**COURSE DESCRIPTION**

**Course Title:** Mathematics Grade 6

**Course Number:** 00203

**Course Prerequisites:** Completion of Mathematics Grade 5

**Course Description:** In Mathematics Grade 6, instructional time will focus on five critical areas:
(1) Connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) Completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) Writing, interpreting, and using expressions and equations; (4) Solving area, surface area, and volume problems, and (5) Developing understanding of statistical thinking. Students will be provided the opportunity to take two district assessments at the end of the school year. Students achieving successful scores based on the district required benchmark will be offered enrollment into Advanced Mathematics 7. Students will take the Grade 6 PSSA Math Exam. District marking period assessments are required.

**Suggested Grade Level**: Grade 6

**Length of Course:** Two Semesters

**Units of Credit:** 1

**PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:**

CSPG #50 Mathematics (7-12), CSPG #53 Middle Level Mathematics (6-9),
CSPG #70 Grades 4-8 (All Subjects 4-6, Mathematics 7-8),

To find the CSPG information, go to [CSPG](https://www.education.pa.gov/Educators/Certification/Staffing%20Guidelines/Pages/default.aspx)

**Certification verified by the WCSD Human Resources Department:** [x] Yes [ ] No

**WCSD STUDENT DATA SYSTEM INFORMATION**

**Course Level:** Academic

**Mark Types:** Check all that apply.

[x] F – Final Average [x] MP – Marking Period [x] EXM – Final Exam

**GPA Type**: [ ]  GPAEL-GPA Elementary [x]  GPAML-GPA for Middle Level [ ]  NHS-National Honor Society

[ ]  UGPA-Non-Weighted Grade Point Average [ ]  GPA-Weighted Grade Point Average

**State Course Code**: 02036

To find the State Course Code, go to [State Course Code](https://nces.ed.gov/forum/sced.asp), download the Excel file for *SCED*, click on SCED 6.0 tab, and choose the correct code that corresponds with the course.

**TEXTBOOKS AND SUPPLEMENTAL MATERIALS**

**Board Approved Textbooks, Software, and Materials:**

**Title:**  *enVisionmath 2.0 Grade 6*

**Publisher:** SAVVAS Learning Company LLC.

**ISBN #:**  978-0-328-88090-4

**Copyright Date:** 2017

**WCSD Board Approval Date:** 6/29/2020

**Supplemental Materials:** Kuta Software, Get More Math, SAS pdesas.org, Brainfuse, IXL,
 Calculator: TI-30XIIS, Online Calculator: DESMOS

**Curriculum Document**

**WCSD Board Approval:**

**Date Finalized:** 5/22/2023

**Date Approved:**  6/12/2023

**Date(s) Revised:** 6/10/2024 **Implementation Year:** 2023-2024

**SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS**

The teacher shall make appropriate modifications to instruction and assessment based on a student’s Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

**SCOPE AND SEQUENCE OF CONTENT, AND CONCEPTS**

**Marking Period 1: Positive Rational Numbers, Integers and Rational Numbers, and Numeric and Algebraic Expressions**

* Fluent Operation with Decimals:
	+ Sum and Difference
	+ Product and Quotient
* Operations with Fractions:
	+ Product
	+ Quotient
* Rational Number Problem Solving
* Understand Integers
* Rational Numbers on the Number Line
* Absolute Value of Rational Numbers
* Coordinate Plane:
	+ Rational Numbers
	+ Distances
	+ Polygons
* Exponents: Understanding, Representation
* Greatest Common Factor and Least Common Multiple
* Numerical Expressions: Write, Evaluate
* Algebraic Expressions: Write, Evaluate
* Equivalent Expressions
* Simplification of Algebraic Expressions
* **Marking Period 1 Review and Assessment**

**Marking Period 2: Equations and Inequalities and Ratios, Rates, and Unit Rates**

* Solutions of Equations
* Properties of Equality
* One-Step Equations:
	+ Addition and Subtraction
	+ Multiplication and Division
	+ Rational Numbers: Fractions and Decimals
* Understanding Inequalities to Write and Solve
* 4-8 Dependent and Independent Variables
* 4-9 Patterns to Write and Solve Equations
* 4-10 Relationships of Tables, Graphs, and Equations
* 5-1 – 5-4 Ratios: Understanding, Equivalent, Comparison, Representations, Graph
* 5-5 – 5-7 Unit Rates: Understanding, Comparison, Problem Solving
* 5-8 – 5-9 Ratio Reasoning: Conversion of Customary Units, Conversion of Metric Units
* 5-10 Relationships between Customary and Metric Units
* **Marking Period 2 Review and Assessment**

 **Marking Period 3: Percent, Geometry, and Statistical Data and Displays**

* 6-1 Understanding Percent
* 6-2 Relationships with Fractions, Decimals, and Percent
* 6-3 Representation of Percent Greater Than 100 or Less Than 1
* 6-4 Estimation to Find Percent
* 6-5 Percent of a Number
* 6-6 Whole Given a Part and the Percent
* Area:
	+ Parallelograms and Rhombuses
	+ Triangles
	+ Trapezoids and Kites
	+ Polygons
* 7-5 Nets of Solid Figures
* 7-6 Surface Area of Prisms
* 7-8 Volumes of Prisms
* 8-1 Statistical Questions
* 8-2 Data Summaries: Measures of Center, Range
* 8-3 – 8-4 Statistical Displays
* **Marking Period 3 Review and Assessment**

 **Marking Period 4: Statistics: Measures and Distribution, Grade 6 PSSA Math Preparation and Assessment, Mathematics Grade 7 Preparation, and Mathematics Placement Exams for Advanced Math 7**

* 8-5 Data Summaries: Measures of Variability
* 8-6 Appropriate Statistical Measures
* 8-7 Data Distribution Summaries
* **Grade 6 PSSA Math Preparation and Assessment:**
	+ Review and demonstrate knowledge of The Number System
	+ Review and demonstrate knowledge of Ratios and Proportional Relationships
	+ Review and demonstrate knowledge of Expressions and Equations
	+ Review and demonstrate knowledge of Geometry
	+ Review and demonstrate knowledge of Statistics
* Mathematics Grade 7 Preparation:
	+ Integers on the Number Line
	+ Operations with Integers
* Mathematics Placement Exams for Advanced Math 7

**Standards/Eligible Content and Skills**

| **Performance Indicator** | **PA Core Standard and/or Eligible Content** | **Marking Period Taught**  |
| --- | --- | --- |
| Fluently add, subtract, multiply, and divide decimals. | M06.A-N.2.1M06.A-N.2.1.1 | MP1 |
| Fluently divide whole numbers and decimals. | M06.A-N.2.1M06.A-N.2.1.1 | MP1 |
| Solve real-world and mathematical problems involving operations with decimals. | M06.A-N.2.1.1 | MP1 |
| Multiply fractions. | M06.A-N.1.1.1 | MP1 |
| Understand and divide with fractions. | M06.A-N.1.1.1 | MP1 |
| Divide mixed numbers. | M06.A-N.1.1.1 | MP1 |
| Solve real-world and mathematical problems with rational numbers. | M06.A-N.1.1 | MP1 |
| Solve multi-step problems with fractions and decimals. | M06.A-N.1.1 | MP1 |
| Define integers and opposites. | M06.A-N.3.1M06.A-N.3.1.1M06.A-N.3.1.2 | MP1 |
| Compare and order integers. | M06.A-N.3.1.3 | MP1 |
| Use integers to represent quantities. | M06.A-N.3.1.1 | MP1 |
| Represent rational numbers on the number line. | M06.A-N.3.1.3 | MP1 |
| Understand, compare, and order rational numbers. | M06.A-N.3.2M06.A-N.3.2.1 | MP1 |
| Interpret rational numbers in real-world contexts. | M06.A-N.3.2.1 | MP1 |
| Describe quantities using absolute value. | M06.A-N.3.2.2 | MP1 |
| Find and interpret absolute value. | M06.A-N.3.2.2 | MP1 |
| Graph points with integer coordinates. | M06.A-N.3.1.3M06.A-N.3.2.3 | MP1 |
| Locate and identify points with rational coordinates. | M06.A-N.3.1.3M06.A-N.3.2.3 | MP1 |
| Reflect points across the axes. | M06.A-N.3.2.3 | MP1 |
| Find horizonal and vertical distance on the coordinate plane. | M06.A-N.3.1.3 | MP1 |
| Solve problems involving distance on the coordinate plane. | M06.A-N.3.2.3 | MP1 |
| Find the perimeter of a rectangle. | M06.A-N.3.2.3 | MP1 |
| Find the perimeter of an irregular polygon. | M06.A-N.3.2.3 | MP1 |
| Apply distance to geometry. | M06.A-N.3.2.3M06.B-E.1.1.1 | MP1 |
| Understand and represent exponents. | M06.A-N.2.2M06.B-E.1.1.1 | MP1 |
| Evaluate exponents. | M06.A-N.2.2M06.B-E.1.1.1 | MP1 |
| Evaluate expressions with exponents. | M06.A-N.2.2M06.B-E.1.1.1 | MP1 |
| Find the prime factorizations of a number. | M06.A-N.2.2.1M06.B-E.1.1.1 | MP1 |
| Find the Greatest Common Factor (GCF) of two numbers. | M06.A-N.2.2.1 | MP1 |
| Use the Greatest Common Factor (GCF) and the Distributive Property to find the sum of two numbers. | M06.A-N.2.2.1M06.A-N.2.2.2 | MP1 |
| Find the Least Common Multiple (LCM) of two numbers. | M06.A-N.2.2.1 | MP1 |
| Use the Order of Operations to evaluate numerical expressions with decimals and fractions. | M06.B-E.1.1 |  |
| Insert grouping symbols in a numerical expression. | M06.B-E.1.1.3 | MP1 |
| Write algebraic expressions. | M06.B-E.1.1.2 | MP1 |
| Identify parts of an expression. | M06.B-E.1.1.3 | MP1 |
| Evaluate algebraic expressions containing whole numbers, decimals, and fractions. | M06.A-N.1.1.1M06.A-N.2.1.1M06.B-E.1.1.4M06.B-E.2.1.2 | MP1 |
| Write equivalent expressions. | M06.B-E.1.1.5 | MP1 |
| Identify equivalent expressions.  | M06.B-E.2.1.1 | MP1 |
| Justify equivalent expressions using substitution. | M06.B-E.2.1.1 | MP1 |
| Simplify algebraic expressions: combining like terms, fractions, parentheses, decimals. | M06.B-E.1.1.5 | MP1 |
| **Marking Period 1 Review and Assessment** |  | **MP1** |
| * Review and demonstrate knowledge of Positive Rational Numbers.
 |  | MP1 |
| * Review and demonstrate knowledge of Integers and Rational Numbers.
 |  | MP1 |
| * Review and demonstrate knowledge of Numeric and Algebraic Expressions.
 |  | MP1 |
| Determine whether a value is a solution of an equation. | M06.B-E.2.1.1 | MP2 |
| Use substitution to show no values are a solution. | M06.B-E.2.1.1 | MP2 |
| Define properties of equality. | M06.B-E.1.1.5 | MP2 |
| Apply multiplication and division properties of equality. | M06.B-E.2.1.3 | MP2 |
| Apply addition and subtraction properties of equality. | M06.B-E.2.1.3 | MP2 |
| Write and solve addition and subtraction equations. | M06.B-E.2.1.3 | MP2 |
| Solve real-world and mathematical problems using addition and subtraction equations. | M06.B-E.2.1.3 | MP2 |
| Write and solve multiplication equations. | M06.B-E.2.1.3 | MP2 |
| Write and solve division equations for the dividend and for the divisor. | M06.A-N.1.1.1M06.B-E.2.1.3 | MP2 |
| Solve real-world and mathematical problems using multiplication and division equations. | M06.A-N.1.1.1M06.B-E.2.1.3 | MP2 |
| Solve addition, subtraction, multiplication, and division equations with fractions. | M06.A-N.1.1.1M06.B-E.2.1.3 | MP2 |
| Solve addition, subtraction, multiplication, and division equations with decimals. | M06.A-N.1.1.1M06.B-E.2.1.3 | MP2 |
| Solve real-world and mathematical problems using addition, subtraction, multiplication, and division equations with rational numbers. | M06.A-N.1.1.1M06.B-E.2.1.3 | MP2 |
| Understand inequalities. | M06.B-E.2.1.4 | MP2 |
| Write inequalities. | M06.B-E.2.1.4 | MP2 |
| Graph solutions of an inequality. | M06.B-E.2.1.4 | MP2 |
| Graph to solve an inequality. | M06.B-E.2.1.4 | MP2 |
| Substitute to solve an inequality. | M06.B-E.2.1.4 | MP2 |
| Write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world and mathematical problem. | M06.B-E.2.1.4 | MP2 |
| Understand and identify dependent and independent variables. | M06.B-E.3.1 | MP2 |
| Find a pattern to write an equation. | M06.B-E.3.1.1 | MP2 |
| Make an analyze a table to write an equation. | M06.B-E.3.1.2 | MP2 |
| Relate quantities using a table, a graph, and an equation. | M06.B-E.3.1.2 | MP2 |
| Relate an equation with two operations to a table and a graph. | M06.B-E.3.1.2 | MP2 |
| Write ratios to compare quantities. | M06.A-R.1.1.1 | MP2 |
| Use a data display to solve a ratio problem. | M06.A-R.1.1.3 | MP2 |
| Find equivalent ratios using multiplication and division. | M06.A-R.1.1.2 | MP2 |
| Compare ratios. | M06.A-R.1.1.3 | MP2 |
| Solve real-world and mathematical problems by comparing ratios. | M06.A-R.1.1 | MP2 |
| Represent and graph ratios. | M06.A-R.1.1.3 | MP2 |
| Find equivalent rates. | M06.A-R.1.1.3 | MP2 |
| Compare quantities in two ways. | M06.A-R.1.1.1 | MP2 |
| Solve real-world and mathematical problems using unit rates. | M06.A-R.1.1 | MP2 |
| Compare to find the greater and lesser unit rates. | M06.A-R.1.1.3 | MP2 |
| Solve real-world and mathematical unit rate problems: constant speed, unit price. | M06.A-R.1.1.4 | MP2 |
| Use an equation to represent unit rate problems. | M06.A-R.1.1.2 | MP2 |
| Convert customary units using ratio reasoning: length, capacity, weight. | M06.A-R.1.1CC.2.1.6.D.1 | MP2 |
| Convert metric units using ratio reasoning: length, capacity, mass. | M06.A-R.1.1CC.2.1.6.D.1 | MP2 |
| Convert from metric units to customary units. | M06.A-R.1.1CC.2.1.6.D.1 | MP2 |
| Convert from customary units to metric units. | M06.A-R.1.1CC.2.1.6.D.1 | MP2 |
| **Marking Period 2 Review and Assessment** |  | **MP2** |
| * Review and demonstrate knowledge of Equations and Inequalities.
 |  | MP2 |
| * Review and demonstrate knowledge of Ratios, Rates, and Unit Rates.
 |  | MP2 |
| Understand and use percent. | M06.A-R.1.1.5 | MP3 |
| Express percent and decimals as parts of a whole. | M06.A-R.1.1.5 | MP3 |
| Express fractions as parts of a whole. | M06.A-R.1.1.5 | MP3 |
| Use division with equivalent rates to express fractions as part of a whole. | M06.A-R.1.1.5 | MP3 |
| Represent percent greater than 100 or less than 1 as a fraction and as a decimal. | M06.A-R.1.1.5 | MP3 |
| Use equivalent fractions to estimate. | M06.A-R.1.1.5 | MP3 |
| Use rounding and compatible numbers to estimate. | M06.A-R.1.1.5 | MP3 |
| Estimate and find percent. | M06.A-R.1.1.5 | MP3 |
| Find the part and percent of a number. | M06.A-R.1.1.5 | MP3 |
| Find the whole when given a part and the percent. | M06.A-R.1.1.5 | MP3 |
| Find the whole when the percent is greater than 100. | M06.A-R.1.1.5 | MP3 |
| Find the whole when the percent is a decimal. | M06.A-R.1.1.5 | MP3 |
| Find the area of parallelograms and rhombuses. | M06.C-G.1.1.1 | MP3 |
| Use the area formulas of parallelograms and rhombuses to find measurements: base, height. | M06.C-G.1.1.1 | MP3 |
| Solve real-world and mathematical area problems of parallelograms and rhombuses. | CC.2.3.6.A.1 | MP3 |
| Identify the corresponding base and height of a triangle to find the area. | M06.C-G.1.1.1 | MP3 |
| Find the area of a triangle. | M06.C-G.1.1.1 | MP3 |
| Find the area of a right triangle. | M06.C-G.1.1.1 | MP3 |
| Solve real-world and mathematical area problems of triangles. | CC.2.3.6.A.1 | MP3 |
| Find the area of trapezoids and kites. | M06.C-G.1.1.1 | MP3 |
| Solve real-world and mathematical area problems of trapezoids and kites. | CC.2.3.6.A.1 | MP3 |
| Find the area of irregular or compound polygons: decomposition, composition. | M06.C-G.1.1.2 | MP3 |
| Find the area of a polygon on the coordinate plane: triangles, special quadrilaterals. | M06.C-G.1.1.4 | MP3 |
| Solve real-world and mathematical area problems of irregular and compound polygons. | CC.2.3.6.A.1 | MP3 |
| Classify solids (3D figures). | M06.C-G.1.1.5 | MP3 |
| Identify a solid (3D figure) figure from a net. | M06.C-G.1.1.5 | MP3 |
| Represent a net of a solid (3D figure). | M06.C-G.1.1.5 | MP3 |
| Find the surface area: rectangular prism, cube, triangular prism. (No Pyramids) | M06.C-G.1.1.6 | MP3 |
| Solve real-world and mathematical surface area problems of triangular and rectangular prisms and cubes. | M06.C-G.1.1.3 | MP3 |
| Find the volume of a rectangular prism and cube with fractional edge lengths. | M06.C-G.1.1.3 | MP3 |
| Solve real-world and mathematical volume problems of right rectangular prisms and cubes. | M06.C-G.1.1.3CC.2.3.6.A.1 | MP3 |
| Understand and recognize a statistical question. | M06.D-S.1.1 | MP3 |
| Write a statistical question. | M06.D-S.1.1.2 | MP3 |
| Use quantitative measures of center to describe a data set: mean, median, mode. | M06.D-S.1.1.2 | MP3 |
| Use a measure of variability (range) to describe a data set. | M06.D-S.1.1.1 | MP3 |
| Display numerical data in a box plot. | M06.D-S.1.1.3 | MP3 |
| Interpret a box plot. | M06.D-S.1.1.1 | MP3 |
| Display data in frequency tables and histograms. | M06.D-S.1.1.3 | MP3 |
| Solve real-world and mathematical data problems using frequency tables and histograms.  | M06.D-S.1.1.1 | MP3 |
| Display numerical data on number lines and dot plots. | M06.D-S.1.1.1 | MP3 |
| **Marking Period 3 Review and Assessment** |  | **MP3** |
| * Review and demonstrate knowledge of Percents.
 |  | MP3 |
| * Review and demonstrate knowledge of Geometry.
 |  | MP3 |
| * Review and demonstrate knowledge of Statistics: Data and Displays.
 |  | MP3 |
| Find the mean absolute variation and interquartile range to describe variability. | M06.D-S.1.1.2 | MP4 |
| Use the mean absolute deviation and interquartile range to find the variability of a data set. | M06.D-S.1.1.2 | MP4 |
| Choose the best measure of center to describe a data set. | M06.D-S.1.1.4 | MP4 |
| Choose the best measure of variability to describe a data set. | M06.D-S.1.1.4 | MP4 |
| Summarize data distributions. | M06.D-S.1.1.4 | MP4 |
| **Grade 6 PSSA Math Preparation and Assessment** |  | **MP4** |
| * Review and demonstrate knowledge of the Number System.
 | M06.A-N.1.1M06.A-N.2.1M06.A-N.2.2M06.A-N.3.1M06.A-N.3.2 | MP4 |
| * Review and demonstrate knowledge of Ratios and Proportional Relationships.
 | M06.A-R.1.1 | MP4 |
| * Review and demonstrate knowledge of Expressions.
 | M06.B-E.1.1M06.B-E.2.1 | MP4 |
| * Review and demonstrate knowledge of Equations.
 | M06.B-E.3.1 | MP4 |
| * Review and demonstrate knowledge of Geometry.
 | M06.C-G.1.1 | MP4 |
| * Review and demonstrate knowledge of Statistics.
 | M06.D-S.1.1 | MP4 |
| **Introduction to 7th Grade** |  | **MP4** |
| * Identify and graph integers on a number line.
 | M07.A-N.1.1 | MP4 |
| * Add integers.
 | M07.A-N.1.1 | MP4 |
| * Subtract integers.
 | M07.A-N.1.1 | MP4 |
| * Multiply integers.
 | M07.A-N.1.1 | MP4 |
| * Divide integers.
 | M07.A-N.1.1 | MP4 |
| * Simplify using the order of operations with integers.
 | M07.A-N.1.1 | MP4 |
| **Mathematics Placement Exam: Advanced Math 7** |  | **MP4** |

**ASSESSMENTS**

**PDE Academic Standards, Assessment Anchors, and Eligible Content:** The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

**Formative Assessments:** The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

**Effective formative assessments for this course include:
Suggested but not limited to:**

* Pre-assessments of prior knowledge (e.g., Entrance cards or KWL chart)
* Bellringers/Problems of the Day (PODs)
* Discussions
* Exit ticket
* Teacher observations/Questioning
* Graphic organizers (e.g., Venn Diagrams, word mapping, webbing, KWL chart, etc.)
* Outlining
* Cooperative learning
* Written work
* Quizzes
* Oral response
* Self-evaluation
* Homework
* Summarizing
* Note-taking

**Summative Assessments:** The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

**Effective summative assessments for this course include:
Suggested but not limited to:**

* Performance assessment
* Chapter/unit tests
* Quizzes
* Marking period assessments
* Projects
* Student presentations