

Grade 6 Mathematics

The Mathematics Curriculum Framework represents the commitment of the Hinsdale School District to the Common Core State Standards and the ideas of Grant Wiggins and Jay McTighe in their principles of *Understanding by Design*. The Mathematics Curriculum Revision Committee (2015-16) believes that this document provides the necessary framework for teachers to develop mathematical units and lessons based on best practices in curriculum, instruction and assessment.

The Common Core State Standards for Mathematics requires that students develop a conceptual understanding of key concepts, procedural skills and fluency and the ability to use their knowledge to solve real world problems. Teachers are expected to develop lessons that meet these requirements by using a variety of instructional techniques and resources to meet individual student needs.

More information about the Common Core State Standards can be found at:

www.corestandards.org

Grade 6 Mathematics	
Standard 6.RP: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems.	
21st Century Learning Expectations Hinsdale students will be able to solve problems. Hinsdale students will communicate through various means. Hinsdale students will take responsibility for their own learning.	
Enduring Understandings: Relations between two quantities can often be expressed as ratios and can be explained using ratio language. Ratios and rates apply to real life situations. There are tools you can use to solve problems such as double number lines and tape diagrams.	
Learning Competencies	Essential Questions
<p><i>Students will be able to</i></p> <ul style="list-style-type: none"> • understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. • understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a relationship. • use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. 	<ul style="list-style-type: none"> • How do ratios describe relationships between two quantities? • How would you use ratio and rate reasoning in real world situations? • How would you describe percent of a quantity as a rate per 100?

Grade 6 Mathematics

Standard 6.NS: The Number System

Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

Compute fluently with multi-digit numbers and find common factors and multiples.

Apply and extend previous understandings of numbers to the system of rational numbers.

21st Century Learning Expectations:

Hinsdale students will be able to solve problems.

Hinsdale students will communicate through various means.

Hinsdale students will take responsibility for their own learning.

Enduring Understandings:

Number systems have applications in real life.

Numbers in our world will appear as fractions and decimals and can be positive or negative.

Learning Competencies	Essential Questions
<p><i>Students will be able to</i></p> <ul style="list-style-type: none">• interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions using models and equations to represent the problem.• fluently add, subtract, multiply and divide multi-digit numbers, including those with decimals, using the standard algorithm.• find the greatest common factor, least common multiple, and use the distributive property with whole numbers.• understand and be able to use positive and negative numbers, rational and whole, in real world context.• understand ordering and absolute value of rational numbers.• solve real world and mathematical problems by graphing points in all four quadrants of the coordinate plane.	<ul style="list-style-type: none">• How can we use operations in real world situations?• What is the number system?• How can you figure out if positive or negative numbers are involved when you are figuring out a real world problem?• How can I find, identify, or place a point on the coordinate plane?

Grade 6 Mathematics	
Standard 6.EE: Expressions and Equations Apply and extend previous understandings of arithmetic to algebraic expressions. Reason about and solve one-variable equations and inequalities. Represent and analyze quantitative relationships between dependent and independent variables.	
21st Century Learning Expectations: Hinsdale students will be able to solve problems. Hinsdale students will communicate through various means. Hinsdale students will take responsibility for their own learning.	
Enduring Understandings: There is a relationship between dependent and independent variables. Algebra is everywhere. There are two kinds of expressions- numerical and algebraic.	
Learning Competencies	Essential Questions
<p><i>Students will be able to</i></p> <ul style="list-style-type: none"> • write, read, manipulate and evaluate expressions in which letters stand for numbers including equivalencies and those involving whole-number exponents. • solve and write expressions, equations or inequalities using variables and nonnegative rational numbers to solve real world problems. • write and analyze the relationship between independent and dependent variables using graphs and tables and relate these to the equation. 	<ul style="list-style-type: none"> • How can we use variables to solve real world problems? • How do inequalities affect the number of solutions? • How can you evaluate an expression?

Grade 6 Mathematics	
Standard 6.G: Geometry Solve real-world and mathematical problems involving area, surface area, and volume.	
21st Century Learning Expectations Hinsdale students will be able to solve problems. Hinsdale students will communicate through various means. Hinsdale students will take responsibility for their own learning.	
Enduring Understandings Area, surface area and volume have applications in real world situations. Dimension is a measure of the width, height, or length of a figure.	
Learning Competencies	Essential Questions
<p><i>Students will be able to</i></p> <ul style="list-style-type: none"> • find the area of polygons by composing or decomposing into triangles and other shapes. • find the volume of a right rectangular prism using unit cubes and formulas. • utilize the coordinates for vertices to draw polygons on the coordinate plane. • make the connection between nets and 3 dimensional figures and find surface area. 	<ul style="list-style-type: none"> • How can surface area, volume and area be applied in real world situations? • What are the attributes used to identify prisms, cones, cylinders, and pyramids?

Grade 6 Mathematics	
Standard 6.SP: Statistics and Probability Develop understanding of statistical variability. Summarize and describe distributions.	
21st Century Learning Expectations Hinsdale students will be able to solve problems. Hinsdale students will communicate through various means. Hinsdale students will take responsibility for their own learning.	
Enduring Understandings There are variables that account for the answers in statistical questions. Statistics is the collection and analysis of data. Probability is the likelihood that a given event will occur.	
Learning Competencies	Essential Questions
<p><i>Students will be able to</i></p> <ul style="list-style-type: none"> • understand that there is variability in a statistical question. • understand that data collection has a distribution. • use measures of center to answer statistical questions. • summarize and display statistical data. 	<ul style="list-style-type: none"> • How can we determine if a question is a statistical question? • How can we solve a question which includes a subject that has variability?