

Math Screener Concept Map - Grades 1-9

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

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| Squares & Square Roots | | | | | | | | | N8.1: perfect squares, square roots including benchmarks of whole numbers SS8.1: Pythagorean Theorem | N9.3: perfect squares, square roots including benchmarks of rational numbers |
| Exponents & Radicals | | | | | | | | | | N9.1: exponent laws (\times , \div , power of power) and evaluating powers |
| Fractions of a Whole & a Set | | | | N3.4: name, identify, represent & relate to quantity | N4.6: name, identify, & model fractions ≤ 1 concretely & pictorially | | | | | |
| Mixed \leftrightarrow Improper | | | | | | | N6.7: convert concretely & pictorially | | | |
| Equivalent Fractions | | | | | | N5.5: create sets & recognize | | | | |
| Comparing & Ordering Fractions | | | | N3.4: with equivalent denominators or numerators concretely or pictorially | N4.6: with same denominator or the numerator equal to 1 using number lines & benchmarks | N5.5: using equivalent fractions for like & unlike denominators | N6.7: whole numbers, mixed numbers & improper fractions on a number line | N7.3: mixed numbers, improper fractions, decimals & whole numbers | | N9.2: rational numbers, fractions, decimals, integers & square roots |
| Percent \leftrightarrow Fractions \leftrightarrow Decimals | | | | | N4.7: fractions to decimals (denominators 10 or 100) | N5.6: fractions to decimals (denominators 10, 100 or 1000) | N6.5: percent to fractions & decimals (whole numbers to 100) | N7.3: •relate fractions & decimals to division •fractions to repeating & terminating decimals N7.4: fractional percents 0- 100% to fractions & decimals. | N8.2: • represent fractional & decimal percents greater than 0 concretely and pictorially •relate percents to fractions & decimals. | |
| Ratios & Rates | | | | | | | N6.8: create & compare part to part & part to whole. | | N8.3: rates, ratios & proportional reasoning | |
| Adding & Subtracting Fractions | | | | | | | | N7.5: positive fractions & mixed numbers with like & unlike denominators | | |
| Multiplying & Dividing Fractions | | | | | | | | | N8.4: fractions & mixed numbers including estimation | |
| Order of Operations - Fractions & Integers | | | | | | | | | N8.4: fractions & mixed numbers N8.5: integers | N9.2: rational numbers & integers |
| Integers | | | | | | | N6.6: represent, compare & order on a number line | N7.6: addition & subtraction | N8.5: multiplication & division | |
| Patterns & Relations | PK.1: identify, reproduce, extend & create repeating patterns of 2-3 elements | P1.1: repeating patterns of 2-4 elements (describe, reproduce, extend & create) P1.2: translate to another form. | P2.1: repeating patterns of 3-5 elements P2.2: increasing patterns (describe, represent in alternate modes, extend, compare & create) | P3.1: increasing & decreasing patterns (describe, extend, compare & create numerically and symbolically) | P4.1: charts, tables & diagrams (identify, describe, extend & translate patterns) | P5.1: patterns & charts (represent & apply using mathematical language & notation) | P6.1: create from a model & equation, describe & analyse a table of values & how it relates to a graph | P7.1: •create a table of values & graph a linear relation •match linear relations to graphs & identify a pattern | P8.1: relate linear relations to equations, tables, graphs & ordered pairs | P9.1: graphing, interpolation & extrapolation of linear relations |
| Equations & Equality | | P1.3: equality vs. inequality (as balance vs. imbalance) P1.4: using equal symbol | P2.3: equality vs. inequality 0-100 | P3.2: solve & verify one-step addition & subtraction equations involving symbols | P4.2: write & solve one-step equations (+, -, \times , \div) using manipulatives & guess & test | P5.2: write solve & verify single variable, 1 step equations with whole number solutions | P6.2: preservation of equality (+, -, \times , \div) P6.3: •write expressions & equations to represent a table of values •develop formula for perimeter & area •commutative property | 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 | P8.2: model & solve 1-2 step linear equations involving integers & distributive property | P9.2: solving linear equations & writing linear equations from a table & P9.3: solving & graphing inequalities |
| Polynomials | | | | | | | | | | P9.4: terms, operations & representing |

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| Shape and Space | | | | | | | | | | |
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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-D objects 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 |