Course Outline: Grade 3 Mathematics

Course Name: Grade 3 Mathematics
Course Code: MAT3
Credit Value: None. Credits are not issued at the elementary level.
Prerequisite: None
Curriculum Policy Document: The Ontario Curriculum: Grade 3 Mathematics
Course Developer: Virtual Elementary School
Department: Primary
Development Date: 2020

Overview

This course builds on the Grade 2 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 real-world problems and solutions that different individuals might encounter. They will practice different ways of exploring problems in order to find solutions that best suit their level of understanding and come to recognize that different people may arrive at solutions by using a variety of unique tools and strategies.

Regarding numbers, students will become familiar with numbers up to 1000 by counting, representing, identifying, comparing, and ordering different numbers according to different problem sets. They will learn how to break down numbers in different ways.

In algebra, students will use different strategies and tools to help them address number problems. They will use whole numbers and fractions to explore algebra, addition and subtraction, multiplication and division, and patterning. They will use real-life problems and algebraic reasoning skills to explore relationships, patterns, and expressions. They will also write code in order to perform repeating operations as a further exploration of repeating patterns.

In data, students will learn how to collect, organize, display, and organize data. They will use surveys, graphs, charts, and tables in order to inform decisions, make predictions, and draw conclusions. They will employ statistical analysis techniques and explore probability in order to make predictions.

In spatial sense, students will develop skills by exploring shapes and measurement. They will identify, sort, compare, and construct a variety of 2D and 3D shapes. They will also describe the movement of different shapes by exploring flips, turns, and slides on a coordinate plane. Students will explore measurements of length, height, distance, perimeter, area, mass, and capacity in a variety of different units and contextual situations. They will also learn how to tell time on both digital and analog clocks.

In financial literacy, students will continue to develop their understanding of money by familiarizing themselves with different bills, coins, and interactions that require calculating change. They will estimate, calculate, add, subtract, and show equivalency for different money amounts in a variety of true to life problem sets.

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 4 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
- Counters
- A calculator
- A Thermometer
- Crayons or coloured markers
- Dice, scissors, paper clips, straws, glue, play dough, ruler
- A right-angled tool
- Coins and bills
- Various household items to complete offline activities

Overall Curriculum Expectations

A. Social-Emotional Learning Skills in Mathematics and the Mathematical Process	• A1. Social-Emotional Learning (SEL) Skills and the Mathematical Processes 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. Number Sense: demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life • B2. Operations: use knowledge of numbers and operations to solve mathematical problems encountered in everyday life
C. Algebra	• C1. Patterns and Relationships: identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts

	• C2. Equations and Inequalities: demonstrate an understanding of variables, expressions, equalities, and inequalities and apply this understanding in various contexts • C3. Coding: solve problems and create computational representations of mathematical situations using coding concepts and skills • C4. Mathematical Modelling: apply the process of mathematical modelling to represent, analyse, make predictions and provide insight into real-life situations
D1. Data	• D1. Data Literacy: manage, analyse, and use data to make convincing arguments and informed decisions in various contexts drawn from real life • D2. Probability: describe the likelihood that events will happen and use that information to make predictions
E. Spacial Sense	• E1. Geometric and Spatial Reasoning: describe and represent shape, location, and movement by applying geometric properties and spatial relationships in order to navigate the world around them • E2. Measurement: compare, estimate, and determine measurements in various contexts
F. Financial Literacy	• F1. Money and Finances: demonstrate an understanding of the value and use 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 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 that 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 participating in discussion-based activities to assist students in developing communication skills.

Units

Counting	Students will initially explore reading and writing numbers up to 100 before practicing skip counting by 50s, 100s, and 200s. They will practice representing, comparing and ordering numbers up to 1000 and develop an understanding of the relationships among the numbers 1, 10, 100, and 1000. Students will explore the place values of four-digit numbers and practice composing and decomposing three-digit numbers using a variety of different tools and strategies. Lastly, students will learn how to round two-digit numbers to the nearest ten using a variety of different tools.
Addition and Subtraction	Through modelling, exploration, and the use of different tools and strategies, students will become familiar with solving addition and subtraction problems with two- and three-digit numbers. They will explore the relationships between addition

	and subtraction using fact families and problems that require finding the missing number in an equation. They will also use estimation to explore plausible answers to addition and subtraction problems.
Patterning	Students will identify, describe, create, and extend repeating patterns that involve shapes and numbers. They will also create number patterns with addition and explore different characteristics of simple geometric patterns.
Data	Students will begin by sorting data and objects according to certain properties. They will then practice collecting, organizing, and displaying data according to different recording, and graphing techniques. They will practice reading data in charts, tables, and different kinds of graphs. They will be introduced to means and modes in data sets and will practice using data to answer questions. Probability experiments will be conducted in order to further data collection and recording skills and to practice making predictions.
Fractions Multiplication and Division	Students will begin by dividing whole objects, or groups of objects into equal parts. Using a variety of different tools, students will explore equivalent fractions. Students will spend most of the unit exploring multiplying and dividing numbers from 1 to 10. They will use a variety of different manipulatives, tools, patterns, rules, and strategies to help solve real-world multiplication and division problems.
Shapes	Students will identify, describe, sort, and compare different polygons, prisms, and pyramids. They will build and describe the properties of various 2D and 3D shapes before exploring movement through flips, turns, slides, and congruency.
Coding	Students will begin coding by exploring sequential and concurrent events. Next, they will create a code using repeating events. Lastly, they will focus on debugging code.
Money	Students will begin by familiarizing themselves with different values of coins and bills. They extend their practice with money by estimating, counting, and showing different values using coins and bills. In order to demonstrate an understanding of equivalency, students will use a variety of combinations of coins and bills interchangeably to compose specific dollar amounts. They will also practice adding and subtracting dollar amounts in a variety of real-world contexts.
Measurement	Students will explore measurements of length, height, distance, perimeter, area, mass, and capacity according to a variety of different units and real-world contextual situations. They will draw and record different measures and select appropriate units in order to describe or communicate different measures. They will estimate, order, and compare different objects based on properties related to measurement.
End of Course Assessment	Students will complete an end of course task to summarize their learning experience throughout the course.

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 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 the grade 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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