Hanover Public Schools

Math Department Curriculum Guide **Grade 6 Math**

Course Description
In 6th Grade, we build upon the work that previous grades have taught involving all operations as well as geometry skills. This year the main focus is division as used in whole numbers with remainders, decimals, and fractions. Students begin the basic groundwork to work with positive and negative numbers, in order to see their location through real world examples and all four quadrants of the coordinate plane. In addition, students will begin work with ratios and proportions that will continue in seventh grade. The focus here is on what a rate is and to use ratios in words, tables and problems in order to compare and connect numbers. In addition, this year students will begin the Statistics and Probability domain of math which focuses on how to display data and calculate different measures to represent the data. In our Algebra unit, sixth graders will lay the foundations of solving expressions and equations by understanding what a variable is, how to use it in order to write an expression, equivalent expressions, and solving one step equations. As well, students can make tables and graphs of information and create an equation to match the situation. Finally, they learn about inequality statements and how to solve one step problems. Our last unit is Geometry, students are able to find the area of triangles, parallelograms, and trapezoids as well as find the volume of 3D shapes composed of rectangles and triangles with fractional edges.
Content Standards
Grade 6 Massachusetts Curriculum Framework - Math

Subject: Grade 6 Math

Units	Concepts/ Essential Questions
Term 1 **Unit- Statistics and Probability** **MA Standards:** **6.SP A.1.2.3. B.4.a.5.a.b.c.d.**	▪ Display, read and interpret numerical data on a dot plot, histogram, and box plot. ▪ Calculate mean, median, mode, range, interquartile range. ▪ Solve problems involving all measures of center. ▪ Understand gaps, clusters, skewed right & left, outlier. ▪ How can I display and interpret data on a dot plot, histogram, and box and whisker plot? ▪ What are the different measures of center and how can you apply it to data? ▪ What are statistical questions in data collection? ▪ What does the shape of a data display tell you about the data?
Unit -The Number System **MA Standards:** **6.NS A.1 B.2.3.4.** **C.5.6.a.b.c.7.a.b.c.d.8.**	▪ Find GCF and LCM of two whole numbers recognize relatively prime numbers. ▪ Use order of operations rules to solve problems involving exponents. ▪ Add, subtract, multiply and divide whole numbers, fractions, and decimals. ▪ Plot and identify positive and negative rational numbers on a number line and be able to compare and order them. ▪ Understand and order the absolute value of a rational number. ▪ Graph points in all four coordinates of the coordinate plane. ▪ Use absolute value to find the distance between two points on the coordinate plane. ▪ What are the different methods we use to find Greatest Common Factor (GCF) and Least Common Multiple (LCM) and how can we use these to solve real world problems? ▪ How can I use the standard algorithms of addition, subtraction, and multiplication of whole numbers, in solving problems with fractions and decimals? ▪ How can I use the standard algorithms of division of whole numbers, in solving problems with fractions and decimals? ▪ How can I use positive and negative numbers and zero to represent real world situations? ▪ How can I represent points on the number line and coordinate plane? ▪ How can I identify positive rational numbers on a number line in order to compare and order?

Units	Concepts/ Essential Questions
Term 2 **Unit-Ratios and Proportions** **MA Standards:** **6.RP A. 1.2.3.a.b.c.d.e**	▪ Understand what a ratio is and use ratio language to describe a ratio relationship. ▪ Understand and solve unit rate problems including unit pricing and constant speed. ▪ Make tables of equivalent ratios and find missing values in the tables. ▪ Find the percent of a number and solve problems finding the whole given the part and the percent. ▪ Convert measurement units within and between measurement systems. ▪ How can I understand ratio and rate concepts and use ratio reasoning to solve problems?
Term 3 **Unit- Expressions and Equations** **MA Standards:** **6EE A.1.2.a.b.c. 3.4.**	▪ Learn and identify what variables, terms, expressions, equations, like terms, exponents, distributive property are and how used in algebra. ▪ Write expressions from words and convert expressions to words. ▪ Combine like terms. ▪ Identify equivalent expressions. ▪ Solve one step equations using addition, subtraction, multiplication and division with whole positive numbers. ▪ Solve one step inequalities and plot solutions on a number line. ▪ Use tables, equations, and graphs to demonstrate algebraic relationships between two variables. ▪ How can I apply and extend previous understandings of arithmetic to algebraic expressions? ▪ How can I reason about and solve one-variable equations and inequalities? ▪ How can I represent and analyze quantitative relationships between dependent and independent variables?
Unit-Geometry **MA Standards:** **6.G. A.1.2.3.4.**	▪ Calculate area of triangles, parallelograms, and trapezoids, given a formula. ▪ Plot and construct polygons in the coordinate plane. ▪ Find volume of rectangular prisms with fractional edges. ▪ Find surface area of any 3D shape that can be broken down into rectangles and triangles. ▪ How can I solve real-world and mathematical problems involving area, surface area, and volume?

Textbook
Connected Mathematics CMP3; published by Savvas