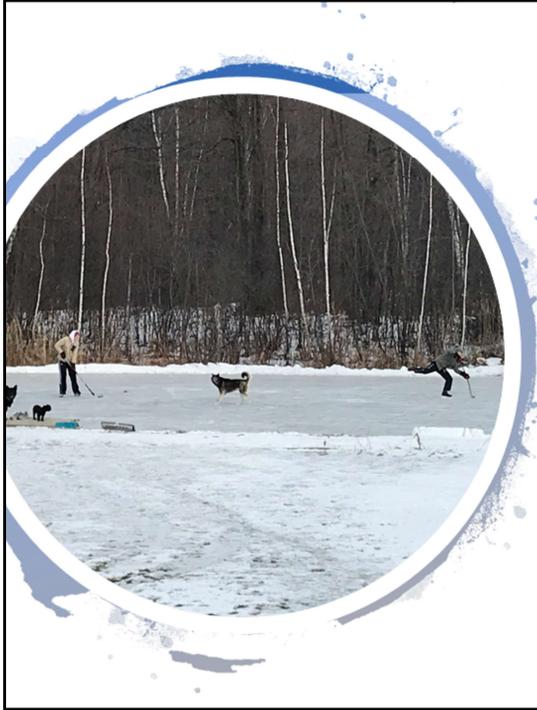




Curriculum Structure and Supports

Chris Suurtamm
University of Ottawa



Land Acknowledgement

I acknowledge that I am on the traditional territory of nations within nations including the Anishnabe, the Ojibwe and the Michi Saagiig. This land has been, and continues to be home to many diverse First Nations, Inuit and Métis peoples.

I would like to acknowledge the enduring presence of Indigenous peoples on the lands on which I gather with you today across Ontario and I thank the past, present and future caretakers of this land. I am grateful to have the opportunity to work and learn on these lands in a community of sharing.

As users of the land, be it for pleasure or utility, we must continue to work to keep it clean and use it with care so that generations to come can also continue to benefit from the land.

Topics to be covered

- Long range planning
- Continuums
- Exploring the structure of the curriculum
- Equity
- Mental health

Explain that this will be done through facilitated discussions in breakout rooms
We will have some guiding questions prepared and hope everyone will engage in the learning

Topics to be covered in the future

- Mathematical models
- Assessment
- ...

We know and understand you have questions about assessment, specifically SEL assessment. At this time we are unable to provide any information or support in that area as we await direction from the Ministry.

Mathematical modelling is a topic which lends itself well to other formats of learning than the format we have planned for today. We will keep this topic in mind for future sessions along with other topics that are interest to you.

Some features of the new Ontario elementary math curriculum

Structure

- Digital and provides different layouts
- Links to supports for teachers – continua, samples, notes
- Professional learning supports will continue to be added for “one stop shopping”

Content

- New strands – SEL, FL
- Some new content – e.g. coding, financial literacy, mathematical modelling
- Some rearrangement of content or new approaches – e.g. fractions, integers, patterning, data

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Math teacher knowledges required for implementation

Teachers need a variety of types of knowledges:

- New curriculum structure and supports
- New mathematics content
- New approaches or progressions with familiar mathematics content
- New policies
- Translating the curriculum into classroom practice

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Workshops/Webinars/Videos

Resources/documents

Dialogue with colleagues

Professional Learning Communities

Connections with knowledgeable others

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- Social-Emotional Learning Skills**
- Identify and manage emotions
 - Recognize sources of stress and cope with challenges
 - Maintain positive motivation and perseverance
 - Build relationships and communicate effectively
 - Develop self-awareness and sense of identity
 - Think critically and creatively

- Mathematical Processes**
- Problem solving
 - Reasoning and proving
 - Reflecting
 - Connecting
 - Communicating
 - Representing
 - Selecting tools and strategies

Strand B. Number	Strand C. Algebra	Strand D. Data	Strand E. Spatial Sense	Strand F. Financial Literacy
<p>B1. Number Sense</p> <ul style="list-style-type: none"> • whole numbers • rational and irrational numbers • fractions, decimals, and percents <p>B2. Operations</p> <ul style="list-style-type: none"> • properties and relationships • math facts • mental math • addition and subtraction • multiplication and division 	<p>C1. Patterns and Relations</p> <ul style="list-style-type: none"> • patterns <p>C2. Equations and Inequalities</p> <ul style="list-style-type: none"> • variables and expressions • equalities and inequalities <p>C3. Coding</p> <ul style="list-style-type: none"> • coding skills <p>C4. Mathematical Modelling</p>	<p>D1. Data Literacy</p> <ul style="list-style-type: none"> • data collection and organization • data visualization • data analysis <p>D2. Probability</p>	<p>E1. Geometric and Spatial Reasoning</p> <ul style="list-style-type: none"> • geometric reasoning • location and movement <p>E2. Measurement</p> <ul style="list-style-type: none"> • attributes • length • mass, capacity, and volume • area and surface area • angles • time • the metric system 	<p>GRADES 1 TO 3:</p> <p>F1. Money</p> <ul style="list-style-type: none"> • money concepts <p>GRADES 4 TO 8:</p> <p>F1. Finances</p> <ul style="list-style-type: none"> • money concepts • financial management • consumer and civic awareness

Math curriculum context, 2020, p. 28

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Some features in the structure of the new Ontario elementary math curriculum

- Digital format providing different layouts and views
- Links to supports for teachers – continua, samples, notes, glossary
- Professional learning supports will continue to be added for “one stop shopping”

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Overall expectations

By the end of Grade 4, students will:

C1. Patterns and Relationships

identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts

1 :—
2 :— **Specific expectations** →

[Compare grades >](#)

Transferable skills: [Critical thinking and problem solving](#) [Communication](#)



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C1. Patterns and Relationships

Specific expectations

By the end of Grade 4, students will:

Patterns

C1.1 identify and describe repeating and growing patterns, including patterns found in real-life contexts

[Teacher supports](#) ▾

C1.2 create and translate repeating and growing patterns using various representations, including tables of values and graphs

[Teacher supports](#) ▾

C1.2 create and translate repeating and growing patterns using various representations, including tables of values and graphs

Grade 4

[Teacher supports](#) ^

Key concepts ^

- The same pattern structure can be represented in various ways.
- Repeating patterns can vary in complexity, but all are created by iterating their pattern core.
- Growing patterns are created by increasing the number of elements in each iteration.
- When translating a pattern from a concrete representation to a table of values, each iteration of the pattern can be referred to as the term number, and the number of elements in each iteration can be referred to as the term value. In a table of values, the term number is shown in the left-hand column and the term value is shown in the right-hand column.



Overall expectations

By the end of Grade 4, students will:

C1. Patterns and Relationships

identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts

1 : —
2 : — **Specific expectations** →
3 : —

Compare grades >

Transferable skills:

Critical thinking and problem solving

Communication



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C1. Patterns and Relationships

Compare grades – includes the grade before and the grade after

Grade 3	Grade 4	Grade 5
Patterns	Patterns	Patterns
C1.1 identify and describe repeating elements and operations in a variety of patterns, including patterns found in real-life contexts	C1.1 identify and describe repeating and growing patterns, including patterns found in real-life contexts	C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts
C1.2 create and translate patterns that have repeating elements, movements, or operations using various representations, including shapes, numbers, and tables of values	C1.2 create and translate repeating and growing patterns using various representations, including tables of values and graphs	C1.2 create and translate growing and shrinking patterns using various representations, including tables of values and graphs
	C1.3	C1.3

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By the end of each grade, students will:

Strand overviews

OVERALL EXPECTATION C1. identify, describe, extend, create, and make predictions about a variety of patterns, including those found in real-life contexts							
SPECIFIC EXPECTATIONS							
Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Patterns							
C1.1 identify and describe the regularities in a variety of patterns, including patterns found in real-life contexts	C1.1 identify and describe a variety of patterns involving geometric designs, including patterns found in real-life contexts	C1.1 identify and describe repeating elements and operations in a variety of patterns, including patterns found in real-life contexts	C1.1 identify and describe repeating and growing patterns, including patterns found in real-life contexts	C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts	C1.1 identify and describe repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and specify which growing patterns are linear	C1.1 identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing patterns on the basis of their constant rates and initial values	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
C1.2 create and translate patterns using movements, sounds, objects, shapes, letters, and numbers	C1.2 create and translate patterns using various representations, including shapes and numbers	C1.2 create and translate patterns that have repeating elements, movements, or operations using various representations, including shapes, numbers, and tables of values	C1.2 create and translate repeating and growing patterns using various representations, including tables of values and graphs	C1.2 create and translate growing and shrinking patterns using various representations, including tables of values and graphs	C1.2 create and translate repeating, growing, and shrinking patterns using various representations, including tables of values, graphs, and, for linear growing patterns, algebraic expressions and equations	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	C1.2 create and translate repeating, growing, and shrinking patterns involving rational numbers using various representations, including algebraic expressions and equations for linear growing and shrinking patterns

Using a continuum of learning

- A continuum of learning helps teachers to support students as they can see what learning comes before and what learning follows an expectation at a particular grade.
- This helps with
 - Next steps for students
 - Addressing a learning gap,
 - Differentiating instruction,
 - Teaching combined grades
- It is also useful for teachers in a division to work with to plan learning across grades.

Other supports

- Context (front matter)
- Glossary
- Examples
- Key Concepts
- Sample Tasks
- Long Range Plans
- Etc.

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Curriculum Context



Resources

Quick links

[Assessment and Evaluation](#) →

[Growing Success: The Mathematics Addendum, Grades 1 to 8, 2020](#) ↗

[Long-Range Plans](#) →



High-Impact Instructional Practices in Mathematics

Developed by the Ontario Ministry of Education

26-page document that outlines effective teaching practices in math



Key Changes – Ontario Mathematics Curriculum, Grades 1 to 8, 2020

1.69 MB

Developed by the Ontario Ministry of Education

Compares 2005 math curriculum to 2020 curriculum



Long-Range Plans

Sample LRP for each grade



Long-Range Plans | Primary Division, Grades 1-3 Mathematics

These LRPs are samples to help teachers see how the curriculum might be structured into learning sequences. There are many other approaches that can be taken.

The ministry has developed two sample approaches to long-range planning. One approach organizes the year around ten unifying questions. The other approach structures the year around topics or learning clusters.

 **Organized by Questions – Primary Division – PDF**
269.42 KB • 13 page(s)
Developed by the Ontario Ministry of Education 

 **Organized by Questions – Primary Division – Word**
Developed by the Ontario Ministry of Education 

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Other features to look for:

- Glossary
- Sample Tasks
- Examples
- Videos
- . . .

Breakout rooms

Breakout room #	Topic	Facilitator
Breakout room # 1	Long range planning	Ana Mena
Breakout room # 2	Continuums	Chris Suurtamm
Breakout room # 3	Exploring the structure of the curriculum	Nadine Trépanier-Bisson
Breakout room # 4	Equity	Luciana Cardarelli
Breakout room # 5	Mental Health	Jennifer Vieira

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