

Simcoe County District School Board

Grade 8: Scope and Sequence

Block 1

Start of school year
to Winter Break

71 instructional days

1

First 20 Days

A1
15+ days

2

Number

B1, B2
20+ days

3

Geometric Reasoning

E1, E2
15+ days

4

Patterns and Algebra

C1
10+ days

Progress Report

Term 1

Winter Break

Block 2

Winter Break
to March Break

48 instructional days

5

Number

B1, B2, F1
15+ days

6

Algebra and Coding

C2, C3
15+ days

7

Location and Movement

E1, C3
10+ days

Term 1

Term 2

March Break

Block 3

March Break
to end of school year

67 instructional days

8

Financial Lit/Number

F1, B2
10+ days

9

Data and Probability

D1, D2
15+ days

10

Measurement

E2, B2
20+ days

11

Last 20 Days

A1
15+ days

Term 2

Last update: August 2020

Simcoe County District School Board

Grade 8: Course of Study

Welcome to the updated SCDSB Math Course of Study, revised to reflect the expectations found in *The Ontario Curriculum, Grades 1–8: Mathematics (2020)*.

The Scope and Sequence is split into three distinct “blocks”, with natural breaks (Winter Break and March Break) separating them. Educators are encouraged to use their professional judgement and consider the total number of instructional days in a block, minimum unit lengths, reporting periods (indicated by the grey arrows), as well as the remaining “flex days” and how they can be used to support their students’ achievement in mathematics. These “flex” days allow educators to tailor their programs to their students’ needs, while ensuring they stay on course, so that sufficient time is dedicated to each unit.

This Scope and Sequence emphasizes a common focus across all grades at the same time, although unit lengths may vary from grade to grade due to shifts in emphasis in knowledge and skill development throughout the grades. Please note that because of this alignment, consideration will need to be given to the strategic organization, distribution, and sharing of resources (i.e., manipulatives) among classes.

Units are sequenced to allow for fundamental skills and concepts to be introduced early and then applied in later units, providing opportunities to deepen understanding and make connections between mathematical concepts.

The specific expectations that are to be the focus of instruction and assessment, as well as any relevant cross-strand connections are listed for each unit. Each grade has expectations that are an ongoing focus throughout the year. Previous grade expectations may be noted in this section for continued practice, however, only grade level expectations will be assessed.

Simcoe County District School Board

Grade 8: Block 1 Overview

1

First 20 Days

15+ days

Social-Emotional Learning

Skills: 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

2

Number

20+ days

Number: B1. demonstrate an understanding of numbers and make connections to the way numbers are used in everyday life

Number: B2. use knowledge of numbers and operations to solve mathematical problems encountered in everyday life
(B1.1, B1.2, B2.1 - B2.5, E2.1)

3

Geometric Reasoning

15+ days

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

Spatial Sense: E2. compare, estimate, and determine measurements in various contexts
(E1.1, E1.2, E2.2)

4

Patterns and Algebra

10+ days

Algebra: C1. identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts
(C1.1 - C1.4)

Progress Report

Term 1

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical

Modelling: C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships:

B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (*Grade 5*)

recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (*Grade 6*) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (*Grades 7-8*) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (*Grades 3-5*) use mental

math strategies to add and subtract whole numbers, decimals and explain the strategies used; (*Grades 6-7*) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (*Grade 8*) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

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Grade 8: Unit 1 - First 20 Days (15+ days)

Social-Emotional Learning 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

To the best of their ability, students will learn to:	... as they apply the mathematical processes:	... so they can:
1. identify and manage emotions	problem solving: develop, select, and apply problem-solving strategies	1. express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities
2. recognize sources of stress and cope with challenges	reasoning and proving: develop and apply reasoning skills (e.g., classification, recognition of relationships, use of counter-examples) to justify thinking, make and investigate conjectures, and construct and defend arguments	2. work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience
3. maintain positive motivation and perseverance	reflecting: demonstrate that as they solve problems, they are pausing, looking back, and monitoring their thinking to help clarify their understanding (e.g., by comparing and adjusting strategies used, by explaining why they think their results are reasonable, by recording their thinking in a math journal)	3. recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope
4. build relationships and communicate effectively	connecting: make connections among mathematical concepts, procedures, and representations, and relate mathematical ideas to other contexts (e.g., other curriculum areas, daily life, sports)	4. work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships
5. develop self-awareness and sense of identity	communicating: express and understand mathematical thinking, and engage in mathematical arguments using everyday language, language resources as necessary, appropriate mathematical terminology, a variety of representations, and mathematical conventions	5. see themselves as capable math learners, and strengthen their sense of ownership of their learning, as part of their emerging sense of identity and belonging
6. think critically and creatively	representing: select from and create a variety of representations of mathematical ideas (e.g., representations involving physical models, pictures, numbers, variables, graphs), and apply them to solve problems	6. make connections between math and everyday contexts to help them make informed judgements and decisions
	selecting tools and strategies: select and use a variety of concrete, visual, and electronic learning tools and appropriate strategies to investigate mathematical ideas and to solve problems	

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical Modelling:

C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships:

B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (Grade 5)

recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (Grade 6) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (Grades 7-8) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (Grades 3-5)

use mental math strategies to add and subtract whole numbers, decimals and explain the strategies used; (Grades 6-7) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (Grade 8) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

Simcoe County District School Board

Grade 8: Unit 2 - Number (20+ days)

Specific Expectations:

Rational and Irrational Numbers B1.1 represent and compare very large and very small numbers, including through the use of scientific notation, and describe various ways they are used in everyday life

The Metric System E2.1 represent very large (mega, giga, tera) and very small (micro, nano, pico) metric units using models, base ten relationships, and exponential notation

Rational and Irrational Numbers B1.2 describe, compare, and order numbers in the real number system (rational and irrational numbers), separately and in combination, in various context

Mental Math B2.3 use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

Properties and Relationships B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Addition and Subtraction B2.4 add and subtract integers, using appropriate strategies, in various contexts

Addition and Subtraction B2.5 add and subtract fractions, using appropriate strategies, in various contexts

Cross-Strand Connections:

Patterns: C1.4 create and describe patterns to illustrate relationships among rational numbers

Data Analysis D1.6 analyse different sets of data presented in various ways, including in scatter plots and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical Modelling:

C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships:

B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (*Grade 5*)

recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (*Grade 6*) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (*Grades 7-8*) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (*Grades 3-5*)

use mental math strategies to add and subtract whole numbers, decimals and explain the strategies used; (*Grades 6-7*) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (*Grade 8*) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

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Grade 8: Unit 3 - Geometric Reasoning (15+ days)

Specific Expectations:

Geometric Reasoning E1.1 identify geometric properties of tessellating shapes and identify the transformations that occur in the tessellations

Geometric Reasoning E1.2 make objects and models using appropriate scales, given their top, front, and side views or their perspective views

Lines and Angles E2.2 solve problems involving angle properties, including the properties of intersecting and parallel lines and of polygons

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical Modelling:

C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships:

B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (*Grade 5*)

recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (*Grade 6*) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (*Grades 7-8*) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (*Grades 3-5*)

use mental math strategies to add and subtract whole numbers, decimals and explain the strategies used; (*Grades 6-7*) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (*Grade 8*) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

Simcoe County District School Board

Grade 8: Unit 4 - Patterns (10+ days)

Specific Expectations:

Patterns C1.1 identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing and shrinking patterns on the basis of their constant rates and initial values

Patterns C1.2 create and translate repeating, growing, and shrinking patterns involving whole numbers and decimal numbers using various representations, including algebraic expressions and equations for linear growing patterns

Patterns C1.3 determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in growing and shrinking patterns involving rational numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear growing and shrinking patterns

Patterns C1.4 create and describe patterns to illustrate relationships among rational numbers

Cross-Strand Connections:

Variables and Expressions: C2.2 evaluate algebraic expressions that involve rational numbers

Data Analysis D1.6 analyse different sets of data presented in various ways, including in scatter plots and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical Modelling:

C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships:

B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (*Grade 5*)

recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (*Grade 6*) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (*Grades 7-8*) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (*Grades 3-5*)

use mental math strategies to add and subtract whole numbers, decimals and explain the strategies used; (*Grades 6-7*) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (*Grade 8*) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

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Grade 8: Block 2 Overview

5

Number

15+ days

Number: B2. use knowledge of numbers and operations to solve mathematical problems encountered in everyday life

Financial Literacy: F1. demonstrate the knowledge and skills needed to make informed financial decisions

(B2.1, B2.6 - B2.7)

Term 1

6

Algebra and Coding

15+ days

Algebra: C2. demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts

Algebra: C3. solve problems and create computational representations of mathematical situations using coding concepts and skills

(C2.1 - C2.4, C3.1, C3.2)

7

Location and Movement

10+ days

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

Algebra: C3. solve problems and create computational representations of mathematical situations using coding concepts and skills

(E1.1 - E1.3)

Term 2

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical

Modelling: C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships:

B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (*Grade 5*)

recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (*Grade 6*) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (*Grades 7-8*) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (*Grades 3-5*) use mental

math strategies to add and subtract whole numbers, decimals and explain the strategies used; (*Grades 6-7*) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (*Grade 8*) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

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Grade 8: Unit 5 - Number (15+ days)

Specific Expectations:

Properties and Relationships B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Multiplication and Division B2.6 multiply and divide fractions by fractions, as well as by whole numbers and mixed numbers, in various contexts

Multiplication and Division B2.7 multiply and divide integers, using appropriate strategies, in various contexts

Multiplication and Division B2.8 compare proportional situations and determine unknown values in proportional situations, and apply proportional reasoning to solve problems in various contexts

Cross-Strand Connections:

Data Analysis D1.6 analyse different sets of data presented in various ways, including in scatter plots and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical Modelling:

C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships:

B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (*Grade 5*)

recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (*Grade 6*) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (*Grades 7-8*) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (*Grades 3-5*)

use mental math strategies to add and subtract whole numbers, decimals and explain the strategies used; (*Grades 6-7*) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (*Grade 8*) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

Simcoe County District School Board

Grade 8: Unit 6 - Algebra and Coding (15+ days)

Specific Expectations:

Variables and Expressions C2.1 add and subtract monomials with a degree of 1, and add binomials with a degree of 1 that involve integers, using tools

Variables and Expressions C2.2 evaluate algebraic expressions that involve rational numbers

Equalities and Inequalities C2.3 solve equations that involve multiple terms, integers, and decimal numbers in various contexts, and verify solution

Equalities and Inequalities C2.4 solve inequalities that involve integers, and verify and graph the solutions

Coding Skills C3.1 solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves the analysis of data in order to inform and communicate decisions

Coding Skills C3.2 read and alter existing code involving the analysis of data in order to inform and communicate decisions, and describe how changes to the code affect the outcomes and the efficiency of the code

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical Modelling:

C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships:

B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (*Grade 5*)

recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (*Grade 6*) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (*Grades 7-8*) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (*Grades 3-5*)

use mental math strategies to add and subtract whole numbers, decimals and explain the strategies used; (*Grades 6-7*) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (*Grade 8*) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

Simcoe County District School Board

Grade 8: Unit 7 - Location and Movement (10+ days)

Specific Expectations:

Geometric Reasoning E1.3 use scale drawings to calculate actual lengths and areas, and reproduce scale drawings at different ratios

Location and Movement E1.4 describe and perform translations, reflections, rotations, and dilations on a Cartesian plane, and predict the results of these transformations

Cross-Strand Connections:

Multiplication and Division B2.8 compare proportional situations and determine unknown values in proportional situations, and apply proportional reasoning to solve problems in various contexts

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical Modelling:

C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships:

B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (*Grade 5*)

recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (*Grade 6*) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (*Grades 7-8*) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (*Grades 3-5*)

use mental math strategies to add and subtract whole numbers, decimals and explain the strategies used; (*Grades 6-7*) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (*Grade 8*) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

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Grade 8: Block 3 Overview

8

Financial Lit/Number

15+ days

Financial Literacy: F1. demonstrate the knowledge and skills needed to make informed financial decisions

Number: B2. use knowledge of numbers and operations to solve mathematical problems encountered in everyday life (F1.1 - F1.6)

9

Data and Probability

20+ days

Data: D1. manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life

Data: D2. describe the likelihood that events will happen, and use that information to make predictions (D1.1 - D1.6, D2.1, D2.2)

10

Measurement

15+ days

Spatial Sense: E2. compare, estimate, and determine measurements in various contexts

Number: B2. use knowledge of numbers and operations to solve mathematical problems encountered in everyday life (E2.3, E2.4, B2.2, B1.3)

11

Last 20 Days

10+ days

Social-Emotional Learning Skills: 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

Term 2

Ongoing Focus:

Social-Emotional Learning: 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

Mathematical Modelling: C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships: B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (*Grade 5*) recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (*Grade 6*) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (*Grades 7-8*) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (*Grades 3-5*) use mental math strategies to add and subtract whole numbers, decimals and explain the strategies used; (*Grades 6-7*) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (*Grade 8*) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

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Grade 8: Unit 8 - Financial Literacy (10+ days)

Specific Expectations:

Money Concepts F1.1 describe some advantages and disadvantages of various methods of payment that can be used when dealing with multiple currencies and exchange rates

Financial Management F1.2 create a financial plan to reach a long-term financial goal, accounting for income, expenses, and tax implications

Financial Management F1.3 identify different ways to maintain a balanced budget, and use appropriate tools to track all income and spending, for several different scenarios

Financial Management F1.4 determine the growth of simple and compound interest at various rates using digital tools, and explain the impact interest has on long-term financial planning

Consumer and Civic Awareness F1.5 compare various ways for consumers to get more value for their money when spending, including taking advantage of sales and customer loyalty and incentive programs, and determine the best choice for different scenarios

Consumer and Civic Awareness F1.6 compare interest rates, annual fees, and rewards and other incentives offered by various credit card companies and consumer contracts to determine the best value and the best choice for different scenarios

Cross-Strand Connections:

Data Visualization: D1.3 select from among a variety of graphs, including scatter plots, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs

Data Visualization: D1.4 create an infographic about a data set, representing the data in appropriate ways, including in tables and scatter plots, and incorporating any other relevant information that helps to tell a story about the data

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical Modelling:

C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships:

B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (*Grade 5*)

recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (*Grade 6*) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (*Grades 7-8*) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (*Grades 3-5*)

use mental math strategies to add and subtract whole numbers, decimals and explain the strategies used; (*Grades 6-7*) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (*Grade 8*) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

Simcoe County District School Board

Unit 9 - Data and Probability (15+ days)

Specific Expectations:

Data Collection and Organization D1.1 identify situations involving one-variable data and situations involving two-variable data, and explain when each type of data is needed

Data Collection and Organization D1.2 collect continuous data to answer questions of interest involving two variables, and organize the data sets as appropriate in a table of values

Data Visualization D1.3 select from among a variety of graphs, including scatter plots, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs

Data Visualization D1.4 create an infographic about a data set, representing the data in appropriate ways, including in tables and scatter plots, and incorporating any other relevant information that helps to tell a story about the data

Data Analysis D1.5 use mathematical language, including the terms “strong”, “weak”, “none”, “positive”, and “negative”, to describe the relationship between two variables for various data sets with and without outliers

Data Analysis D1.6 analyse different sets of data presented in various ways, including in scatter plots and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions

Probability D2.1 solve various problems that involve probability, using appropriate tools and strategies, including Venn and tree diagrams

Probability D2.2 determine and compare the theoretical and experimental probabilities of multiple independent events happening and of multiple dependent events happening

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical Modelling:

C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

Properties and Relationships:

B2.1 use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations

Math Facts: B2.2 (*Grade 5*)

recall and demonstrate multiplication facts from 0×0 to 12×12 , and related division facts; (*Grade 6*) understand the divisibility rules and use them to determine whether numbers are divisible by 2, 3, 4, 5, 6, 8, 9; (*Grades 7-8*) understand and recall commonly used percents, fractions, decimal equivalents, square numbers, and their square roots

Mental Math: B2.3 (*Grades 3-5*)

use mental math strategies to add and subtract whole numbers, decimals and explain the strategies used; (*Grades 6-7*) use mental math strategies to calculate percents of whole numbers, and increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used; (*Grade 8*) use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used

Simcoe County District School Board

Unit 10 - Measurement (20+ days)

Specific Expectations:

Length, Area, and Volume E2.3 solve problems involving the perimeter, circumference, area, volume, and surface area of composite two dimensional shapes and three dimensional objects, using appropriate formula

Length, Area, and Volume E2.4 describe the Pythagorean relationship using various geometric models, and apply the theorem to solve problems involving an unknown side length for a given right triangle

Math Facts B2.2 understand and recall commonly used square numbers and their square roots

Rational and Irrational Numbers B1.3 estimate and calculate square roots, in various contexts

Ongoing Focus:

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Mathematical Modelling:

C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

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Unit 11 - Last 20 Days (15+ days)

Social-Emotional Learning 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

To the best of their ability, students will learn to:	... as they apply the mathematical processes:	... so they can:
1. identify and manage emotions	problem solving: develop, select, and apply problem-solving strategies	1. express and manage their feelings, and show understanding of the feelings of others, as they engage positively in mathematics activities
2. recognize sources of stress and cope with challenges	reasoning and proving: develop and apply reasoning skills (e.g., classification, recognition of relationships, use of counter-examples) to justify thinking, make and investigate conjectures, and construct and defend arguments	2. work through challenging math problems, understanding that their resourcefulness in using various strategies to respond to stress is helping them build personal resilience
3. maintain positive motivation and perseverance	reflecting: demonstrate that as they solve problems, they are pausing, looking back, and monitoring their thinking to help clarify their understanding (e.g., by comparing and adjusting strategies used, by explaining why they think their results are reasonable, by recording their thinking in a math journal)	3. recognize that testing out different approaches to problems and learning from mistakes is an important part of the learning process, and is aided by a sense of optimism and hope
4. build relationships and communicate effectively	connecting: make connections among mathematical concepts, procedures, and representations, and relate mathematical ideas to other contexts (e.g., other curriculum areas, daily life, sports)	4. work collaboratively on math problems – expressing their thinking, listening to the thinking of others, and practising inclusivity – and in that way fostering healthy relationships
5. develop self-awareness and sense of identity	communicating: express and understand mathematical thinking, and engage in mathematical arguments using everyday language, language resources as necessary, appropriate mathematical terminology, a variety of representations, and mathematical conventions	5. see themselves as capable math learners, and strengthen their sense of ownership of their learning, as part of their emerging sense of identity and belonging
6. think critically and creatively	representing: select from and create a variety of representations of mathematical ideas (e.g., representations involving physical models, pictures, numbers, variables, graphs), and apply them to solve problems	6. make connections between math and everyday contexts to help them make informed judgements and decisions
	selecting tools and strategies: select and use a variety of concrete, visual, and electronic learning tools and appropriate strategies to investigate mathematical ideas and to solve problems	

Ongoing Focus:

Social-Emotional Learning:

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

Mathematical Modelling:

C4. apply the process of mathematical modelling to represent, analyse, make predictions, and provide insight into real-life situations

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Mental Math: B2.3 (Grades 3-5)

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