clocks are standard measuring tools used to communicate time.<br>Ongoing - use for number (skip counting, link to unit fractions, link to angles) | 3T1. Students tell time using clocks.<br>● Clocks are standard measuring tools used to communicate time.<br>Ongoing - use for number (skip counting, link to unit fractions, link to angles) |

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# Sample Year at a Glance: Mathematics - Grade 3

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

| March | April | May | June |
|---|---|---|---|
| **Number:** Quantity is measured with numbers that enable counting, labelling, comparing and operating. | | | |
| 3N1. Students interpret place value within 100 000. (10 000 - 100 000)<br>• Place value is the basis for the base-10 system.<br>• Place value determines the value of a digit based on its place in a number, relative to the one's place.<br>• Place value is used to read, write, and compare numbers.<br><br>3N3.1 Students acquire an understanding of multiplication and division within 100.<br>• Quantities can be composed and decomposed through multiplication and division.<br><br>3N3.2 Students acquire an understanding of multiplication and division within 100.<br>• Sharing and grouping situations can be interpreted as multiplication or division.<br>• Multiplication and division strategies can be supported by addition and subtraction.<br><br>3N3.3 A multiplication table shows both multiplication and division facts. | 3N3.2 Students acquire an understanding of multiplication and division within 100.<br>• Sharing and grouping situations can be interpreted as multiplication or division.<br>• Multiplication and division strategies can be supported by addition and subtraction.<br><br>3N3.3 A multiplication table shows both multiplication and division facts.<br>• Multiplication number facts have related division facts.<br><br>3N4 Students interpret fractions in relation to one whole.<br>• Fractions are numbers between natural numbers.<br>• Fractions can represent part-to- whole relationships.<br>• A unit fraction describes the size of the equal parts of a fraction.<br>• The size of the parts and the total number of equal parts in the whole are inversely related. | 3N3.3 A multiplication table shows both multiplication and division facts.<br>• Multiplication number facts have related division facts.<br><br>3N4 Students interpret fractions in relation to one whole.<br>• Fractions are numbers between natural numbers.<br>• Fractions can represent part-to- whole relationships.<br>• A unit fraction describes the size of the equal parts of a fraction.<br>• The size of the parts and the total number of equal parts in the whole are inversely related. | 3N3.3 A multiplication table shows both multiplication and division facts.<br>• Multiplication number facts have related division facts.<br><br>3N4 Students interpret fractions in relation to one whole.<br>• Fractions are numbers between natural numbers.<br>• Fractions can represent part-to-whole relationships.<br>• A unit fraction describes the size of the equal parts of a fraction.<br>• The size of the parts and the total number of equal parts in the whole are inversely related. |

# Sample Year at a Glance: Mathematics - Grade 3

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

| March | April | May | June |
|---|---|---|---|
| • Multiplication number facts have related division facts.<br><br>3N4 Students interpret fractions in relation to one whole. (begin with unit fractions)<br>• Fractions are numbers between natural numbers.<br>• Fractions can represent part-to- whole relationships.<br>• A unit fraction describes the size of the equal parts of a fraction.<br>• The size of the parts and the total number of equal parts in the whole are inversely related. | | | |
| **Patterns: Awareness of patterns supports problem solving in various situations.** | | **Geometry: Shapes are defined and related by geometric attributes.** | **Measurement: Attributes such as length, area, volume and angle are quantified by measure.** |

# Sample Year at a Glance: Mathematics - Grade 3

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

| March | April | May | June |
|---|---|---|---|
| 3P1.1 Students analyze patterns in numerical sequences.<br>● A sequence is a list of terms arranged in a certain order.<br>● Sequences may be finite or infinite<br>3P1.2 Students analyze patterns in numerical sequences.<br>● A sequence can progress according to a pattern. | | 3G1. 1 Students relate geometric properties to shape.<br>● Geometric properties are relationships between geometric attributes.<br>● Geometric properties define a class of polygon.<br>3G1.2 Students relate geometric properties to shape.<br>● Geometric properties do not change when a polygon undergoes a transformation. | 3M2.1 Students interpret angles.<br>● An angle is the union of two arms with a common vertex.<br>● An angle can be interpreted as the motion of a length rotated about a vertex.<br>3M2.12 Students interpret angles.<br>● Two angles can be compared directly or indirectly. |
| **Time: Duration is described and quantified with time.** | | | |
| 3T1. Students tell time using clocks.<br>● Clocks are standard measuring tools used to communicate time.<br>Ongoing - use for number (skip counting, link to unit fractions, link to angles) | 3T1. Students tell time using clocks.<br>● Clocks are standard measuring tools used to communicate time.<br>Ongoing - use for number (skip counting, link to unit fractions, link to angles) | 3T1. Students tell time using clocks.<br>● Clocks are standard measuring tools used to communicate time.<br>Ongoing - use for number (skip counting, link to unit fractions, link to angles) | |
| | | **Statistics: The science of collecting, analyzing, visualizing and interpreting data can inform understanding and decision making.** | |
| | | 3ST1.1 Students interpret and explain representations of data.. | 3ST1.1 Students interpret and explain representation of data. |

## Sample Year at a Glance: Mathematics - Grade 3

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

| March | April | May | June |
|---|---|---|---|
| | | • Representation connects data to a statistical question.<br>3ST1. 2 Students interpret and explain representation.<br>• Representation expresses data specific to a unique time and place.<br>• Representation tells a story about data.<br>Could be addressed throughout the year in science as well. | • Representation connects data to a statistical question.<br>3ST1. 2 Students interpret and explain representation.<br>• Representation expresses data specific to a unique time and place.<br>• Representation tells a story about data.<br>Could be addressed throughout the year in science as well. |