# Area of Learning: MATHEMATICS

## Kindergarten

### BIG IDEAS

- **Numbers** represent quantities that can be decomposed into smaller parts.
- One-to-one correspondence and a sense of 5 and 10 are essential for **fluency** with numbers.
- Repeating elements in **patterns** can be identified.
- Objects have **attributes** that can be described, measured, and compared.
- **Familiar events** can be described as likely or unlikely and compared.

### Learning Standards

<table>
<thead>
<tr>
<th>Curricular Competencies</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reasoning and analyzing</strong></td>
<td>Students are expected to do the following:</td>
</tr>
<tr>
<td>Use reasoning to explore and make connections</td>
<td>• number concepts to 10</td>
</tr>
<tr>
<td>Estimate reasonably</td>
<td>• ways to make 5</td>
</tr>
<tr>
<td>Develop <strong>mental math strategies</strong> and abilities to make sense of quantities</td>
<td>• decomposition of numbers to 10</td>
</tr>
<tr>
<td>Use <strong>technology</strong> to explore mathematics</td>
<td>• repeating <strong>patterns</strong> with two or three elements</td>
</tr>
<tr>
<td><strong>Model</strong> mathematics in contextualized experiences</td>
<td>• change in <strong>quantity</strong> to 10, using concrete materials</td>
</tr>
<tr>
<td><strong>Understanding and solving</strong></td>
<td>• <strong>equality as a balance</strong> and inequality as an imbalance</td>
</tr>
<tr>
<td>Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving</td>
<td>• <strong>direct comparative measurement</strong> (e.g., linear, mass, capacity)</td>
</tr>
<tr>
<td>Visualize to explore mathematical concepts</td>
<td>• <strong>single attributes</strong> of 2D shapes and 3D objects</td>
</tr>
<tr>
<td>Develop and use <strong>multiple strategies</strong> to engage in problem solving</td>
<td>• concrete or pictorial <strong>graphs</strong> as a visual tool</td>
</tr>
<tr>
<td>Engage in problem-solving experiences that are <strong>connected</strong> to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures</td>
<td>• likelihood of <strong>familiar life events</strong></td>
</tr>
<tr>
<td><strong>Communicating and representing</strong></td>
<td>• <strong>financial literacy</strong> — attributes of coins, and financial role-play</td>
</tr>
<tr>
<td><strong>Communicate</strong> mathematical thinking in many ways</td>
<td>• Use <strong>mathematical vocabulary and language</strong> to contribute to mathematical discussions</td>
</tr>
<tr>
<td>Use mathematical vocabulary and language to contribute to mathematical discussions</td>
<td>• <strong>Explain and justify</strong> mathematical ideas and decisions</td>
</tr>
<tr>
<td>Represent mathematical ideas in <strong>concrete, pictorial, and symbolic forms</strong></td>
<td>• Represent mathematical ideas in <strong>concrete, pictorial, and symbolic forms</strong></td>
</tr>
</tbody>
</table>
**Connecting and reflecting**

- **Reflect** on mathematical thinking
- Connect mathematical concepts to each other and to **other areas and personal interests**
- **Incorporate** First Peoples worldviews and perspectives to **make connections** to mathematical concepts
Area of Learning: MATHEMATICS

BIG IDEAS

Numbers to 20 represent quantities that can be decomposed into 10s and 1s.

Addition and subtraction with numbers to 10 can be modelled concretely, pictorially, and symbolically to develop computational fluency.

Repeating elements in patterns can be identified.

Objects and shapes have attributes that can be described, measured, and compared.

Concrete graphs help us to compare and interpret data and show one-to-one correspondence.

Learning Standards

Curricular Competencies

Reasoning and analyzing
- Use reasoning to explore and make connections
- Estimate reasonably
- Develop mental math strategies and abilities to make sense of quantities
- Use technology to explore mathematics
- Model mathematics in contextualized experiences

Understanding and solving
- Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
- Visualize to explore mathematical concepts
- Develop and use multiple strategies to engage in problem solving
- Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures

Communicating and representing
- Communicate mathematical thinking in many ways
- Use mathematical vocabulary and language to contribute to mathematical discussions
- Explain and justify mathematical ideas and decisions
- Represent mathematical ideas in concrete, pictorial, and symbolic forms

Content

Students are expected to know the following:
- number concepts to 20
- ways to make 10
- addition and subtraction to 20 (understanding of operation and process)
- repeating patterns with multiple elements and attributes
- change in quantity to 20, concretely and verbally
- meaning of equality and inequality
- direct measurement with non-standard units (non-uniform and uniform)
- comparison of 2D shapes and 3D objects
- concrete graphs, using one-to-one correspondence
- likelihood of familiar life events, using comparative language
- financial literacy — values of coins, and monetary exchanges
<table>
<thead>
<tr>
<th>Connecting and reflecting</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Reflect</strong> on mathematical thinking</td>
</tr>
<tr>
<td>• Connect mathematical concepts to each other and to <strong>other areas and personal interests</strong></td>
</tr>
<tr>
<td>• <strong>Incorporate</strong> First Peoples worldviews and perspectives to <strong>make connections</strong> to mathematical concepts</td>
</tr>
</tbody>
</table>
Area of Learning: MATHEMATICS

Grade 2

BIG IDEAS

Numbers to 100 represent quantities that can be decomposed into 10s and 1s.

Development of computational fluency in addition and subtraction with numbers to 100 requires an understanding of place value.

The regular change in increasing patterns can be identified and used to make generalizations.

Objects and shapes have attributes that can be described, measured, and compared.

Concrete items can be represented, compared, and interpreted pictorially in graphs.

Learning Standards

Curricular Competencies

Students are expected to do the following:

Reasoning and analyzing
- Use reasoning to explore and make connections
- Estimate reasonably
- Develop mental math strategies and abilities to make sense of quantities
- Use technology to explore mathematics
- Model mathematics in contextualized experiences

Understanding and solving
- Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
- Visualize to explore mathematical concepts
- Develop and use multiple strategies to engage in problem solving
- Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures

Communicating and representing
- Communicate mathematical thinking in many ways
- Use mathematical vocabulary and language to contribute to mathematical discussions
- Explain and justify mathematical ideas and decisions
- Represent mathematical ideas in concrete, pictorial, and symbolic forms

Content

Students are expected to know the following:

- number concepts to 100
- benchmarks of 25, 50, and 100 and personal referents
- addition and subtraction facts to 20 (introduction of computational strategies)
- addition and subtraction to 100
- repeating and increasing patterns
- change in quantity, using pictorial and symbolic representation
- symbolic representation of equality and inequality
- direct linear measurement, introducing standard metric units
- multiple attributes of 2D shapes and 3D objects
- pictorial representation of concrete graphs, using one-to-one correspondence
- likelihood of familiar life events, using comparative language
- financial literacy — coin combinations to 100 cents, and spending and saving
<table>
<thead>
<tr>
<th>Connecting and reflecting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reflect</strong> on mathematical thinking</td>
</tr>
<tr>
<td>Connect mathematical concepts to each other and to <strong>other areas and personal interests</strong></td>
</tr>
<tr>
<td><strong>Incorporate</strong> First Peoples worldviews and perspectives to <strong>make connections</strong> to mathematical concepts</td>
</tr>
</tbody>
</table>
### Area of Learning: MATHEMATICS

#### Grade 3

**BIG IDEAS**

- Fractions are a type of **number** that can represent quantities.
- Development of computational fluency in addition, subtraction, multiplication, and division of whole numbers requires flexible decomposing and composing.
- Regular increases and decreases in **patterns** can be identified and used to make generalizations.
- Standard units are used to describe, measure, and compare attributes of objects’ shapes.
- The likelihood of possible **outcomes** can be examined, compared, and interpreted.

### Learning Standards

**Curricular Competencies**

*Students are expected to do the following:*

**Reasoning and analyzing**
- Use reasoning to explore and make connections
- **Estimate reasonably**
- Develop **mental math strategies** and abilities to make sense of quantities
- Use **technology** to explore mathematics
- **Model** mathematics in contextualized experiences

**Understanding and solving**
- Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
- Visualize to explore mathematical concepts
- Develop and use **multiple strategies** to engage in problem solving
- Engage in problem-solving experiences that are **connected** to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures

**Communicating and representing**
- **Communicate** mathematical thinking in many ways
- Use mathematical vocabulary and language to contribute to mathematical discussions
- **Explain and justify** mathematical ideas and decisions
- Represent mathematical ideas in **concrete, pictorial, and symbolic forms**

**Content**

*Students are expected to know the following:*

- **number concepts to 1000**
- **fraction concepts**
- **addition and subtraction** to 1000
- Addition and subtraction facts to 20 (emerging **computational fluency**)
- **multiplication and division** concepts
- Increasing and decreasing **patterns**
- **pattern rules** using words and numbers, based on concrete experiences
- One-step addition and subtraction **equations** with an unknown number
- Measurement, using **standard units** (linear, mass, and capacity)
- **time** concepts
- Construction of **3D shapes**
- **one-to-one correspondence** with bar graphs, pictographs, charts, and tables
- Likelihood of **simulated events**, using comparative language
- **financial literacy** — fluency with coins and bills to 100 dollars, and earning and payment
### Connecting and reflecting

- **Reflect** on mathematical thinking
- Connect mathematical concepts to each other and to **other areas and personal interests**
- **Incorporate** First Peoples worldviews and perspectives to **make connections** to mathematical concepts
Fractions and decimals are types of **numbers** that can represent quantities.

Development of computational **fluency** and multiplicative thinking requires analysis of patterns and relations in multiplication and division.

Regular changes in **patterns** can be identified and represented using tools and tables.

Polygons are closed shapes with similar **attributes** that can be described, measured, and compared.

Analyzing and interpreting experiments in **data** probability develops an understanding of chance.

### BIG IDEAS

### Learning Standards

<table>
<thead>
<tr>
<th>Curricular Competencies</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students are expected to do the following:</strong></td>
<td><strong>Students are expected to know the following:</strong></td>
</tr>
<tr>
<td><strong>Reasoning and analyzing</strong></td>
<td>• <strong>number concepts</strong> to 10,000</td>
</tr>
<tr>
<td>• Use reasoning to explore and make connections</td>
<td>• <strong>decimals to hundredths</strong></td>
</tr>
<tr>
<td>• Estimate reasonably</td>
<td>• ordering and comparing <strong>fractions</strong></td>
</tr>
<tr>
<td>• Develop <strong>mental math strategies</strong> and abilities to make sense of quantities</td>
<td>• <strong>addition and subtraction</strong> to 10,000</td>
</tr>
<tr>
<td>• Use <strong>technology</strong> to explore mathematics</td>
<td>• <strong>multiplication and division</strong> of two- or three-digit numbers by one-digit numbers</td>
</tr>
<tr>
<td>• <strong>Model</strong> mathematics in contextualized experiences</td>
<td>• addition and subtraction of <strong>decimals</strong> to hundredths</td>
</tr>
<tr>
<td><strong>Understanding and solving</strong></td>
<td>• addition and subtraction facts to 20 (developing <strong>computational fluency</strong></td>
</tr>
<tr>
<td>• Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving</td>
<td>• multiplication and division <strong>facts</strong> to 100 (introductory computational strategies)</td>
</tr>
<tr>
<td>• Visualize to explore mathematical concepts</td>
<td>• increasing and decreasing <strong>patterns</strong>, using tables and charts</td>
</tr>
<tr>
<td>• Develop and use <strong>multiple strategies</strong> to engage in problem solving</td>
<td>• <strong>algebraic relationships</strong> among quantities</td>
</tr>
<tr>
<td>• Engage in problem-solving experiences that are <strong>connected</strong> to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures</td>
<td>• <strong>one-step equations</strong> with an unknown number, using all operations</td>
</tr>
<tr>
<td><strong>Communicating and representing</strong></td>
<td>• <strong>how to tell time</strong> with analog and digital clocks, using 12- and 24-hour clocks</td>
</tr>
<tr>
<td>• <strong>Communicate</strong> mathematical thinking in many ways</td>
<td>• regular and irregular <strong>polygons</strong></td>
</tr>
<tr>
<td>• Use mathematical vocabulary and language to contribute to mathematical discussions</td>
<td>• <strong>perimeter</strong> of regular and irregular shapes</td>
</tr>
<tr>
<td>• <strong>Explain and justify</strong> mathematical ideas and decisions</td>
<td></td>
</tr>
<tr>
<td>• Represent mathematical ideas in <strong>concrete</strong>, <strong>pictorial</strong>, and <strong>symbolic forms</strong></td>
<td></td>
</tr>
<tr>
<td>Connecting and reflecting</td>
<td>• line symmetry</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>• Reflect on mathematical thinking</td>
<td>• one-to-one correspondence and many-to-one correspondence, using bar graphs and pictographs</td>
</tr>
<tr>
<td>• Connect mathematical concepts to each other and to <strong>other areas and personal interests</strong></td>
<td>• probability experiments</td>
</tr>
<tr>
<td>• Incorporate First Peoples worldviews and perspectives to <strong>make connections</strong> to mathematical concepts</td>
<td>• financial literacy — monetary calculations, including making change with amounts to 100 dollars and making simple financial decisions</td>
</tr>
</tbody>
</table>
### Big Ideas

- **Numbers** describe quantities that can be represented by equivalent fractions.
- **Computational fluency** and flexibility with numbers extend to operations with larger (multi-digit) numbers.
- Identified regularities in number patterns can be expressed in tables.
- Closed shapes have area and perimeter that can be described, measured, and compared.
- **Data** represented in graphs can be used to show many-to-one correspondence.

### Learning Standards

#### Curricular Competencies

**Students are expected to do the following:**

**Reasoning and analyzing**
- Use reasoning to explore and make connections
- **Estimate reasonably**
- Develop mental math strategies and abilities to make sense of quantities
- Use technology to explore mathematics
- **Model** mathematics in contextualized experiences

**Understanding and solving**
- Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
- Visualize to explore mathematical concepts
- Develop and use multiple strategies to engage in problem solving
- Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures

**Communicating and representing**
- Communicate mathematical thinking in many ways
- Use mathematical vocabulary and language to contribute to mathematical discussions
- **Explain and justify** mathematical ideas and decisions
- Represent mathematical ideas in concrete, pictorial, and symbolic forms

#### Content

**Students are expected to know the following:**

- **Number concepts** to 1,000,000
- Decimals to thousandths
- Equivalent fractions
- Whole-number, fraction, and decimal benchmarks
- Addition and subtraction of whole numbers to 1,000,000
- **Multiplication and division** to three digits, including division with remainders
- Addition and subtraction of decimals to thousandths
- **Addition and subtraction facts to 20** (extending computational fluency)
- Multiplication and division facts to 100 (emerging computational fluency)
- Rules for increasing and decreasing patterns with words, numbers, symbols, and variables
- **One-step equations** with variables
- Area measurement of squares and rectangles
- Relationships between **area and perimeter**
- Duration, using measurement of time
- **Classification** of prisms and pyramids
- Single transformations
- One-to-one correspondence and **many-to-one**
<table>
<thead>
<tr>
<th>Connecting and reflecting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reflect</strong> on mathematical thinking</td>
</tr>
<tr>
<td>Connect mathematical concepts to each other and to <strong>other areas and personal interests</strong></td>
</tr>
<tr>
<td><strong>Incorporate</strong> First Peoples worldviews and perspectives to <strong>make connections</strong> to mathematical concepts</td>
</tr>
</tbody>
</table>

**correspondence**, using double bar graphs  
**probability experiments**, single events or outcomes  
**financial literacy** — monetary calculations, including making change with amounts to 1000 dollars and developing simple financial plans
Mixed numbers and decimal numbers represent quantities that can be decomposed into parts and wholes.

Computational fluency and flexibility with numbers extend to operations with whole numbers and decimals.

Linear relations can be identified and represented using expressions with variables and line graphs and can be used to form generalizations.

Properties of objects and shapes can be described, measured, and compared using volume, area, perimeter, and angles.

Data from the results of an experiment can be used to predict the theoretical probability of an event and to compare and interpret.

### BIG IDEAS

#### Curricular Competencies

**Reasoning and analyzing**
- Use logic and patterns to solve puzzles and play games
- Use reasoning and logic to explore, analyze, and apply mathematical ideas
- Estimate reasonably
- Demonstrate and apply mental math strategies
- Use tools or technology to explore and create patterns and relationships, and test conjectures
- Model mathematics in contextualized experiences

**Understanding and solving**
- Apply multiple strategies to solve problems in both abstract and contextualized situations
- Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
- Visualize to explore mathematical concepts
- Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures

**Communicating and representing**
- Use mathematical vocabulary and language to contribute to mathematical discussions

### Content

**Students are expected to know the following:**
- small to large numbers (thousandths to billions)
- multiplication and division facts to 100 (developing computational fluency)
- order of operations with whole numbers
- factors and multiples — greatest common factor and least common multiple
- improper fractions and mixed numbers
- introduction to ratios
- whole-number percents and percentage discounts
- multiplication and division of decimals
- increasing and decreasing patterns, using expressions, tables, and graphs as functional relationships
- one-step equations with whole-number coefficients and solutions
- perimeter of complex shapes
- area of triangles, parallelograms, and trapezoids
- angle measurement and classification
- volume and capacity
- triangles
| Explain and justify mathematical ideas and decisions |
| Communicate mathematical thinking in many ways |
| Represent mathematical ideas in concrete, pictorial, and symbolic forms |

**Connecting and reflecting**

- **Reflect** on mathematical thinking
- Connect mathematical concepts to each other and to **other areas and personal interests**
- Use mathematical arguments to support **personal choices**
- **Incorporate First Peoples** worldviews and perspectives to **make connections** to mathematical concepts

- combinations of **transformations**
- **line graphs**
- **single-outcome probability**, both theoretical and experimental
- **financial literacy** — simple budgeting and consumer math
Decimals, fractions, and percents are used to represent and describe parts and wholes of numbers.

Computational fluency and flexibility with numbers extend to operations with integers and decimals.

Linear relations can be represented in many connected ways to identify regularities and make generalizations.

The constant ratio between the circumference and diameter of circles can be used to describe, measure, and compare spatial relationships.

Data from circle graphs can be used to illustrate proportion and to compare and interpret.

Learning Standards

<table>
<thead>
<tr>
<th>Curricular Competencies</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students are expected to do the following:</td>
<td>Students are expected to know the following:</td>
</tr>
<tr>
<td><strong>Reasoning and analyzing</strong></td>
<td>• multiplication and division facts to 100 (extending computational fluency)</td>
</tr>
<tr>
<td>• Use logic and patterns to solve puzzles and play games</td>
<td>• operations with integers (addition, subtraction, multiplication, division, and order of operations)</td>
</tr>
<tr>
<td>• Use reasoning and logic to explore, analyze, and apply mathematical ideas</td>
<td>• operations with decimals (addition, subtraction, multiplication, division, and order of operations)</td>
</tr>
<tr>
<td>• Estimate reasonably</td>
<td>• relationships between decimals, fractions, ratios, and percents</td>
</tr>
<tr>
<td>• Demonstrate and apply mental math strategies</td>
<td>• discrete linear relations, using expressions, tables, and graphs</td>
</tr>
<tr>
<td>• Use tools or technology to explore and create patterns and relationships, and test conjectures</td>
<td>• two-step equations with whole-number coefficients, constants, and solutions</td>
</tr>
<tr>
<td>• Model mathematics in contextualized experiences</td>
<td>• circumference and area of circles</td>
</tr>
<tr>
<td><strong>Understanding and solving</strong></td>
<td>• volume of rectangular prisms and cylinders</td>
</tr>
<tr>
<td>• Apply multiple strategies to solve problems in both abstract and contextualized situations</td>
<td>• Cartesian coordinates and graphing</td>
</tr>
<tr>
<td>• Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving</td>
<td>• combinations of transformations</td>
</tr>
<tr>
<td>• Visualize to explore mathematical concepts</td>
<td>• circle graphs</td>
</tr>
<tr>
<td>• Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures</td>
<td>• experimental probability with two independent events</td>
</tr>
<tr>
<td><strong>Communicating and representing</strong></td>
<td>• financial literacy — financial percentage</td>
</tr>
<tr>
<td>• Use mathematical vocabulary and language to contribute to mathematical discussions</td>
<td>• Explain and justify mathematical ideas and decisions</td>
</tr>
</tbody>
</table>
- **Communicate** mathematical thinking in many ways
- Represent mathematical ideas in concrete, pictorial, and symbolic forms

**Connecting and reflecting**
- **Reflect** on mathematical thinking
- Connect mathematical concepts to each other and to **other areas and personal interests**
- Use mathematical arguments to support **personal choices**
- **Incorporate First Peoples** worldviews and perspectives to **make connections** to mathematical concepts
Area of Learning: MATHEMATICS

Grade 8

**BIG IDEAS**

<table>
<thead>
<tr>
<th>Number</th>
<th>Computational fluency</th>
<th>Discrete linear relationships</th>
<th>The relationship between surface area and volume of 3D objects</th>
<th>Analyzing data</th>
</tr>
</thead>
<tbody>
<tr>
<td>represents, describes, and compares the quantities of ratios, rates, and percents.</td>
<td>and flexibility extend to operations with fractions.</td>
<td>can be represented in many connected ways and used to identify and make generalizations.</td>
<td>can be used to describe, measure, and compare spatial relationships.</td>
<td>by determining averages is one way to make sense of large data sets and enables us to compare and interpret.</td>
</tr>
</tbody>
</table>

**Learning Standards**

<table>
<thead>
<tr>
<th>Curricular Competencies</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students are expected to do the following:</strong></td>
<td><strong>Students are expected to know the following:</strong></td>
</tr>
<tr>
<td><strong>Reasoning and analyzing</strong></td>
<td>• perfect squares and cubes</td>
</tr>
<tr>
<td>• Use logic and patterns to solve puzzles and play games</td>
<td>• square and cube roots</td>
</tr>
<tr>
<td>• Use reasoning and logic to explore, analyze, and apply mathematical ideas</td>
<td>• percents less than 1 and greater than 100 (decimal and fractional percents)</td>
</tr>
<tr>
<td>• Estimate reasonably</td>
<td>• numerical proportional reasoning (rates, ratio, proportions, and percent)</td>
</tr>
<tr>
<td>• Demonstrate and apply mental math strategies</td>
<td>• operations with fractions (addition, subtraction, multiplication, division, and order of operations)</td>
</tr>
<tr>
<td>• Use tools or technology to explore and create patterns and relationships, and test conjectures</td>
<td>• discrete linear relations (extended to larger numbers, limited to integers)</td>
</tr>
<tr>
<td>• Model mathematics in contextualized experiences</td>
<td>• expressions- writing and evaluating using substitution</td>
</tr>
<tr>
<td><strong>Understanding and solving</strong></td>
<td>• two-step equations with integer coefficients, constants, and solutions</td>
</tr>
<tr>
<td>• Apply multiple strategies to solve problems in both abstract and contextualized situations</td>
<td>• surface area and volume of regular solids, including triangular and other right prisms and cylinders</td>
</tr>
<tr>
<td>• Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving</td>
<td>• Pythagorean theorem</td>
</tr>
<tr>
<td>• Visualize to explore mathematical concepts</td>
<td>• construction, views, and nets of 3D objects</td>
</tr>
<tr>
<td>• Engage in problem-solving experiences that are connected to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures</td>
<td>• central tendency</td>
</tr>
<tr>
<td><strong>Communicating and representing</strong></td>
<td>• theoretical probability with two independent events</td>
</tr>
<tr>
<td>• Use mathematical vocabulary and language to contribute to mathematical discussions</td>
<td>• financial literacy — best buys</td>
</tr>
<tr>
<td>• Explain and justify mathematical ideas and decisions</td>
<td></td>
</tr>
</tbody>
</table>
- **Communicate** mathematical thinking in many ways
- Represent mathematical ideas in concrete, pictorial, and symbolic forms

### Connecting and reflecting
- **Reflect** on mathematical thinking
- Connect mathematical concepts to each other and to **other areas and personal interests**
- Use mathematical arguments to support **personal choices**
- **Incorporate First Peoples** worldviews and perspectives to **make connections** to mathematical concepts
## BIG IDEAS

- **The principles and processes underlying operations with numbers** apply equally to algebraic situations and can be described and analyzed.
- **Computational fluency and flexibility with numbers** extend to operations with rational numbers.
- **Continuous linear relationships** can be identified and represented in many connected ways to identify regularities and make generalizations.
- **Similar shapes have proportional relationships** that can be described, measured, and compared.
- **Analyzing the validity, reliability, and representation of data** enables us to compare and interpret.

## Learning Standards

### Curricular Competencies

**Students are expected to do the following:**

**Reasoning and analyzing**
- Use **logic and patterns** to solve puzzles and play games
- Use **reasoning and logic** to explore, analyze, and apply mathematical ideas
- **Estimate reasonably**
- Demonstrate and apply mental math strategies
- Use tools or technology to explore and create patterns and relationships, and test conjectures
- **Model** mathematics in contextualized experiences

**Understanding and solving**
- Apply **multiple strategies** to solve problems in both abstract and contextualized situations
- Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving
- Visualize to explore mathematical concepts
- Engage in problem-solving experiences that are **connected** to place, story, cultural practices, and perspectives relevant to local First Peoples communities, the local community, and other cultures

**Communicating and representing**
- Use mathematical vocabulary and language to contribute to mathematical discussions
- **Explain and justify** mathematical ideas and decisions

### Content

**Students are expected to know the following:**

- **operations** with rational numbers (addition, subtraction, multiplication, division, and order of operations)
- **exponents** and exponent laws with whole-number exponents
- operations with **polynomials**, of degree less than or equal to 2
- **two-variable linear relations**, using graphing, interpolation, and extrapolation
- **multi-step** one-variable linear equations
- spatial **proportional reasoning**
- **statistics** in society
- **financial literacy** — simple budgets and transactions
- **Communicate** mathematical thinking in many ways
- Represent mathematical ideas in concrete, pictorial, and symbolic forms

**Connecting and reflecting**
- **Reflect** on mathematical thinking
- Connect mathematical concepts to each other and to **other areas and personal interests**
- Use mathematical arguments to support **personal choices**
- **Incorporate First Peoples** worldviews and perspectives to **make connections** to mathematical concepts