

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

Curricular Competencies	Content
<p><i>Students are expected to do the following:</i></p> <p>Reasoning and analyzing</p> <ul style="list-style-type: none"> • 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 <p>Understanding and solving</p> <ul style="list-style-type: none"> • 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 <p>Communicating and representing</p> <ul style="list-style-type: none"> • 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 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • number concepts to 10 • ways to make 5 • decomposition of numbers to 10 • repeating patterns with two or three elements • change in quantity to 10, using concrete materials • equality as a balance and inequality as an imbalance • direct comparative measurement (e.g., linear, mass, capacity) • single attributes of 2D shapes and 3D objects • concrete or pictorial graphs as a visual tool • likelihood of familiar life events • financial literacy — attributes of coins, and financial role-play

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

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	Content
<p><i>Students are expected to do the following:</i></p> <p>Reasoning and analyzing</p> <ul style="list-style-type: none"> • 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 <p>Understanding and solving</p> <ul style="list-style-type: none"> • 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 <p>Communicating and representing</p> <ul style="list-style-type: none"> • 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 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • 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

Connecting and reflecting

- **Reflect** on mathematical thinking
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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	Content
<p><i>Students are expected to do the following:</i></p> <p>Reasoning and analyzing</p> <ul style="list-style-type: none"> 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 <p>Understanding and solving</p> <ul style="list-style-type: none"> 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 <p>Communicating and representing</p> <ul style="list-style-type: none"> 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 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> 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

Connecting and reflecting

- **Reflect** on mathematical thinking
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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	Content
<p><i>Students are expected to do the following:</i></p> <p>Reasoning and analyzing</p> <ul style="list-style-type: none"> 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 <p>Understanding and solving</p> <ul style="list-style-type: none"> 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 <p>Communicating and representing</p> <ul style="list-style-type: none"> 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 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> 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
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BIG IDEAS

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.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to do the following:</i></p> <p>Reasoning and analyzing</p> <ul style="list-style-type: none"> 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 <p>Understanding and solving</p> <ul style="list-style-type: none"> 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 <p>Communicating and representing</p> <ul style="list-style-type: none"> 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 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> number concepts to 10 000 decimals to hundredths ordering and comparing fractions addition and subtraction to 10 000 multiplication and division of two- or three-digit numbers by one-digit numbers addition and subtraction of decimals to hundredths addition and subtraction facts to 20 (developing computational fluency) multiplication and division facts to 100 (introductory computational strategies) increasing and decreasing patterns, using tables and charts algebraic relationships among quantities one-step equations with an unknown number, using all operations how to tell time with analog and digital clocks, using 12- and 24-hour clocks regular and irregular polygons perimeter of regular and irregular shapes

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

- **line symmetry**
- **one-to-one correspondence** and many-to-one correspondence, using bar graphs and pictographs
- **probability experiments**
- **financial literacy** — monetary calculations, including making change with amounts to 100 dollars and making simple financial decisions

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	Content
<p><i>Students are expected to do the following:</i></p> <p>Reasoning and analyzing</p> <ul style="list-style-type: none"> • 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 <p>Understanding and solving</p> <ul style="list-style-type: none"> • 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 <p>Communicating and representing</p> <ul style="list-style-type: none"> • 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 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • 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

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

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

BIG IDEAS

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.

Learning Standards

Curricular Competencies	Content
<p><i>Students are expected to do the following:</i></p> <p>Reasoning and analyzing</p> <ul style="list-style-type: none"> • 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 <p>Understanding and solving</p> <ul style="list-style-type: none"> • 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 <p>Communicating and representing</p> <ul style="list-style-type: none"> • Use mathematical vocabulary and language to contribute to mathematical discussions 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • 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

BIG IDEAS

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

Curricular Competencies	Content
<p><i>Students are expected to do the following:</i></p> <p>Reasoning and analyzing</p> <ul style="list-style-type: none"> • 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 <p>Understanding and solving</p> <ul style="list-style-type: none"> • 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 <p>Communicating and representing</p> <ul style="list-style-type: none"> • Use mathematical vocabulary and language to contribute to mathematical discussions • Explain and justify mathematical ideas and decisions 	<p><i>Students are expected to know the following:</i></p> <ul style="list-style-type: none"> • multiplication and division facts to 100 (extending computational fluency) • operations with integers (addition, subtraction, multiplication, division, and order of operations) • operations with decimals (addition, subtraction, multiplication, division, and order of operations) • relationships between decimals, fractions, ratios, and percents • discrete linear relations, using expressions, tables, and graphs • two-step equations with whole-number coefficients, constants, and solutions • circumference and area of circles • volume of rectangular prisms and cylinders • Cartesian coordinates and graphing • combinations of transformations • circle graphs • experimental probability with two independent events • financial literacy — financial percentage

- **Communicate** mathematical thinking in many ways
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Connecting and reflecting

- **Reflect** on mathematical thinking
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BIG IDEAS

Number represents, describes, and compares the quantities of ratios, rates, and percents.

Computational **fluency** and flexibility extend to operations with fractions.

Discrete linear relationships can be represented in many connected ways and used to identify and make generalizations.

The relationship between surface area and volume of **3D objects** can be used to describe, measure, and compare spatial relationships.

Analyzing **data** by determining averages is one way to make sense of large data sets and enables us to compare and interpret.

Learning Standards

Curricular Competencies	Content
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Connecting and reflecting

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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

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- **Communicate** mathematical thinking in many ways
- Represent mathematical ideas in concrete, pictorial, and symbolic forms

Connecting and reflecting

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