



Course Outline: Grade 2 Mathematics

Course Name: Grade 2 Mathematics

Course Code: MAT2

Credit Value: None. Credits are not issued at the elementary level.

Prerequisite: None

Curriculum Policy Document: [The Ontario Curriculum: Grade 2 Mathematics](#)

Course Developer: Virtual Elementary School

Department: Primary

Development Date: 2020

Overview

This course builds on the Grade 1 curriculum to further develop students' understanding of fundamental mathematical concepts by exploring topics related to number, coding, algebra, data, spatial sense, social emotional learning skills in mathematics, and financial literacy.

Throughout the course, students will be encouraged to build their social-emotional learning skills specifically focusing on critical thinking skills, including creative and flexible ways of solving various problems.

Regarding numbers, students show, count, order, compare, and read numbers up to 200. They continue to develop skills in solving problems involving addition and subtraction. Students work with fractions and are exposed to the concept of sharing things equally.

In algebra, learn about geometric patterns and how to extend them. They also learn about equality and how to make pairs of equations equal by adjusting their numbers. Students will develop code that moves objects from one location to another on a grid.

In data, students collect, organize, display, and interpret data. They will learn about the probability of events occurring and explore probability through experiments.

In spatial sense, students continue to develop an ability to identify and sort shapes. They describe and represent the relative locations of objects and represent objects on a map. In measurement, students estimate and measure length, height, distance, and time.

In financial literacy, students build on their understanding of Canadian coins and bills. They learn how to represent money amounts in different ways and compare different amounts of money.

By investigating real-life problems, students develop a strong foundation of mathematical knowledge and skills. Students apply mathematical processes and build transferrable critical thinking skills in varied teaching and consolidation activities that appeal to diverse learning styles. Students participate in engaging storylines along with characters who connect their learning to real-world contexts. Such meaningful experiences build confidence by instilling a positive attitude in students towards

mathematics. Various opportunities consolidate student learning through technology and offline activities, including tactile manipulatives, to reinforce essential mathematical strategies and tools. The course has a strong focus on reinforcing number sense, numeracy skills, and frequent practice activities. This course prepares students for grade 3 mathematics.

Resources Required

This course is entirely online and does not require nor rely on any textbook. Students will require the following resources:

- A scanner, smartphone camera, or similar device to digitize handwritten or hand-drawn work
- A smartphone camera or similar device to take pictures of student work
- A device to record audio
- A printer
- A physical binder, folder, or notebook for offline activities
- Various household items to complete offline activities
- Blue and red markers
- Paper Towel Roll or Rolled Up Piece of Construction Paper
- Scissors and glue
- Bristol board or construction paper

The following math tools and resources are optional:

- Ten frames
- Counting rods and unit cubes
- Tangrams (pattern/shape blocks)

Overall Curriculum Expectations

A. Social Emotional Learning Skills in Mathematics	<ul style="list-style-type: none"> • A1. apply, to the best of their ability, a variety of social-emotional learning skills to support their use of the mathematical processes and their learning in connection with the expectations in the other five strands of the mathematics curriculum
B. Number	<ul style="list-style-type: none"> • B1. demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life • B2. use knowledge of numbers and operations to solve mathematical problems encountered in everyday life
C. Algebra	<ul style="list-style-type: none"> • C1. identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts • C2. demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts • C3. solve problems and create computational representations of mathematical situations using coding concepts and skills • C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations
D. Data	<ul style="list-style-type: none"> • D1. manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life • D2. describe the likelihood that events will happen, and use that information to make predictions

E. Spatial Sense	<ul style="list-style-type: none"> • E1. describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them • E2. compare, estimate, and determine measurements in various contexts
F. Financial Literacy	<ul style="list-style-type: none"> • F1. demonstrate an understanding of the value of Canadian currency

Teaching and Learning Strategies

Through a balance of problem-solving and direct instruction, students develop a strong foundation in mathematical processes, knowledge, and skills to apply in real-world contexts. The course engages multiple learning styles by combining technology and offline activities and by providing opportunities to develop an understanding of skills and concepts in interactive and concrete ways. The lessons feature a variety of intriguing storylines, videos, graphics, and interactive games to reinforce students' learning. The activities also build a foundation of mathematical models and strategies that students will use throughout the elementary grades.

The course relies on the assistance of a learning coach to support young students as they move through the content. The learning coach will be involved in facilitating technical aspects of the course (e.g. printing and scanning printable activities) and in participating in discussion-based activities to assist students in developing communication skills.

Units

Counting	Students show, compare, and order numbers up to 200. Students count by 20s, 25s, and 50s up to 200. Students also read and write numbers up to 200.
Patterns and Equality	Students learn about patterns in addition and subtraction. They learn how to show and create various patterns and explore the concept of equality.
Addition and Subtraction	Students learn about composing and decomposing numbers and rounding numbers to the nearest ten. Students also solve addition and subtraction problems using mental strategies, math tools, and vertical equations.
Data	Students collect, organize, and read data, create graphs, and ask and answer questions about data. Students also explore and describe probability with experiments.
Fractions, Multiplication, and Division	In this unit students investigate fractions, multiplication and division. Students analyse the relationship between a whole and the size of its parts, compare fractions, and make a whole. Students also develop an understanding of multiplication and division with equal groups.
Shapes	Students identify, describe, sort, and build two-dimensional and three-dimensional shapes. Students also describe locations and learn how to draw a map.
Coding	In the coding unit, students build on their knowledge by creating code using sequential and concurrent events. They practice reading code and correcting mistakes that they find.

Money	Students count money and represent it in different ways. Students compare amounts of money to determine which has more value.
Measurement	In this unit, students measure height, length, and width using centimetres and metres. Students also tell and measure time.

Reporting and The Final Grade (Facilitated)

Reporting

Student achievement will be communicated formally to students via progress reports and official report cards. A progress report is provided after students complete the first unit in the course. The progress report is not an evaluation of the student's achievement. Rather, the purpose of the report is to give students and parents early and specific feedback regarding the student's general progress during the first unit of study.

Report cards are issued at the midterm point in the course as well as upon completion of the course. Each report card will focus on two distinct but related aspects of student achievement. First, the achievement of curriculum expectations and the course median are reported as letter grades. The teacher will also provide written comments concerning the student's strengths, areas for improvement, and next steps.

Second, the learning skills are reported as letter grades representing four levels of accomplishment. Upon completion of a course, VES will send a copy of the report card to the student's home school (if in Ontario) where the course will be added to the ongoing list of courses on the student's Ontario Student Record (OSR). The report card will also be sent to the student's home address.

The Final Grade

Student evaluation in this course is based on the student's achievement of curriculum expectations. The final letter grade represents the quality of the student's overall fulfillment of the expectations for the course and reflects the corresponding level of achievement as described in the achievement chart for the discipline. The final grade reflects the student's most consistent level of achievement across all units in the course, although special consideration is given to more recent evidence of achievement. Students are not required to write a final exam in this course.

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