**Summarized Outcomes across Areas of Study**

**for Grades 6-9**



 **February 2013**

**Arts Education**

**Mathematics**

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| **K-12 Goals:** logical thinking, number sense, spatial sense, and mathematics as a human endeavour. | **Grade 6**  | **Grade 7** | **Grade 8** | **Grade 9**  |
| **Number Strand** | * Demonstrate understanding of place value for numbers greater than 1 million and less than one thousandth.
* Demonstrate understanding of factors and multiples of numbers less than 100, relating factors and multiples to multiplication and division, and determining and relating to prime and composite numbers.
* Demonstrate understanding of the order of operations on whole numbers.
* Extend understanding of multiplication and division to decimals.
* Demonstrate understanding of percent.
* Demonstrate understanding of Integers.
* Extend understanding of fractions to improper fractions and to mixed numbers.
* Demonstrate an understanding of ratio.
* Research and present how First Nations and Métis peoples envision, represent, and use quantity.
 | * Demonstrate an understanding of division through the development and application of divisibility strategies for 2, 3, 4, 5, 6, 8, 9, and 10, and involving zero.
* Expand and demonstrate an understanding of addition, subtraction, multiplication, and division of decimals to greater numbers of places, and the order of operations.
* Demonstrate an understanding of the relationships between positive decimals, positive fractions, and whole numbers.
* Expand and demonstrate an understanding of percent including fractional percents between 1% and 100%.
* Demonstrate an understanding of adding and subtracting positive fractions and mixed numbers, with like and unlike denominators.
* Demonstrate an understanding of addition and subtraction of integers.
 | * Demonstrate an understanding of square and principle square root of whole numbers.
* Expand and demonstrate an understanding of percents greater than or equal to 0%.
* Demonstrate an understanding of rates, ratios, and proportional reasoning.
* Demonstrate an understanding of multiplying and dividing positive fractions and mixed numbers.
* Demonstrate an understanding of multiplication and division of integers.
 | * Demonstrate an understanding of powers with integral bases (excluding base 0) and whole number exponents.
* Demonstrate an understanding of rational numbers.
* Extend understanding of square roots to include the square root of positive rational numbers.
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| **Patterns and Relations Strand** | * Extend understanding of patterns and relationships in tables of values and graphs.
* Extend understanding of preservation of equality.
* Extend understanding of patterns and relationships using expressions and equations involving variables.
 | * Demonstrate an understanding of the relationships between oral and written patterns, graphs, and linear relations.
* Demonstrate an understanding of equations and expressions.
* Demonstrate an understanding of one-and two-step linear equations.
* Demonstrate an understanding of linear equations by modeling problems as a linear equation and solving the problems.
 | * Demonstrate an understanding of linear relations.
* Model and solve problems using linear equations.
 | * Demonstrate an understanding of linear relations.
* Model and solve situational problems using linear equations
* Demonstrate an understanding of single variable linear inequalities with rational coefficients.
* Demonstrate an understanding of polynomials.
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| **Shape and Space Strand** | * Demonstrate an understanding of angles.
* Extend and apply understanding of perimeter of polygons, area of rectangles, and volume of right rectangular prisms.
* Demonstrate an understanding of regular and irregular polygons.
* Demonstrate an understanding of the first quadrant of the Cartesian plane and ordered pairs with whole number coordinates.
* Demonstrate an understanding of single and combinations of transformations of 2-D shapes.
 | * Demonstrate an understanding of circles including circumference and central angles.
* Develop and apply formulas for determining the area of triangles, parallelograms, and circles.
* Demonstrate an understanding of 2-D relationships involving lines and angles.
* Demonstrate an understanding of Cartesian plane and ordered pairs with integral coordinates.
* Expand and demonstrate an understanding of transformations 2-D shapes in all four quadrants of the Cartesian plane.
 | * Demonstrate an understanding of the Pythagorean Theorem.
* Demonstrate an understanding of the surface area of 3-D objects limited to right prisms and cylinders.
* Demonstrate an understanding of volume limited to prisms and cylinders.
* Demonstrate an understanding of tessellation.
 | * Demonstrate an understanding of circle properties.
* Extend understanding of area to surface area of right rectangular prisms, right cylinders, right triangular prisms, and composite 3-D objects.
* Demonstrate an understanding of similarity of 2-D objects.
* Demonstrate an understanding of line and rotation symmetry.
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| **Statistics and Probability Strand** | * Extend understanding of data analysis.
* Demonstrate an understanding of probability.
 | * Demonstrate an understanding of the measures of central tendency and range for sets of data.
* Demonstrate an understanding of circle graphs.
* Demonstrate an understanding of the theoretical and experimental probabilities for two independent events where the combined sample space has 36 or fewer elements.
 | * Analyze the modes of displaying data and the reasonableness of conclusions.
* Demonstrate an understanding of the probability of independent events.
 | * Demonstrate an understanding of various factors affecting data collection.
* Demonstrate an understanding of collection, display, and analysis of data.
* Demonstrate an understanding of the role of probability in society
* Research and present how First Nations and Métis peoples envision, represent, and make use of probability and statistics.
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Refer to curriculum for complete outcomes and indicators.