

Diocese of Bridgeport
Curriculum Map

Course: Mathematics

Grade Level: 7

	Content	Skills	Suggested Assessments*	Connecticut Content Standards
	Patterns	<ul style="list-style-type: none"> • Identify, analyze, and implement patterns • Recognize and investigate fractal parts, find and extend patterns • Utilize problem solving strategies 	<ul style="list-style-type: none"> • Create and solve problems using patterns and sequencing • Explain and illustrate fractals 	<ul style="list-style-type: none"> • Very large and very small numbers may be written using scientific notation which is based on powers of ten. • Selecting the appropriate visual representation of data is based on the kind of data collected and the purpose for its use. • Recognizing whether order matters may be important when determining possible outcomes.
	Rational Numbers	<ul style="list-style-type: none"> • Model and simplify rational numbers • Identify and use GCF • Perform arithmetic operations with rational numbers • Express fractions as terminating or repeating • Recognize and use divisibility patterns • Read and write integers • Find the opposite and absolute value of integers • Identify the properties of operations • Multiply and divide decimals mentally by powers of ten • Express numbers greater than 100 in scientific notation • Utilize problem solving strategies 	<ul style="list-style-type: none"> • Identify operations using rational numbers • Convert fractions into terminating and non-terminating decimals • Convert decimals into fractions • Rename fractions and mixed numbers as equivalent decimals • Estimate operations with rational numbers • Convert rational numbers into scientific notation 	<ul style="list-style-type: none"> • Computation with positive and negative numbers may be modeled in the context of increasing and decreasing value or changes in measurements. • Very large and very small numbers may be written using scientific notation which is based on powers of ten. • Models and pictures may be used to demonstrate the answers to problems involving division with fractions • Fractions, decimals and percents are equivalent ways to represent real world situations and the choice of which symbolic form to use may make it easier to describe a relationship or solve a problem.

	Content	Skills	Suggested Assessments*	Connecticut Content Standards
	Ratio, Proportion, and Percent	<ul style="list-style-type: none"> • Convert between fraction, decimal, and percent forms • Find equivalent ratios • Solve proportions • Determine unit rate • Identify the percent of a number • Apply percent proportions to solve problems • Solve percent problems using percent of change, discount, tax, simple interest, commission, profit, and loss • Utilize problem solving strategies 	<ul style="list-style-type: none"> • Use ratios and proportions to represent quantities and relationships • Solve problems involving ratios • Find missing variable in a percent word problem 	<ul style="list-style-type: none"> • Percents can be used to make comparisons between groups of unequal size because each group is based on a ratio of parts per hundred. • Fractions, decimals and percents are equivalent ways to represent real world situations and the choice of which symbolic form to use may make it easier to describe a relationship or solve a problem.
	Algebra	<ul style="list-style-type: none"> • Evaluate expressions • Use the order of operations • Evaluate and solve simple algebraic equations • Use powers and exponents in expressions • Write algebraic expressions from words • Solve one and two step equations • Solve and graph inequalities • State and estimate squares and square roots • Utilize problem solving strategies 	<ul style="list-style-type: none"> • Be able to understand and use inverse relationships of operations. • Identify elements of the coordinate plane • Plot equations and inequalities on the coordinate plane 	<ul style="list-style-type: none"> • Algebraic equations may be used as a problem solving tool. • A constant rate of change between two variables (slope) will yield a straight line (linear) graph, but if the rate of change varies then the graph is not a line (nonlinear). • The values of slope and of the points where a graph intersects each axis (intercepts) facilitate writing equations and graphing linear relationships

	Content	Skills	Suggested Assessments*	Connecticut Content Standards
	<p>Geometry</p>	<ul style="list-style-type: none"> • Create models to find the area of geometric shapes including circles. • Describe and classify polygons • Classify angles • Identify similar polygons • Identify translations, reflections, and transformations • Graph transformations • Classify three-dimensional objects • Build and draw three-dimensional figures given top, side, and front views • Find the surface area and volume of 3-dimensional figures • Sketch nets to find the surface area of rectangular prisms. • Measure and construct angles • Create a circle graph using various methods • Construct parallel and perpendicular lines • Construct line and angle bisectors • Solve problems involving similar polygons • Model and estimate the area of irregular figures • Apply Pythagorean Theorem to solve problems • Utilize problem solving strategies 	<ul style="list-style-type: none"> • Find the area, perimeter, and volume of any polygon figure • Construct, identify, and measure any angle • Identify and perform rigid motions 	<ul style="list-style-type: none"> • A constant rate of change between two variables (slope) will yield a straight line (linear) graph, but if the rate of change varies then the graph is not a line (nonlinear) • The values of slope and of the points where a graph intersects each axis (intercepts) facilitate writing equations and graphing linear relationships. • Subdividing polygons and solids into simpler shapes and prisms can be used to solve geometric and measurement problems. • The properties of polygons influence the number of flips and turns needed to return a shape to its original orientation. • Base plans (footprints) for orthogonal (views from the front side and top) and isometric drawings (on a triangle based grid) are ways to represent three-dimensional objects in two-dimensional diagrams. • Problems involving measurement can be solved through the use of appropriate tools, techniques, and strategies. • Selecting the appropriate visual representation of data is based on the kind of data collected and the purpose for its use.

	Content	Skills	Suggested Assessments*	Connecticut Content Standards
	Probability and Statistics	<ul style="list-style-type: none"> • Find mean, median, mode, and range of a set of data • Choose appropriate scale and intervals for data • Collect data using appropriate methodology • Construct and interpret graphs and charts • Analyze and predict outcome using varied data • Determine when statistics and graphs may be misleading • Perform experimental probabilities • Model probability • Create tree diagrams • Illustrate the counting principle • Differentiate between independent and dependent events • Utilize problem solving strategies 	<ul style="list-style-type: none"> • Calculate mean, median, and mode for a set of data • Draw reasonable conclusions from data in tables, graphs, and charts 	<ul style="list-style-type: none"> • Some relationships are continuous others are not continuous (discrete) and the graphs of the data point should reflect this. • Selecting the appropriate visual representation of data is based on the kind of data collected and the purpose for its use. • Recognizing whether order matters may be important when determining possible outcomes. • Experimental probabilities are determined through actual sampling and use of statistics. Theoretical probabilities are determined through identifying all possible outcomes under stated conditions.
	Problem solving	<ul style="list-style-type: none"> • Use mental math • Choose the best method of computation for solving problems • Work backwards • Use logical reasoning • Guess and check • To be able to draw a diagram • To be able to eliminate unrealistic possibilities • To be able to use a graph. 	<ul style="list-style-type: none"> • Solve one-step story problems involving whole numbers, fractions, and decimals • Solve multi-step word problems 	<ul style="list-style-type: none"> • Models and pictures may be used to demonstrate the answers to problems involving division with fractions. • Fractions, decimals and percents are equivalent ways to represent real world situations and the choice of which symbolic form to use may make it easier to describe a relationship or solve a problem. • Problems involving measurement can be solved through the use of appropriate tools, techniques, and strategies.

*Formal and informal assessments for skills may also encompass—1) testing; 2) class work (self-guided and group); 3) homework; 4) IOWA Test of Basic Skills; 5) use of computer curriculum to assess any skill on map.