Diocese of Bridgeport – Math Standards – Grade 6

BASE TEN VALUE, OPERATIONS, and THEORY

	STANDARD	SKILLS	VOCABULARY
BVOT 6.1	Extend previous understanding of place value to the system of rational numbers	·Understand positive and negative numbers ·Locate and position integers on a number line ·Represent numbers in expanded and regrouped forms ·Recognize and demonstrate equivalence using number properties ·Relate negative and positive numbers to real world context ·Understand a rational number as a point on the number line ·Recognize opposite signs of numbers ex. –(- 2) = 2	Integers, positive, negative, number line, zero, regroup, expanded form, equivalence, properties, rational, signs, expanded notation, place value, value, numeral, regrouped form
BVOT 6.1A	Understand ordering and absolute value of rational numbers	·Compare integers using <,>,= ·Locate integers on a number line	Greater, less, value, number line, integer, zero, positive, negative
BVOT 6.1B	Extend understanding of absolute value to solve real world problems	·Solve real world problems involving numbers less than zero Using a number line ·Add, subtract, multiply and divide integers ·Determine the appropriate operation(s) to solve a problem and justify reasoning	Add, subtract, multiply, divide, sum, difference, product, quotient, addend, factor, dividend, divisor
BVOT 6.2	Fluently perform multi-digit arithmetic	·Fluently divide multi- digit numbers using the standard algorithm ·Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation ·Estimate for reasonableness ·Evaluate and simplify algebraic expression ·Apply properties of place value to solve problems involving the four operations ·Use inverse operations to check for accuracy	Order of operations, parenthesis, brackets, exponent, reasonable, estimate, inverse operation, standard algorithm, evaluate, simplify, accuracy, expression, algebraic expression
BVOT 6.2A	Use factors to explore and classify numbers	·Memorize and apply divisibility rules ·Change exponents into repeated factors and vice versa ·Find missing factors ·Find the greatest common factor of two whole numbers less than/equal to 100 ·Find the least common multiple of two whole numbers less than or equal to 12 ·Perform prime factorization on any number	Common factor, greatest common factor, least common multiple, repeated factor, prime factorization, divisibility rule

BVOT 6.2B	Write and evaluate algebraic expressions	·Write and evaluate numerical expressions involving whole number exponents ·Read, write and evaluate expressions in which a letter represents a number or unknown ·Write expressions to record operations ·Write and analyze expressions that express relationships between numbers ·Identify parts of an expression using mathematical terms ·Perform operations including those with whole number exponents ·Solve for variables ·Apply the properties of operations to generate equivalent expressions ·Identify when two expressions are equivalent ·Apply commutative, distributive, and associative properties of whole numbers ·Use the order of operations to solve problems	Sum, term, exponent, product, factor, expression, quotient, coefficient, variable, power, distributive property, equivalent, formula, commutative property, equivalent, record, associative property, zero sum property, identity property, property of one
BVOT 6.2C	Reason and Solve one-variable equations and inequalities	·Understand solving inequalities and expressions as answering: Which values from a set, make the equation true? ·Use variable to represent numbers ·Write expressions ·Solve real world problems ·Write an inequality in the form of X>C or X<C ·Write and analyze inequalities that express relationships between numbers	Inequalities, expressions, value, set, equation, represent, analyze, express, solve
BVOT 6.3	Extend previous understanding of fractions and decimals to solve problems	·Add and subtract fractions and decimals · Use number lines to solve problems ·Multiply and divide fractions and decimals using models and equations ·Compute and interpret quotients of fractions ·Find equivalent fractions, decimals, and percent ·Locate and compare decimals and fractions on number lines, scales, and coordinate grids ·Add and subtract fractions and mixed numbers ·Solve word problems involving division of fractions by fractions ·Create word problems and story context for dividing fractions by fractions	Fractions, number lines, decimals, models, equations, interpret, quotients, scales, coordinate grids, word problems, number stories, context, mixed number, equivalent
BVOT 6.4	Represent and analyze relationships	·Represent and analyze quantitative relationships between dependent and independent variables ·Use variables to represent two quantities in a real world problem that change in relationship ·Use graphs and tables to analyze relationships ·Use models, pictures, and number sentences to represent relationships	Represent, analyze, quantitative, dependent variable, independent variable, variable, quantities, relationship, model, equation, number sentence

RATIOS, RELATIONSHIPS, and FUNCTIONS

	STANDARD	SKILLS	VOCABULARY
RRF 6.1	Understand and reason using ratios	·Understand the concept of a ratio ·Use mathematical language to describe the relationship between two quantities ·Understand the concept of a unit rate a/b associated with ration a:b where b does not equal zero ·Read, write, and compare rates, ratios, and percent ·Convert between ratios using rations and proportion ·Reason about tables of equivalent rations, tape diagrams, double number lines, and equations	Ratio, quantities, unit rate, ration, percent, convert, proportion, tables, tape diagrams, double number lines, equations
RRF 6.1A	Solve real world problems using ratio and rate reasoning	·Make tables of equivalent ratios with whole number measurements ·Find missing values in tables ·Plot pairs of values on a coordinate plane ·Use tables to compare ratios ·Solve unit rate problems ·Solve problems involving unit price and constant speed ·Find a percent of a quantity as a rate per 100 ·Use ratio reasoning to convert measurement units ·Express probability as a fraction, decimal, or percent	Table, equivalent, ratio, whole number, measurement, table, value, coordinate plane, graph, coordinates, ordered pair, axis, unit price, constant speed, convert, probability, decimal, fraction, percent

GEOMETRY

	STANDARD	SKILLS	VOCABULARY
G 6.1	Extend reasoning of polygons and three dimensional figures and their attributes to solve real world problems	·Measure to solve problems ·Explain relationships and measurements needed to solve a problem ·Describe elements needed to explain spatial relationships ·Describe relationships between plane and solid figures ·Identify and apply symmetry and congruence to solve problems ·Analyze and apply geometric patterns ·Select, convert, and justify units of metric and US customary measurement ·Explain the difference between weight and mass	Spatial relationship, measurement, convert, US customary, metric, polygons, two-dimensional, three- dimensional, volume, area, perimeter, sides, angles, circumference, radius, compose, decompose, diameter, chord, prism, formula, edges, fractional lengths, surface area, figures, plane, weight, mass, face
G 6.1A	Apply formulas to solve for volume and area	**Solve problems using area** ·Find the area of triangles, quadrilaterals and other polygons by composing or decomposing into triangles and rectangles ·Represent three dimensional figures using nets made of rectangles and triangles and use their areas to find the surface area of a three dimensional figure ·Use the area of polygons to solve real world problems **Solve problems using volume** ·Find the volume of a right rectangular prism with edges of fractional lengths ·Apply the formulas V= l*w*h and V= b*h ·Solve real world problems involving volume	Spatial relationship, measurement, convert, US customary, metric, polygons, two-dimensional, three- dimensional, volume, area, perimeter, sides, angles, circumference, radius, compose, decompose, diameter, chord, prism, formula, edges, fractional lengths, surface area, figures, plane, weight, mass, face
G 6.2	Draw polygons on a coordinate plane	·Draw polygons in a coordinate plane, given the coordinates for the vertices ·Draw geometric figures by connecting points on a coordinate grid ·Use appropriate tools to draw geometric figures ·Solve real world problems relating to coordinates and polygons on a coordinate plane	Compass, ruler, straight edge, geometric figures, coordinates, coordinate plane, axis, points

PROBABILTY, STATISTICS and DATA

	STANDARD	SKILLS	VOCABULARY
PSD 6.1	Develop understanding of statistics and statistical variability	·Recognize a statistical question ·Understand a set of data can be collected to answer a statistical question ·Understand that a set of data can be described by its center, spread, and all over shape ·Recognize that a measure of center for a data set summarizes all of its values with a single number ·Recognize that a measure of variation describes how values vary with a single number	Statistics, statistical question, data, data set, center, spread, shape, value, variation, vary
PSD 6.2	Represent, describe and summarize data	·Collect, organize, and analyze data ·Pose a question to be answered through data collection ·Use, read, create, and interpret a variety of graphic organizers, charts, and graphs ·Use technology to generate graphs and charts ·Display data in plots on a number line, including dot plots, histograms, and box plots ·Summarize data sets in context ·Report the number of observations ·Describe the nature of an attribute, including how it was measured ·Find median, mode, and mean ·Describe patterns and deviations in data ·Relate measure to variability ·Relate likelihood to a numerical value ·Conduct probability experiments ·Analyze geometric and numerical patters ·Apply knowledge of patterns, rations, and proportions	Data, Venn diagram, histogram, broken line graph, bar graph, picture graph, circle graph, stem and leaf, scatter plot, table, graph, graphic organizer, dot plot, box plot, bar graph, number line, numeric value, probability, experiments, surveys, data collection, spreadsheet, ratios, compute, mean, median, mode, measure, patterns, rations, proportions , deviation, measure of central tendency