Course Outline: Grade 1 Mathematics

Course Name: Grade 1 Mathematics
Course Code: MAT1
Credit Value: None. Credits are not issued at the elementary level.
Prerequisite: None
Curriculum Policy Document: The Ontario Curriculum: Grade 1 Mathematics
Course Developer: Virtual Elementary School
Department: Primary
Development Date: 2020

Overview

This course builds on the Kindergarten 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 by focusing specifically on positive motivation and how to use self-talk strategies to themselves and their peers.

Regarding numbers, students work with numbers up to 50 and learn how to count by various amounts. They learn how we use numbers in everyday life. Students learn basic addition and subtraction strategies. They are also introduced to basic fractions and how to divide shapes into equal parts.

In algebra, students find, continue, and create patterns and show a pattern in different ways. They also begin to work on the idea that in a number sentence, both sides of the equal sign have the same value. Students will begin to write code to order a sequence of steps and to give basic instructions to a computer. They also learn how to find simple errors in code and how to correct them.

In data, students organize data into categories and then display the data to help draw conclusions. They ask and answer questions about data.

In spatial sense, students compare the length, mass, and capacity of different objects and learn how to read a calendar. They also learn how to describe different shapes and figures.

In financial literacy, students learn about Canadian coins and bills and practice comparing their values.

Through investigation of 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 and build confidence by instilling a positive attitude towards mathematics. Various opportunities consolidate students' 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 and numeracy skills. It also provides various activities for practice throughout. This course prepares students for grade 2 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

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	• 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	• 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	• 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	• 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	• 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	• 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 of mathematical processes, knowledge, and skills to apply in real-world contexts. The course engages multiple learning styles by combining technology and offline activities that provide 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 their elementary grades.

The course relies on the assistance of a learning coach who supports 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

Numbers	Students show, compare, order, and read numbers up to 50. Students will estimate amounts up to 50.
Counting	Students will count by 1s, 2s, 5s, and 10s to 50. Students will find ordinal numbers, order the months of the year, and read a calendar.
Patterns	In the patterning unit, students find, describe, and create patterns. Students use shapes, colours, numbers, sounds, and actions to create and analyse patterns around them.
Addition and Subtraction	Students develop an understanding of basic addition and subtraction, including utilizing the appropriate symbols. Students learn mental strategies and how to solve word problems.
Measurement	In this unit students measure attributes of 2D and 3D shapes. They use measure to compare, describe, and order objects.
Shapes, Figures, and Positions	Students sort and build two- and three-dimensional shapes and figures. Students find and describe symmetry in shapes and create symmetrical designs. Students describe locations on maps.
Graphs and Charts	In this unit, students learn about recording, organizing, and reading data in pictographs and concrete graphs. Students also ask and answer questions about graphs.
Composing, Decomposing, and Groups	Students explore composing and decomposing numbers up to 50, and develop a basic understanding of fractions through learning about wholes, halves, and fourths. Students learn how to divide shapes into equal parts.
Coding	In the coding unit, students are introduced to coding and learn how to give basic instructions to computers. Students learn how to find and correct mistakes in code.
Likely and Unlikely Events	Students explore probability through examining likely and unlikely events in everyday situations by describing and comparing the likelihood of events.

Money	Students learn about the value of coins and bills. Students count and compare money amounts. Students also solve addition related to money by counting the value of multiple coins.

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 completion of 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 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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