Grade 4 - Maths Overview

Whole Numbers
- Use place-value models to represent numbers to 100,000
- Read, write in words, standard, and expanded notation, identify place values of digits, and compare and order numbers within 100,000.
- Complete or extend regular number patterns for numbers within 100,000
- Use place-value models to represent numbers to 1,000,000,000
- Read, write in words, standard, and expanded notation, identify place values of digits, and compare and order numbers within 1,000,000,000
- Complete or extend regular number patterns for numbers within 1,000,000,000.
- Round numbers within 1,000,000,000 to the nearest 10, 100 or 1000

Addition and Subtraction of Whole Numbers
- Add/Subtract numbers within 10,000.
- Use estimation to verify the reasonableness of calculated results in addition and subtraction, check subtraction problems using addition.
- Determine whether an estimate is sufficient for a specific problem situation.

Multiplication and Division of Whole Numbers
- Multiply numbers within 10,000 by a 1-digit number.
- Divide numbers within 10,000 by a 1-digit number, including situations where there is a remainder.
- Multiply numbers within 10,000 by a 2-digit number.
- Use estimation to verify the reasonableness of calculated results in multiplication and division problems.
- Check division problems using multiplication.
- Find the factors and common factors of whole numbers within 100.
- Identify prime numbers.
- Find multiples and common multiples of whole numbers within 100.
- Use divisibility rules for 2, 3, 5, 6, 9, and 10
- Use order of operations to solve mathematical expressions with or without parentheses.

Mental Math Strategies
- Use the commutative and associative properties to perform mental calculations and check results.
- Use the distributive property to perform mental calculations and check results.
- Subtract from 1000
- Add/subtract a number close to 1000 (e.g. 998)
- Add/Subtract tenths, hundredths, or thousandths to or from decimal numbers.

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- Multiply by 99 or by 25
- Multiply 10's by 10's or 100's

Fractions
- Find equivalent fractions and simplest form of a fraction
- Compare and order fractions with different denominators
- Find the fraction of a set where the answer is a whole number.
- Find the fraction of a set where the answer is a whole number or a mixed number.
- Find coin amounts as a fraction of a dollar.
- Find fraction of a set for measurements (e.g. 10 minutes as a fraction of one hour).
- Add/Subtract related fractions
- Understand mixed numbers and improper fractions, convert between them, locate them on a number line.
- Relate division to fractions.
- Multiply a fraction by a whole number

Decimals
- Understand tenths, hundredths, thousandths, locate decimal numbers on a number line, compare decimal numbers.
- Convert a decimal to a fraction and simplify
- Convert a fraction to a decimal number (denominators are a factor of 10, 100, or 1000)
- Compare and order decimal numbers of up to 3 decimal places and fractions
- Round decimal numbers of up to 2 decimal places to the nearest whole number or to 1-decimal place.
- Add/Subtract decimal numbers of up to 2 decimal places.
- Multiply/Divide decimal numbers of up to 2 decimal places by a whole number.
- Find the quotient of a division problem correct to 1 decimal place

Time
- Convert between of units of time

Length, Mass & Capacity
- Add/subtract measurements in compound units.
- Multiply/divide measurements in compound units.

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Perimeter, Area and Volume
- Find the area of shapes by covering them with unit squares or by counting squares.
- Understand and use units of area, such as square centimeter and square inch.
- Find the area, perimeter, and unknown sides of rectangles.
- Find the area and perimeter of composite figures made from squares and rectangles
- Find the volume of solid figures by counting cubic units
- Understand and use units of volume, such as cubic centimeter and cubic inch
- Find the volume of rectangular prisms.
- Understand the relationship between cubic centimeters, milliliters, and liters
- Identify the radius and diameter of a circle, find one given the other

Geometry
- Describe and classify common 3-dimensional shapes according to number and shape of faces, edges, and vertices.
- Identify attributes of triangles and quadrilaterals.
- Identify acute, obtuse, and right angles and relate 90°, 180°, 270°, and 360° with quarter, half, three- quarter, and whole turn.
- Measure and construct angles.
- Identify perpendicular and parallel lines.
- Name different types of triangles and quadrilaterals.
- Find the lengths of unknown sides given the length of other sides or the perimeter of triangles and quadrilaterals.
- Visualize, describe, and draw geometric solids.
- Identify nets of solids, or solids of nets.
- Identify congruent figures
- Create tessellations.
- Identify figures that have line symmetry.
- Identify figures that have rotational symmetry.
- Understand the coordinate grid, locate points, and write ordered pairs (first quadrant).
- Find the length of horizontal and vertical lines on the coordinate grid.

Word Problems
- Solve 2-step word problems which involve the four operations on whole numbers.
- Solve 2-step word problems which involve fraction of a set.
- Solve 2-step word problems which involve decimals and fractions.

Data Analysis and Probability
- Collect, organize, and analyze data using tables and bar graphs.
- Collect, organize, and analyze data using tally charts.
- Ask and solve questions related to data representation, including finding the range and mode.
- Collect, organize, and analyze data using line plots.
- Collect, organize, and analyze data using line graphs.
- Collect, organize, and analyze data using coordinate graphs
- Identify the mode and median of categorical data.
- Identify ordered pairs of data from a graph.
- Represent all possible outcomes for simple probability experiments.
- Express all possible outcome of experimental probability situations verbally and numerically and as fractions

Algebra
- Use boxes and other symbols to stand for unknown numbers in expressions and equations.
- Use letters to stand for unknown numbers in equations and solve for the unknown numbers using properties of the four operations.
- Represent unknown quantities with bar diagrams and solve word problems involving whole numbers using bar diagrams.
- Use bar diagrams to solve word problems involving fractions.
- Use bar diagrams to solve word problems involving decimals.
- Solve word problems involving the functional relationship between two quantities.
- Use and interpret formulas to answer questions about quantities and their relationships.
- Write simple equations involving related changes in quantities (e.g. $y = 3x + 5$) and solve for the dependent value when given the independent value.
- Solve problems involving simple linear functions with whole numbers values, write the equation, and graph the resulting ordered pairs on a grid.
- Understand and interpret negative numbers, locate negative numbers on a number line, compare and order integers.
- Recognize and extend regular number patterns that include negative numbers.