Manitoba Rural Learning Consortium
Early Years Mathematics
Essential Learning Document

Acknowledgements

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Introduction

This draft document is intended to support Early Years teachers in planning, teaching, assessing, and reporting on their Mathematics programs. The document has been designed to correlate the categories from the new provincial report card with the strands, essential learning (big ideas), and specific learning outcomes from the Manitoba Mathematics Curriculum. It is important to note that the attached templates are intended to serve as an example of how teachers might identify essential learning and cluster specific learning outcomes. Therefore, the templates may be viewed as a "pathway" and support document to help teachers in implementing the Mathematics curriculum and the new provincial report card. Teachers are encouraged to continue to innovate their practice and inspire their students.

The document should be used alongside the Manitoba Curriculum Framework of Outcomes for Mathematics, as well as the grade-specific support documents. In addition, teachers are encouraged to consider the following issues:

- On each template, essential vocabulary has been included in the Knowledge and Understanding category. This vocabulary has been identified through an examination of the specific learning outcomes for each strand. These are terms that teachers and students will be using as they explore the mathematical concepts related to each strand.
- Although the templates have been organized by specific strands of the Mathematics curriculum, the overall program is intended to be presented as a spiral curriculum. Using this approach, strands are interwoven and explored throughout the school year.

What is mathematical literacy?

- Mathematically literate individuals can effectively communicate in order to learn and express their understanding, connect mathematical ideas to other concepts in mathematics, to everyday experiences, and to other disciplines.
- Mathematically literate individuals demonstrate fluency with mental mathematics and estimation, develop and apply new mathematical knowledge through problem solving and mathematical reasoning.
- Students need to select and use technologies as tools for learning and solving problems as well as develop visualization skills to assist in processing information and making connections.
- Mathematical literacy is an evolving combination of recognizing describing, and working with numerical and non-numerical patterns, having an intuitive number sense, interpreting and reflecting on the physical environment and making predictions.

Grade One - Strand: Number

Enduring Understanding: Students will understand that developing number sense enables them to count, represent, and compare quantities, and to use operations to determine quantities.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Use counting as a strategy for finding the answer to "how many."	In what different ways can we count?	- count forward/backward to 100 - 2s to 30 - 5s, 10s to 100	1N1, 1N3, 1N5, 1N8	estimate referent sum difference add subtract number line set more fewer equal unequal count forward count backward strategy count on count back one more one less two more two less doubles making ten
	Represent quantities in a variety of ways.	How can quantities be shown? How many different ways can you represent a number?	- numbers to 20 using objects, pictures, and symbols.	1N4, 1N7	
	Compare and order numbers in a variety of ways.	How can we compare and order numbers?	- sets to 20, using referents and 1-1 correspondence	1N5	
	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we take apart and put together quantities?	- answers to 20, concretely, pictorially, and symbolically	1N9	
Mental Math and Estimation	Determine, through instant recognition or by thinking of it in its parts, the quantity of a small collection.	How can we identify quantities without counting?	- subitize to 10 (dots or objects)	1N2	
	Use counting as a strategy for finding the answer to "how many."	In what different ways can we count using mental math strategies?	- count on, count groups, 1 more/1 less, 2 more/2 less	1N1, 1N3, 1N8, 1N10	
	Estimate quantities using referents.	How can we estimate quantities?	- quantities to 20	1N6	
	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we take apart and put together quantities using mental math strategies?	- for facts to 18: doubles, making 10s, start from known double, use addition to subtract	1N9, 1N10	
Problem Solving	Counting is a strategy for finding the answer to "how many."	How can we solve problems by counting?	- counting to 20	1N5	
	Compare and order numbers in a variety of ways.	How can we compare and order numbers to solve problems?	- compare/order to 20	1N5	
	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we create and solve problems using addition and subtraction??	- add/subtract to 20	1N9, 1N10	

Grade One - Strand: Patterns & Relations

Enduring Understanding: Students will understand that mathematics is the study of patterns and relationships, and by recognizing and exploring the inherent patterns in mathematics, they will see relationships, make predictions, and understand concepts.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Demonstrate an understanding of patterns. Describe equality as a balance and inequality as an imbalance.	How can we describe, reproduce, extend, create, and translate patterns? How can we show equality and inequality?	- repeating patterns (2 to 4 elements) - 0 to 20, concretely and pictorially)	1PR1, 1PR2 1PR3, 1PR4	repeating pattern core element extend create same more less equal not equal balance equal sign/symbol
Mental Math and Estimation					
Problem Solving	Demonstrate an understanding of repeating patterns. Record equalities using the equal symbol	How can we describe, reproduce, extend, and create repeating patterns to solve problems? How can we solve problems involving equalities?	- repeating patterns (2 to 4 elements) - 0 to 20, concretely and pictorially)	1PR1 1PR4	

Grade One – Strand: Shape & Space

Enduring Understanding: Students will understand that spatial sense offers a way to interpret and reflect on the physical environment, and enables them to reason and interpret between representations of measurement and geometry.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Identify, compare, and order objects based on distinct attributes. Identify, sort, and compare geometric shapes and objects.	How can we identify, compare, and order objects? How can we identify, sort, and compare geometric shapes and objects?	- length, area, volume, and mass -2D shapes and 3D objects	1SS1 1SS2, 1SS4	attribute measure height length longer longest shorter shortest heavier heaviest lighter lightest more less most least greatest
Mental Math and Estimation	Compare, and order objects based on distinct attributes.	How can we use estimation to compare and order objects?	- length, area, volume, and mass	1SS1	
Problem Solving	Identify, compare, and order objects based on distinct attributes. Construct and replicate geometric shapes and objects.	How can we solve problems by identifying, comparing, and ordering objects? How can we build and copy geometric shapes and objects?	- length, area, volume, and mass - 2D shapes and 3D objects	1SS1 1SS3	

Grade Two - Strand: Number

Enduring Understanding: Students will understand that developing number sense enables them to count, represent, and compare quantities, and to use operations to determine quantities.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Use counting as a strategy for finding the answer to "how many."	In what different ways can we count?	- counts forward and backward to 100 - 2s, 5s & 10s using respective starting points - 10s using starting points 1-9 - 2s starting from 1	2N1	count forward, count backward, count back, skip count, making ten, difference, greatest, one more, one less, two more, two less, represent, ten frame, place value, position, digit, 1-digit, 2-digit, numeral, number sentence, base ten blocks, doubles, count on, odd, even, Sum, least, order, ordinal, strategy, tally, compare, estimate, coin, quarter, dime, nickel, penny, set
	Represent quantities in a variety of ways.	How can quantities be shown? How many different ways can you represent a number?	- numbers to 100 using objects, pictures, and symbols.	2N4, 2N7	
	Compare and order numbers in a variety of ways.	How can we compare and order numbers?	- ordinal numbers - numbers to 100.	2N3, 2N5	
	Identify and demonstrate properties of numbers.	What are the different number properties?	- even/odd numbers to 100. - effect of +/- zero from any number.	2N2, 2N8	
	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we take apart and put together quantities?	- answers to 100 limited to 1 and 2-digit numerals - personal strategies with and without manipulatives.	2N9, 2N10	

Mental Math and Estimation	Use counting as a strategy for finding the answer to "how many."	In what different ways can we count using mental math strategies?	- Counts forward and backward to 100 - 2s, 5s & 10s using respective starting points - 10s using starting points 1-9 - 2s starting from 1	2N1	
	Estimate quantities using referents.	How can we estimate quantities?	- quantities to 100.	2N6	
	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we take apart and put together quantities using mental math strategies?	- answers to 100 limited to 1 and 2-digit numerals - personal strategies with and without manipulatives. - doubles/making 10/ 1 more, 1 less/2 more, 2 less/building on known double/use + for – facts to 18.	2N9, 2N10	
Problem Solving	Identify and demonstrate properties of numbers.	How can we use the properties of numbers to solve problems?	- numbers to 100 even/odd	2N2	
	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we create and solve problems using addition and subtraction??	- add/subtract to 100	2N9	

Grade Two - Strand: Pattern & Relations

Enduring Understanding: Students will understand that mathematics is the study of patterns and relationships, and by recognizing and exploring the inherent patterns in mathematics, they will see relationships, make predictions, and understand concepts.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Predict an element in a pattern. Demonstrate an understanding of patterns. Describe, demonstrate, and record the meaning of equality and inequality.	How can an element in a repeating pattern be predicted? How can we describe, reproduce, extend, and create increasing patterns? What is equality and inequality? How can equality and inequality be shown?	- repeating patterns - increasing patterns (numbers to 100) using objects, pictures, sounds and actions. - symbolic representation using the equal symbol or the not equal symbol.	2PR1 2PR2 2PR3, 2PR4	pattern repeating pattern increasing pattern core predict element extend reproduce rule term
Mental Math and Estimation					
Problem Solving	Predict an element in a pattern. Demonstrate an understanding of patterns.	How can an element in a repeating pattern be predicted to solve problems? How can we describe, reproduce, extend, and create increasing patterns to solve problems?	- solve problems with repeating patterns. - solve problems with increasing patterns.	2PR1 2PR2	

Grade Two - Strand: Shape & Space

Enduring Understanding: Students will understand that spatial sense offers a way to interpret and reflect on the physical environment, and enables them to reason and interpret between representations of measurement and geometry.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Relate, compare, measure and order objects based on distinct attributes.	How can we relate, compare, measure, and order objects by length, area, volume, and mass?	- measure length using non-standard units - compare and order objects by length, height, distance around, area, mass and volume.	2SS2, 2SS3, 2SS4	2D shape, triangle, square, rectangle, circle, 3D object, face, weight/mass, unit, non-standard, yesterday, today, tomorrow, date, calendar, edge, length, days of the week, months of the year, estimate, attribute, measure, around, distance, height, prism, cube, sphere, cone, cylinder, pyramid, same, different, sort, corner
	Demonstrate that changing the orientation does not affect the measurement of its attributes.	Why does changing the orientation not affect the measurement of an object's attributes?	- changing the orientation does not alter an object's length, area, volume and mass.	2SS5	
	Describe and order events.	How can events be described and ordered?	- days to a week/months to a year	2SS1	
	Identify, describe, sort, compare, and construct geometric shapes and objects.	How can we identify, describe, sort, and compare geometric shapes and objects?	- sort 2D and 3D using 2 attributes - cubes, spheres, cones, cylinders, prisms and pyramids - triangles, squares, rectangles, circles	2SS6, 2SS7, 2SS8, 2SS9	
Mental Math and Estimation	Relate, compare, measure and order objects based on distinct attributes using non-standard units.	How can we use estimation to relate, compare, measure and order objects by length, area, volume and mass?	- solve problems by measuring length using non-standard units - solve problems by comparing and ordering objects by length, height, distance around, area, mass and volume.	2SS2, 2SS3, 2SS4	
Problem Solving	Describe and order events.	How can events be described and ordered to solve problems?	- solve problems related to days to a week/months to a year	2SS1	

Grade Two –
Strand: Statistics and Probability

Enduring Understandings: Students will understand that questions can be answered by collecting, organizing, recording and analyzing data.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Collect, organize and record data to answer questions. Construct and interpret graphs.	How can data be used to answer questions? How can graphs be constructed and interpreted?	- data about self and others - concrete graphs and pictographs	2SP1 2SP2	compare label title data tally concrete graph pictograph survey
Mental Math and Estimation					
Problem Solving	Collect, organize and record data to answer questions. Construct and interpret graph.	How can data be used to solve problems? How can graphs be constructed and interpreted to solve problems?	- data about self and others - concrete graphs and pictographs	2SP1 2SP2	

Grade Three - Strand: Number

Enduring Understanding: Students will understand that developing number sense enables them to count, represent, and compare quantities, and to use operations to determine quantities.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Use counting as a strategy for finding the answer to "how many."	In what different ways can we count?	- 0 to 1000, by 10s, 100s from any start, 5s from any 5 multiple, 25s from any 25 multiple	3N1	divide equal grouping equal sharing hundreds place multiply number line product quotient array fraction strategy doubles doubles plus one doubles minus one doubles plus two doubles minus two making ten
	Represent, describe, compare and order whole and fractional numbers in a variety of ways.	How can quantities be shown? How many different ways can you represent a number? How can we describe, compare and order whole and fractional numbers?	- to 1000 concretely, pictorially, and symbolically - place value to 1000 - fractions of a whole	3N2, 3N3, 3N5, 3N13	
	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we take apart and put together quantities?	- to 1000, using 1 to 3-digit numerals	3N6, 3N7, 3N8, 3N9, 3N10	
	Demonstrate an understanding of multiplication and division. Multiplication is repeated addition, division is repeated subtraction and both are inverse operations.	How can multiplication and division be shown? What is the meaning of multiplication? What is the meaning of division? How are multiplication and division related?	- up to 5 x 5	3N11, 3N12	

Mental Math and Estimation	Use counting as a strategy for finding the answer to "how many."	In what different ways can we count using mental math strategies?	- 0 to 1000, by 10s, 100s from any start, 5s from any 5 multiple, 25s from any 25 multiple	3N1	
	Estimate quantities using referents to predict sums and differences.	How can we use estimation to predict quantities, sums and differences?	- up to 1000	3N4, 3N8,	
	Describe and compare fractional numbers in a variety of ways.	How can we describe and compare fractional numbers?	- fractions of a whole	3N13	
	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we take apart and put together quantities using mental math strategies?	- to 1000, using 1 to 3-digit numerals - facts to 18 (+, –)	3N6, 3N7, 3N9, 3N10	
Problem Solving	Estimate quantities using referents.	How can we use estimation when solving addition and subtraction problems?	- up to 1000	3N4, 3N8	
	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we create and solve problems using addition and subtraction?	- to 1000, using 1 to 3-digit numerals	3N6, 3N7, 3N8, 3N9	
	Demonstrate an understanding of multiplication and division. Multiplication is repeated addition, division is repeated subtraction and both are inverse operations.	How can we create and solve problems using multiplication and division?	- up to 5 x 5	3N11, 3N12	

Grade Three –
Strand: Pattern & Relations

Enduring Understanding: Students will understand that mathematics is the study of patterns and relationships, and by recognizing and exploring the inherent patterns in mathematics, they will see relationships, make predictions, and understand concepts.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Describe, extend, compare, and create patterns. Solve one-step addition and subtraction equations.	How can we describe, extend, compare, and create patterns? How can we solve one-step addition and subtraction equations?	- increasing and decreasing patterns using objects, pictures, and numbers to 1000 - using symbols representing an unknown number	3PR1, 3PR2 3PR3	increasing pattern decreasing pattern equal unequal element term pattern rule symbol value
Mental Math and Estimation					
Problem Solving	Describe, extend, compare, and create patterns to solve problems. Solve one-step addition and subtraction equations.	How can we describe, extend, compare, and create patterns to solve problems? How can we solve problems involving one-step addition and subtraction equations?	- increasing and decreasing patterns using objects, pictures, and numbers to 1000 - using symbols representing an unknown number	3PR1, 3PR2 3PR3	

Grade Three - Strand: Shape & Space

Enduring Understanding: Students will understand that spatial sense offers a way to interpret and reflect on the physical environment, and enables them to reason and interpret between representations of measurement and geometry.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Measure objects based on distinct attributes using standard units. Demonstrate an understanding of perimeter of regular and irregular shapes. Describe and order events. Describe 3-D objects and sort regular and irregular polygons?	How can we measure objects by length and mass? What is perimeter? How can events be described and ordered? How can we describe 3-D objects? How can we sort regular and irregular polygons?	- length: cm and m - mass: g and kg - estimate, measure, and construct using cm and m - non standard and seconds, minutes, hours, days, weeks, months, year - triangle, quadrilateral, pentagon, hexagon, octagon	3SS3, 3SS4 3SS5 3SS1, 3SS2 3SS6, 3SS7	centimeter denominator edge face gram hexagon kilogram metre numerator octagon pentagon perimeter polygon quadrilateral vertex width
Mental Math and Estimation	Measure objects based on distinct attributes using standard units. Demonstrate an understanding of perimeter of regular and irregular shapes. Describe and order events.	How can we use estimation to measure objects by length and mass? How can we use estimation to work out the perimeter of regular and irregular shapes? How can the passage of time be estimated?	- length: cm and m - mass: g and kg - cm and m - non standard and seconds, minutes, hours, days, weeks, months, year	3SS3, 3SS4 3SS5 3SS1	
Problem Solving	Measure the length of objects . Demonstrate an understanding of perimeter of regular and irregular shapes. Describe and order events. Describe 3-D objects.	How can we solve problems using linear measurement? How can we use perimeter to solve problems? How can events be described and ordered to solve problems? How can 3-D objects be described to solve problems?	- cm and m - cm and m - non standard and seconds, minutes, hours, days, weeks, months, year - triangle, quadrilateral, pentagon, hexagon, octagon	3SS3, 3SS4 3SS5 3SS1 3SS6	

Grade Three –
Strand: Statistics & Probability

Enduring Understandings: Students will understand that questions can be answered by collecting, organizing, recording and analyzing data.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Collect, organize and record data to answer questions. Construct, label, and interpret graphs.	How can data be used to answer questions? How can graphs be constructed, labeled, and interpreted?	- tally marks, line plots, charts, lists - bar graphs	3SP1 3SP2	data tally marks line plot chart list title axis collect organize conclusions label bar graph
Mental Math and Estimation					
Problem Solving	Construct, label, and interpret graphs.	How can graphs be constructed, labeled, and interpreted to solve problems?	- bar graphs	3SP2	

Grade Four - Strand: Number

Enduring Understanding: Students will understand that developing number sense enables them to count, represent, and compare quantities, and to use operations to determine quantities.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Describe, represent, compare and order numbers in a variety of ways.	How can quantities be shown? How many different ways can you represent a number? How can we compare and order whole and fractional numbers?	- whole numbers to 10 000, fractions less than or equal to one, and decimals (tenths and hundredths) using objects, pictures, and symbols.	4N1, 4N2, 4N8, 4N9, 4N10	decimal doubling expanded notation hundredths place tenths place numerator denominator
	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we take apart and put together quantities?	- addition/subtraction to 10 000 (limited to 3 and 4-digit numerals) using personal strategies. - addition/subtraction of decimals to hundredths	4N3, 4N11	place digit estimate value distributive property quotient divisor
	Demonstrate an understanding of multiplication and division and its related properties. Multiplication is repeated addition, division is repeated subtraction and both are inverse operations.	How can multiplication and division be shown? What is the meaning of multiplication? What is the meaning of division? How is multiplication and division related?	- properties of 0 and 1 for multiplication/property of 1 for division - personal strategies with or without manipulatives for: multiplication (2- or 3- digit numerals by 1-digit numeral) and division (1-digit divisor and up to 2-digit dividend)	4N4, 4N5, 4N6, 4N7	dividend equivalent compatible numbers fraction array strategy skip count halving doubles plus one more group repeated doubling patterns in the 9s facts

Mental Math and Estimation	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we take apart and put together quantities using mental math strategies?	- addition/subtraction to 10 000 (limited to 3 and 4-digit numerals) using personal strategies. - addition/subtraction of decimals to hundredths	4N3, 4N11	
	Demonstrate an understanding of multiplication and division and its related properties. Multiplication is repeated addition, division is repeated subtraction and both are inverse operations.	How can mental math strategies be used in multiplication and division?	- skip counting from known fact/doubling or halving/ doubling or halving and add or subtract one more group/9s facts patterns/repeated doubling	4N5, 4N6, 4N7	
Problem Solving	Demonstrate an understanding of fractions.	How can we use fractions when solving problems?	- fractions less than or equal to one to solve problems	4N8	
	Take apart and put together quantities. Understand that addition and subtraction are inverse operations.	How can we solve problems using addition and subtraction?	- addition/subtraction to 10 000 (limited to 3 and 4-digit numerals) using personal strategies to solve problems - addition/subtraction of decimals to hundredths to solve problems	4N3, 4N11	
	Demonstrate an understanding of multiplication and division. Multiplication is repeated addition, division is repeated subtraction and both are inverse operations.	How can we solve problems using multiplication and division?	- personal strategies with or without manipulatives for: multiplication (2- or 3- digit numerals by 1-digit numeral) and division (1-digit divisor and up to 2-digit dividend) to solve problems	4N5, 4N6, 4N7	

Grade Four – Strand : Pattern & Relations

Enduring Understanding: Students will understand that mathematics is the study of patterns and relationships, and by recognizing and exploring the inherent patterns in mathematics, they will see relationships, make predictions, and understand concepts.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Identify, represent, reproduce, describe, extend, and compare patterns. Express and solve one-step equations.	How can we identify, represent, reproduce, describe, extend and compare patterns found in tables and charts? How can we express and solve one-step equations?	- use tables and charts including the multiplication chart and/or concrete materials - a symbol is used to represent an unknown number.	4PR1, 4PR2, 4PR3, 4PR4 4PR5, 4PR6	increasing pattern decreasing pattern equal unequal element term pattern rule symbol value
Mental Math and Estimation					
Problem Solving	Identify, represent, reproduce, describe, extend, and compare patterns. Express and solve one-step equations.	How can we identify, represent, reproduce, describe, extend and compare patterns found in tables and charts to solve problems? How can we express and solve one-step equations in a problem solving context?	- use tables and charts including the multiplication chart and/or concrete materials to solve problems - a symbol is used to represent an unknown number.	4PR1 4PR3, 4PR4 4PR5, 4PR6	

Grade Four - Strand: Shape & Space

Enduring Understanding: Students will understand that spatial sense offers a way to interpret and reflect on the physical environment, and enables them to reason and interpret between representations of measurement and geometry.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Demonstrate an understanding of area. Read and record time and dates. Describe and construct prisms. Identify, create, and draw 2D shapes.	What is area? How can area be shown? How can time and dates be read and recorded? How can rectangular and triangular prisms be described and constructed? How can line symmetry be demonstrated?	- area of regular and irregular 2-D shapes. - digital, analog and 24-hour clocks - rectangular and triangular prisms - line symmetry	4SS3 4SS1, 4SS2 4SS5 4SS6	digital clock analog clock (12-hour, 24-hour) minutes to minutes after a.m. p.m. are square units (cm, m) line of symmetry symmetrical non-symmetrical superimpose
Mental Math and Estimation	Demonstrate an understanding of area.	How can we use estimation to work out the area of regular and irregular shapes?	- estimate the area of regular and irregular 2-D shapes.	4SS3	
Problem Solving	Demonstrate an understanding of area. Solve problems involving shapes and objects.	How can we use area to solve problems? How can we solve problems involving 2-D shapes and 3-D objects?	- use area of regular and irregular 2-D shapes to solve problems. - 2-D shapes and 3-D objects to solve problems.	4SS3 4SS4	

Grade Four –
Strand: Statistics & Probability

Enduring Understandings: Students will understand that questions can be answered by collecting, organizing, recording and analyzing data; and that experimental or theoretical probability can be used to represent and solve problems involving uncertainty.

Report Card Subject Categories	Essential Learning	Essential Questions	Concepts	Specific Learning Outcomes	Essential Vocabulary
Knowledge and Understanding	Read, represent, interpret, label, construct, and compare graphs involving many-to-one correspondence.	How can graphs be read, represented, labeled, constructed, and compared involving many-to-one correspondence?	- pictographs and bar graphs	4SP1, 4SP2	data horizontal axis vertical axis interval legend key bar graph line graph pictograph pie graph most least more than less than equal label interpret title categories point
Mental Math and Estimation					
Problem Solving	Read, represent, interpret, label, construct, extend, and compare graphs involving many-to-one correspondence.	How can graphs be read, represented, labeled, constructed, extended and compared involving many-to-one correspondence to solve problems?	- pictographs and bar graphs	4SP2	

Early Years Mathematics Definitions –
Provincial Report Card Categories

Knowledge and Understanding

This report card category focuses on student progress related to learning experiences in which students demonstrate knowledge and understanding of grade-specific mathematical concepts and skills in each strand (Number, Patterns and Relations, Shape and Space, Statistics and Probability) within each reporting period.

Mental Math and Estimation

This report card category focuses on student progress related to learning experiences in which students use math knowledge and number facts to calculate mentally or estimate.

Problem Solving

This report card category focuses on student progress related to learning experiences in which students apply knowledge, skill, or understanding to solve math problems.

References:
The Manitoba Report Card Support Document. Manitoba Education. 2012.

Essential Learning Terminology

Enduring understanding

"Enduring understandings are statements summarizing important ideas and core processes that are central to a discipline and have lasting value beyond the classroom. They synthesize what students should understand….as a result of studying a particular content area. Moreover, they articulate what students should "revisit" over the course of their lifetimes in relationship to the content area."

Key performance skills

Key performance skills draw on a variety of skills. Performance skills develop within the individual and grow in sophistication over time. Some examples of key performance skills include problem solving, critical thinking and inquiry, design process etc.

Values/attitudes/dispositions

Students need to develop the values and attitudes that assist them in understanding each discipline with some depth, then knowing how to communicate their understanding while seeing the relationship between each discipline.

Essential questions

Questions that are not answerable with finality in a brief sentence…their aim is to stimulate thought, provoke inquiry and spark more questions. *Wiggins/McTighe 2005*

Concepts

The broad concept provides a frame through which students filter information *(Erickson*). When a concept is truly understood it can be explained and is transferrable, or applied to problem-solving. *Wiggins/McTighe 2005*

Essential vocabulary

Vocabulary is introduced when needed to clarify experiences and ideas rather than in a list of new terms that start the unit. Essential vocabulary consists of figurative language, nuances in word meaning, roots, affixes, context clues, dictionary, thesaurus, pronunciation, parts of speech. *Wiggins/McTighe 2005*

Sample Grade Book

Grade One Math
Strand: Number

Enduring Understanding: Students will understand that developing number sense enables them to count, represent, and compare quantities, and to use operations to determine quantities.

4 Thorough understanding
3 Very good understanding
2 Basic understanding
1 Limited understanding
ND Not yet demonstrated

Students	Report Card Categories										
	Knowledge and Understanding				**Mental Math and Estimation**				**Problem Solving**		
	Essential Questions In what different ways can we count? How can quantities be shown? How many different ways can you represent a number? How can we compare and order numbers? How can we take apart and put together quantities?				Essential Questions How can we identify quantities without counting? In what different ways can we count using mental math strategies? How can we estimate quantities? How can we take apart and put together quantities using mental math strategies?				Essential Question How can we solve problems by counting? How can we compare and order numbers to solve problems? How can we create and solve problems using addition and subtraction?		
	Evidence from Learning Experiences				**Evidence from Learning Experiences**				**Evidence from Learning Experiences**		
	Count: forward, back to 100/ 2s to 30/ 5s, 10s to 100	Represent: to 20	Compare/ order: to 20	Add/ subtract: to 20	Subitize: 1 to 10	Count on/ count groups/ 1 more, 1 less/ 2 more, 2 less	Estimate quantities to 20	Doubles/ making 10s/ start from known double/ Use + to – for facts to 18	Problem Solving: Counting to 20	Problem Solving: compare/order to 20	Problem Solving: add/subtract to 20