

Diocese of Bridgeport – Math Standards – Grade 4



BASE TEN VALUE, OPERATIONS, and THEORY

<u>STANDARD</u>	<u>SKILLS</u>	<u>VOCABULARY</u>
BVOT 4.1 Generalize and use place value of multi-digit numbers as a foundation for multi-digit arithmetic	<ul style="list-style-type: none"> ·* Numbers 1,000,000 or less* ·Recognize that in a multi-digit whole number a digit represents a number ten times larger one place to the right ·Represent numbers as groups of millions, thousands, hundreds, tens and ones ·Use place value to estimate ·Round multi digit whole numbers to any place ·Read and write multi- digit whole numbers in word, numeral, and expanded form ·Compare multi-digit whole numbers using $>$, $<$, and $=$ ·Identify equivalence and non-equivalence 	Millions, thousands, hundreds, tens, ones, equivalence, nonequivalence, represent, place value, digits, numeral, expanded form, whole number, round, estimate
BVOT 4.2 Perform multi-digit arithmetic	<ul style="list-style-type: none"> ·Make estimates to determine reasonableness of solutions ·Understand how operations are related; inverse operations, repeated addition and subtraction ·Solve for missing numbers and values ·Identify equivalence when an equation contains operations on both sides ·Identify when it is appropriate to use a calculator Addition & Subtraction ·Fluently add and subtract multi-digit numbers using the standard algorithm ·Add and subtract whole numbers when the problem is written in both horizontal and vertical form Multiplication ·Interpret a multiplication problem as a comparison ex 6 is equal to 2 times as many as 3; $6=2*3$ ·Use basic facts, arrays, models, and place value to solve problems ·Multiply up to a four- digit number by a one-digit number ·Multiply two, two-digit numbers ·Explore the distributive property Division ·Find whole number quotients and remainders with up to four-digit dividends and one-digit divisors 	Inverse operations, repeated addition, repeated subtractions, value, equation, balance, calculator, addition, sum, addend, subtract, difference, multiply, factors, product, multiples, fact family, array, division, equal groups, dividend, quotient, divisor, strategy, standard algorithm, whole numbers, comparison, model, distributive property, remainder, horizontal, vertical

BVOT 4.2A	Solve problems involving the four operations	<ul style="list-style-type: none"> ·Make estimates to determine reasonableness of solutions ·Solve two-step word problems ·Solve addition and subtraction word problems ·Solve multiplication and division word problems ·Interpret remainders in division problems ·Distinguish between multiplicative and additive comparisons ·Use drawings and equations ·Write multistep problems ·Solve problems with parenthesis 	Estimate, reasonableness, multi-step, word problem, number story, interpret, multiplicative comparison, additive comparison, equations, parenthesis, order of operations
BVOT 4.2B	Identify Factors and Multiples	<ul style="list-style-type: none"> ·Find all factor pairs for a whole number 100 or less ·Recognize a whole number is a multiple of each of its factors ·Determine if a number is prime or composite ·Draw factor trees ·Identify the least common multiple given a pair of numbers < 10 ·Identify the greatest common factor given a pair of numbers <82 	Factors, multiples, composite, prime, factor pair, factor rainbow, factor tree, least common multiple, greatest common factor
BVOT 4.2C	Represent problems involving multiplication and division	<ul style="list-style-type: none"> ·Represent the unknown in an equation, ex. $6=A \cdot 2$ ·Represent a verbal multiplicative comparison as an equation ·Interpret remainders ·Use and simplify expression ·Write equations to express relationships between numbers 	Equation, represent, multiplicative comparison, additive comparison, verbal, written, remainders, expression, simplify, relationship, express
BVOT 4.3	Extend Previous understanding of fractions as numbers	<ul style="list-style-type: none"> ·Relate even numbers and quantities to multiplication and division rules (ex. Even numbers can be put into two equal groups) ·Understand fractions with the denominators of 2,3,4,5,6,8,10,12, and 100 ·Understand that fraction $1/b$ is the quantity formed by one part of a whole broken in b equal parts ·Understand fractions as numbers on a number line 	Relationship, quantity, rule, even, odd, fraction, numerator, denominator, (names of fractions) whole, parts, equal groups, number line, partition, column, row
BVOT 4.3A	Compare fractions with different numerators and denominators (fractions with the denominators of 2,3,4,5,6,8, 10, 12, and 100)	<ul style="list-style-type: none"> ·Order and compare fractions with different denominators and numerators ·Recognize the comparison is only valid using the same size whole ·Use models and equations and benchmark fractions such as $1/2$ ·Recognize and generate equivalent fractions 	Compare, order, fractions, whole, model, equation, benchmark fractions, equivalent

BVOT 4.3B	Solve problems involving fractions	<p><u>Addition and Subtraction</u></p> <ul style="list-style-type: none"> ·Decompose fractions into a sum of parts with the same denominator ·Add and subtract fractions with the same denominators ·Add and subtract mixed numbers with like denominators ·Solve addition and subtraction word problems involving fractions referring to the same whole ·Use equivalent fractions, models and equations <p><u>Multiplication</u></p> <ul style="list-style-type: none"> ·Multiply a fraction by a whole number ·Solve word problems involving multiplication of a fraction and a whole number ·Solve problems using models and equations 	Compose, decompose, fractions, sum of parts, denominator, numerator, mixed number, improper fraction, equivalent, model, equation
BVOT 4.3C	Understand decimal notation for fractions and compare	<ul style="list-style-type: none"> ·Identify place value to the hundredths ·Determine and express equivalent fractions with 10 and 100 as denominators ·Use decimal notation for fractions with 10 or 100 as denominators Ex. $1/10=0.1$ and $23/100= 0.23$ ·Locate decimals on a number line ·Compare two decimals to the hundredths using $>$, $<$, and $=$ 	Decimal notation, tenths, hundredths, thousandths, decimal point, fractions, equivalent, place value, number line, number line
BVOT 4.3D	Extend understanding of place value to add and subtract decimals	<ul style="list-style-type: none"> ·Add and subtract decimals to the hundredths ·Solve addition and subtraction problems involving money 	Decimal, dollars, cents, change, total, combine, separate, sum, difference
BVOT 4.4	Generate and analyze Patterns	<ul style="list-style-type: none"> ·Generate a numerical pattern given a rule Identify a rule and continue the pattern ·Apply patterns to real world situations ·Recognize, create, and extend numerical and geometric patterns ·Use concrete materials, number lines, tables, symbols and words 	Numerical pattern, geometric pattern, rule, change of quantity, input, output, table

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DATA, MEASUREMENT and MONEY

<u>STANDARD</u>		<u>SKILLS</u>	<u>VOCABULARY</u>
DMM 4.1	Measure and know relative sizes of measurement units within a single system	<ul style="list-style-type: none"> · Measure length, weight, mass, volume, distance, and time · Use both metric and US customary units · Choose appropriate tool and unit for measurement · Identify examples of measurement in everyday life · Use measurement to explain relative size of objects 	Measure, length, weight, mass, volume, distance, time, metric, U.S. customary, units, tool, ruler, tape measurer, scale, clock, meter stick, inch, foot, yard, mile, gram, pound, ounce, meter, centi, milli, kilo, deci, deka, hecto, liter, gallon, quart, cup, relative size, days, hours, minutes, seconds
DMM 4.1A	Solve problems involving distance, volume, and mass	<ul style="list-style-type: none"> · Use all four operations · Estimate for reasonableness · Solve problems involving simple fractions and decimals · Solve problems that require simple conversions 	Formula, estimate, fractions, decimals, add, subtract, multiply, divide, conversion, reasonable
DMM 4.1B	Solve real world problems involving area and perimeter of polygons	<ul style="list-style-type: none"> · Apply the area and perimeter formula to solve problems involving the area and perimeter of rectangles · Solve for an unknown length given other sides and the area or perimeter 	Area, perimeter, length, sides, formula, unknown, units, square units
DMM 4.2	Solve problems involving time and money	<ul style="list-style-type: none"> · Solve problems with simple fractions and decimals · Use all four operations to solve problems · Calculate elapsed time and solve problems involving periods of time · Solve two- step problems involving money · Recognize, identify, and trade equivalent sets of coins · Express money in oral and written form 	Fractions, decimals, elapsed time, change, money, hours, minutes, seconds, dollars, cents, before, after, weeks, days, months, years, convert, cashier
DMM 4.3	Generate, represent, and interpret data	<ul style="list-style-type: none"> · Collect and organize data · Pose questions to be answered through analyzing data · Describe features of a data set · Use the coordinate system to graph data points · Conduct probability experiments and determine the likelihood of events · Convert to a more appropriate unit · Make line plots to display data sets with measurements in fractions of units · Solve addition and subtraction problems based on data sets 	Data, data set, coordinate system, graph, describe, line plot, probability, experiment, collect, analyze, organize
DMM 4.4	Measure angles	<ul style="list-style-type: none"> · Recognize angles in geometric shapes · Classify angles based on measure and estimation · Use a protractor to measure angles · Recognize angle measure as additive · Find the measure of an angle, given other additives 	Angles, corners, protractor, acute, obtuse, right, straight, measure, degrees, additive, geometric shapes

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GEOMETRY

<u>STANDARD</u>		<u>SKILLS</u>	<u>VOCABULARY</u>
G 4.1	Classify 2 dimensional figures based on lines and angles	<ul style="list-style-type: none"> ·Identify right, acute, and obtuse angles in polygons ·Identify lines, points, rays, and line segments in polygons ·Identify parallel, intersecting, and perpendicular lines in polygons ·Identify and classify quadrilaterals (square, rectangle, trapezoid, rhombus, and parallelogram) and triangles (right, acute, obtuse, equilateral, isosceles, scalene) using faces, edges, vertices, types of angles, and lines ·Identify and generalize relationships between measureable attributes of figures ·Identify congruent and similar figures 	Right, acute, obtuse, straight, protractor, polygons, lines, points, rays, line segments, parallel, perpendicular, intersecting, identify, classify, quadrilateral, triangle, square, rectangle, trapezoid, rhombus, parallelogram, equilateral, congruent, similar, faces, attributes, isosceles, scalene, edges
G 4.1A	Draw geometric figures	<ul style="list-style-type: none"> ·Draw lines, line segments, points, rays, and angles ·Draw acute, right, and obtuse angles ·Draw parallel, intersecting, and perpendicular lines 	Lines, points, line segments, rays, angles, acute, right, obtuse, straight, parallel, perpendicular, intersecting
G 4.1B	Identify lines of symmetry	<ul style="list-style-type: none"> · Recognize a line of symmetry in a two- dimensional figure as a line across the figure such that the figure could be folded along the line into matching points ·Identify and draw lines of symmetry 	Symmetry, line of symmetry, two- dimensional, three- dimensional, points