K – 9 Math Curriculum Concept Map

Skill	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
Read, Write & Represent/ Decompose Numbers (Binder 1)	**NK.1:** say & state before/after whole numbers to 10 **NK.3:** relate to quantity whole numbers to 10 **NK.4:** partition whole numbers to 10 BCM: 1,3, 4	**N1.2:** recognize 1-10 objects at a glance **N1.4:** represent & describe whole numbers1-20 **N1.6:** estimate quantities ≤20 using a referent **N1.7:** represent equal grouping with/without singles BCM: 1, 5	**N2.1:** •relate whole numbers to 100 to quantity & place value •represent using proportional and non-proportional material & referents •write 0-20 in words BCM: 4	**N3.1:** •relate whole numbers to 1000 to quantity & place value •use referents to estimate groups of 10 or 1000 BCM: 1	**N4.1:** understand whole numbers to 10 000 using place value & value of each digit **N4.7:** understand decimals to hundredths & value of each digit BCM: 10b	**N5.1:** understand whole numbers to millions using place value, base 10 **N5.6**: understand decimals to thousandths & quantity of each digit BCM: 6	**N6.1:** understand place value greater than one million & less than one thousandth BCM: 1			
Counting (Binder 2)	**NK.1:** recite by 1s forward & back from 0 to 10 **NK.2:** recognize at a glance to 5 BCM: 2, 3	**N1.1:** 1s forward & back to 100, 2s forward to 20, 5s & 10s forward to 100 from 0 **N1.3:** identifies 'how many' BCM: 2, 3, 4, 7	**N2.1:** 1s, 2s, 5s & 10s forward & back to 100 starting at any number & count object in grouping of 10 BCM: 2	**N3.1:** 1s, 2s, 5s, 10s &100s starting at any number & 3s, 4s &25s from their multiples forward & back to 1000 BCM: 12						
Comparing, Ordering & Sorting (Binder 3)	**NK.5:** show more, fewer & as many with sets of up to 10 elements BCM: 5a, 5b	**N1.5:** order sets of up to 20 elements using referents & describe using more, fewer & as many **N1.8:** compare using 1 or 2 more or less BCM: 6	**N2.1:** -sort whole numbers to 100 into ascending and descending order -sort into even & odd BCM: 1, 3	**N3.1:** sort whole numbers to 1000 into ascending and descending order BCM: 2	**N4.1:** compare & order whole numbers to 10 000 BCM: 1, 2	**N5.1:** whole numbers to millions **N5.6:** compare & order decimals to thousandths using benchmarks BCM: 1, 7				
Adding (Binder 4 & 5)		**N1.9 :** whole numbers with answers to 20 **N1.10:** using mental math BCM: 8, 11, 12	**N2.2:** whole numbers with answers to 100 including mental math & estimation BCM: 5, 7	**N3.2:** whole numbers with answers to 1000 including mental math & estimation BCM: 3, 4	**N4.2:** whole numbers with answers to 10 000 **& N4.8:** decimals to hundredths using compatible numbers & including mental math & estimation BCM: 3, 11	**N5.4:** strategies for estimation & compensation **N5.7:** decimals to thousandths BCM: 4, 9, 10		**N7.2:** decimals to thousandths BCM: 2		
Subtracting (Binder 4 & 5)		**N1.9:** whole numbers to 20 **N1.10:** using mental math BCM: 9, 10, 12	**N2.2:** whole numbers to 100 including mental math & estimation BCM: 6, 8	**N3.2:** whole numbers to 1000 including mental math & estimation BCM: 5, 6	**N4.2:** whole numbers to 10 000 **N4.8:** decimals to hundredths BCM: 4	**N5.4:** strategies for estimation & compensation **N5.7:** decimals to thousandths BCM: 11, 12		**N7.2:** decimals to thousandths BCM: 2		
Multiplying (Binder 6 & 7)				**N3.3:** whole numbers from 1X1 to 5X5 using repeated addition, groups, arrays & commutative property BCM: 7	**N4.3:** whole numbers ≤ 10 using mental math **N4.4:** 2 or 3 digits by 1 digit using personal strategies, arrays & estimation BCM: 5, 6	**N5.2:** up to 2 digits by 2 digits whole numbers **N5.4:** strategies for estimation & compensation BCM: 2	**N6.4:** decimals by 1 digit whole number multiplier BCM: 6	**N7.2:** decimals •1 digit multiplier without using technology •more than 2 digit multiplier using technology BCM: 2		
Dividing (Binder 6 & 7)				**N3.3:** whole numbers to corresponding to multiplication using repeated subtraction, groups & arrays BCM: 8	**N4.5:** •1 digit divisor with 1-2 digit dividend •relate division to multiplication •dividing by 1 rule BCM: 7	**N5.3:** facts to dividend of 81 & 1 digit divisor & 1-3 digit dividend **N5.4:** strategies for estimation & compensation BCM: 3	**N6.4:** decimals by 1 digit whole number divisor BCM: 5	**N7.1:** divisibility rules **N7.2:** decimals •1 digit divisor without using technology • > 1 digit divisor using technology BCM: 1		
Order of Operations-Whole Numbers & Decimals (Binder 7)							**N6.3:** multi-digit whole numbers (excl. exponents) with or without technology BCM: 4	**N7.2:** decimals up to thousandths BCM: 2		
Factors & Multiples (Binder 7)							**N6.2:** •determine factors & multiples of numbers < 100 & •relate to factors & multiples to multiplication & division •prime & composite numbers BCM: 2a, 2b, 3			
Squares & Square Roots (Binder 8)									**N8.1:** perfect squares, square roots including benchmarks of whole numbers **SS8.1**: Pythagorean Theorem BCM: 1, 2, 14	**N9.3:** perfect squares, square roots including benchmarks of rational numbers BCM: 8,9,10

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Exponents & Radicals (Binder 8)										**N9.1:** exponent laws (×, ÷, power of power) and evaluating powers BCM: 1,2,3,4,5
Fractions of a Whole & a Set (Binder 9)				**N3.4:** name, identify, represent & relate to quantity BCM: 9, 10	**N4.6:** name, identify, & model fractions ≤ 1 concretely & pictorially BCM: 9, 10a					
Mixed ↔ Improper Fractions (Binder 9)							**N6.7:** convert concretely & pictorially BCM: 9a, 9b			
Equivalent Fractions (Binder 9)						**N5.5:** create sets & recognize BCM: 5				
Comparing & Ordering Fractions (Binder 9 & 10)				**N3.4:** with equivalent denominators or numerators concretely or pictorially BCM: 11	**N4.6:** with same denominator or the numerator equal to 1 using number lines & benchmarks BCM: 8	**N5.5:** using equivalent fractions for like & unlike denominators BCM: 5	**N6.7:** whole numbers, mixed numbers & improper fractions on a number line BCM: 10	**N7.3:** mixed numbers, improper fractions, decimals & whole numbers BCM: 3		**N9.2:** rational numbers, fractions, decimals, integers & square roots BCM: 6
Percent ↔ Fractions ↔ Decimals (Binder 9 & 10)					**N.4.7:** fractions to decimals (denominators 10 or 100)	**N5.6:** fractions to decimals (denominators 10, 100 or 1000) BCM: 8a, 8b	**N6.5:** percent to fractions & decimals (whole numbers to 100) BCM: 7	**N7.3:** •relate fractions & decimals to division •fractions to repeating & terminating decimals **N7.4:** fractional percents 0-100% to fractions & decimals BCM: 4a, 4b	**N8.2:** • represent fractional & decimal percents greater than 0 concretely and pictorially •relate percents to fractions & decimals BCM: 3	
Ratios & Rates (Binder10)							**N6.8:** create & compare part to part & part to whole BCM: 11		**N8.3:** rates, ratios & proportional reasoning BCM: 4	
Adding & Subtracting Fractions (Binder 11)								**N7.5:** positive fractions & mixed numbers with like & unlike denominators BCM: 7		
Multiplying & Dividing Fractions (Binder 11)									**N8.4:** fractions & mixed numbers including estimation BCM: 5, 6	
Order of Operations - Fractions & Integers (Binder 11)									**N8.4:** fractions & mixed numbers **N8.5:** integers BCM: 8	**N9.2:** rational numbers & integers BCM: 7
Integers (Binder 12)							**N6.6:** represent, compare & order on a number line BCM: 8	**N7.6:** addition & subtraction BCM: 8, 9, 10	**N8.5:** multiplication & division BCM: 9, 10, 11	
Patterns & Relations (Binder 13 & 14)	**PK.1:** identify, reproduce, extend & create repeating patterns of 2-3 elements BCM: 6a, 6b	**P1.1:** repeating patterns of 2-4 elements (describe, reproduce, extend & create) **P1.2:** translate to another form BCM: 13, 14	**P2.1:** repeating patterns of 3-5 elements **P2.2:** increasing patterns (describe, represent in alternate modes, extend, compare & create) BCM: 9, 10, 11	**P3.1:** increasing & decreasing patterns (describe, extend, compare & create numerically and symbolically) BCM: 12	**P4.1:** charts, tables & diagrams (identify, describe, extend & translate patterns) BCM: 12	**P5.1:** patterns & charts (represent & apply using mathematical language & notation) BCM: 13	**P6.1:** create from a model & equation, describe & analyse a table of values & how it relates to a graph BCM: 12	**P7.1:** •create a table of values & graph a linear relation •match linear relations to graphs & identify a pattern BCM: 11	**P8.1:** relate linear relations to equations, tables, graphs & ordered pairs BCM: 12, 13	**P9.1:** graphing, interpolation & extrapolation of linear relations BCM: 11
Equations & Equality (Binder 15 & 16)		**P1.3:** equality vs. inequality (as balance vs. imbalance) **P1.4:** using equal symbol BCM: 15, 16	**P2.3:** equality vs. inequality 0-100 BCM: 12	**P3.2:** solve & verify one-step addition & subtraction equations involving symbols BCM: 13	**P4.2:** write & solve one-step equations (+, -, ×, ÷) using manipulatives & guess & test BCM: 13a, 13b	**P5.2:** write solve & verify single variable, 1 step equations with whole number solutions BCM: 14, 15, 16, 17	**P6.2:** preservation of equality (+, -, ×, ÷) **P6.3:** •write expressions & equations to represent a table of values •develop formula for perimeter & area •commutative property BCM: 13, 14	**P7.2:** equations vs. expressions **P7.3:** evaluate & verify 1-2 step linear equations with whole numbers **P7.4:** evaluate & verify 1-2 step linear equations involving integers BCM: 12, 13, 14, 15	**P8.2:** model & solve 1-2 step linear equations involving integers & distributive property BCM: 12, 13	**P9.2:** solving linear equations & writing linear equations from a table **& P9.3:** solving & graphing inequalities BCM: 12, 13, 14
Polynomials (Binder 17)										**P9.4:** terms, operations & representing BCM: 15, 16, 17

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Calendar & Time				**SS3.1:** standard & non-standard units for passage of time & calendar	**SS4.1:** reading & recording time in analog, digital & 24-hour clocks & calendar dates					
Measurement	**SSK.1:** comparing 2 objects by length, height, mass, volume & capacity	**SS1.1:** comparing & ordering objects by length, height, area, mass & capacity	**SS2.1:** measuring, estimating & comparing non-standard units for linear measurement **SS2.2:** measuring, estimating & comparing non-standard units of mass	**SS3.2:** mass in g & kg **SS3.3:** length, width, height & perimeter in cm & m (measure & estimate with/without referents)	**SS4.2:** area in cm^2 & m^2 (Determine, estimate & construct with/without referents)	**SS5.2:** measure mm with referents & relate to cm & m **SS5.4:** describe, measure & estimate capacity in mL & L using referents				
2-D Shapes		**SS1.3:** replicate	**SS2.4:** triangles, squares, rectangles & circles: model, sort and compare attributes	**SS3.5:** triangles, quadrilaterals, pentagons, hexagons, octagons & regular & irregular polygons		**SS5.1:** relate perimeter & area to rectangles **SS5.6:** quadrilaterals including: rectangles, squares, trapezoids, parallelograms & rhombuses	**SS6.1:** angles (identify, estimate, measure, draw & relate to triangles) **SS6.2:** perimeters of polygons & areas of rectangles **SS6.3:** regular & irregular polygons & types of triangles (draw, classify, compare sides & angles & analyse for congruence)	**SS7.1:** circles (radius, diameter, circumference, central angles & construct) **SS7.2:** areas of triangles, parallelograms & circles **SS7.3:** relate angles & lines using parallel, perpendicular & bisectors	**SS8.1:** relationship between Pythagorean Theorem & right triangles	**SS9.1:** circle properties BCM: 18,19,20 **SS9.3**: similarity of 2-D shapes
Ordered Pairs							**SS6.4:** draw label & plot in quadrant 1 of Cartesian Plane	**SS7.4:** draw label & plot in all quadrants of Cartesian Plane		
Transformations					**SS4.4:** symmetrical & non-symmetrical shapes & lines of symmetry	**SS5.7:** identify, create & analyse a rotation, translation or reflection of 2-D shapes	**SS6.5:** identify, describe & perform combinations of transformations	**SS7.5:** multiple translations in all 4 quadrants of the Cartesian plane	**SS8.4:** create & identify tessellations	**SS9.4:** line & rotation symmetry
3-D Objects	**SSK.3:** create and describe using like	**SS1.3:** replicate composite 2-D shapes & 3-D objects	**SS2.3:** cubes, spheres, cones, cylinders & pyramids: model, sort & compare using 2 attributes	**SS3.3:** cubes, spheres, cones, cylinders, pyramids & prisms: faces, edges & vertices	**SS4.3:** rectangular and triangular prisms (identify, compare & construct from their nets)	**SS5.3:** estimate and measure volume using referents and cm^3 and m^3, construct rectangular prisms	**SS6.2:** volume of right rectangular prism		**SS8.2:** surface area of right prisms & cylinders **SS8.3:** volume of right prisms & cylinders (relate to area)	**SS9.2:** surface area & volume of 3-D objects
Sorting & Comparing Objects & Shapes	**SSK.2:** 3-D objects using 1 attribute of size or shape & rule	**SS1.2:** sort 2-D shapes & 3-D objects with 1 attribute & give rule **SS1.4:** compare 2-D shapes to parts of 3-D objects	**SS2.2:** objects by mass **SS2.5:** •sort 2-D shapes & 3-D objects & give rule •match 2-D shapes to parts of 3-Dobjects using faces							
Data Analysis			**SP2.1:** organize data using sets, tallies checks or lists & create/analyse concrete graphs and pictographs	**SP3.1:** collect, organize & represent data using tallies, charts, lists, bar graphs & line plots from a pictograph	**SP4.1:** create & label many-to-one pictographs & bar graphs and compare to one-to-one	**SP5.1:** difference between first-hand & second-hand data **SP5.2:** double bar graphs	**SP6.1:** data analysis using line graphs, discrete data, interpolation, extrapolation & data collection	**SP7.1:** mean, median, mode, range and outliers **SP7.2:** circle graphs (create, label, translate & interpret)	**SP8.1:** Analyse circle, line, bar, double bar graphs & pictographs	**SP9.1 & SP9.2:** data representation & bias
Probability						**SP5.3:** likelihood of outcomes (describe, compare, predict & test)	**SP6.2:** sample space & experimental & theoretical probability	**SP7.3:** experimental & theoretical probability of 2 independent events	**SP8.2:** probability of independent events	**SP9.3:** probability & statistics in society **SP9.4: :** probability & statistics in First Nations & Metis culture