Curriculum Framework

Course Title: 6th Grade Math

Board Approval Date: October 14, 2026

Credit / Hours:

Course Description:

Grade 6 Mathematics is designed to transition students from elementary arithmetic to middle school algebraic and statistical reasoning. Fully aligned with the Pennsylvania Core Standards for Mathematics, this course emphasizes conceptual understanding, procedural fluency, and real-world application.

Students extend their understanding of multiplication and division to divide fractions by fractions, compute fluently with multi-digit numbers, and expand their knowledge of the number system to include positive and negative rational numbers. A major shift in 6th grade is the introduction of Ratio and Rate Reasoning, laying the foundation for proportional thinking. Students write, interpret, and evaluate algebraic expressions and solve one-variable equations and inequalities. In geometry, students solve real-world problems involving area, surface area, and volume. Finally, students develop statistical thinking by analyzing data distributions through measures of center and variability.

Learning Activities / Modes of Assessment:

Instruction integrates whole-group mini-lessons and targeted small-group instruction & intervention to foster conceptual understanding, peer collaboration, and ongoing progress monitoring aligned with PA Core standards.

Assessment is divided into Formative (checking for understanding during learning), Summative (evaluating mastery at the end of each lesson and unit), and Performance Tasks (applying concepts to real-world scenarios).

Instructional Resources: Ready Classroom, PSSA Performance Coach, Study Island, Get More Math

Unit 1: The Number System	
Time Frame	34 Days: Lesson 1 (5 days), Lesson 2 (6 days), Lesson 3 (8 days), Lesson 4 (3 days), Lesson 5 (6 days), Lesson 6 (4 days), Unit Review & Assessment (2 days)
Student Learning Outcomes	The student will: ● Find GCF & LCM when given two whole numbers and identify which one is used to solve a real-world problem ● Divide two fractions & use division of fractions to solve word problems ● Add, subtract, multiply, & divide multi-digit decimals in real-world contexts. ● Understand and interpret negative numbers on a number line and in real-world contexts. ● Compare and order numbers, including negatives. ● Understand, interpret, and compare absolute value. ● Extend coordinate plane understanding to all four quadrants. ● Graph on a coordinate plane and find distances and areas.
Essential Questions	● Lesson 1: How can we use greatest common factor and least common multiple? Lesson 2: How can we use division/multiplication of fractions to solve real world problems? ● Lesson 3: How do we add, subtract, multiply, and divide decimals? ● Lesson 4: How do we use and compare negative numbers in the real world? ● Lesson 5: What does absolute value tell us about a number? ● Lesson 6: How do negative numbers work with graphing?
Content	● Lesson 1: Find the greatest common factor and least common multiple ● Lesson 2: Understand division of fractions ● Lesson 3: Add, subtract, multiply, & divide multi-digit decimals ● Lesson 4: Understand positive and negative numbers ● Lesson 5: Order positive and negative numbers, Understand absolute value ● Lesson 6: Understand the four-quadrant coordinate plane, Solve problems in the coordinate plane
Assessments	● Daily comprehension checks through bell ringers, exit tickets, class assignments ● Lesson quizzes after each lesson. ● Unit 1 Assessment at the end of the unit.

Standards	**M06.A-N.2.2.1** Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. **M06.A-N.1.1.1** Interpret and compute quotients of fractions (including mixed numbers), and solve word problems involving division of fractions by fractions **M06.A-N.2.1.1** Solve problems involving operations (+, –, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems. **M06.A-N.3.1.1** Represent quantities in real-world contexts using positive and negative numbers, explaining the meaning of 0 in each situation. **M06.A-N.3.1.2** Determine the opposite of a number and recognize that the opposite of the opposite of a number is the number itself. **M06.A-N.3.1.3** Locate and plot integers and other rational numbers on a horizontal or vertical number line; locate and plot pairs of integers and other rational numbers on a coordinate plane. **M06.A-N.3.2.1** Write, interpret, and explain statements of order for rational numbers in real-world contexts. **M06.A-N.3.2.2** Interpret the absolute value of a rational number as its distance from 0 on the number line and as a magnitude for a positive or negative quantity in a real-world situation. **M06.A-N.3.2.3** Solve real-world and mathematical problems by plotting points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
Key Vocabulary	**Academic/Concept Vocabulary** greatest common factor, least common multiple, fraction, mixed number, reciprocal, reduce, divide, multiply, add, subtract, remainder, decimal, tenths, hundredths, thousandths, place value, order of operations, variable, integers, negative numbers, positive numbers, rational numbers, opposite numbers, absolute value, coordinate plane, quadrant
Materials/ Resources	● Teaching Slides, Ready Classroom, PSSA Performance Coach, Study Island, Get More Math ○ Unit 1 Google Drive

Unit 2: Ratios & Proportional Relationships	
Time Frame	23 Days: Lesson 7 (5 days), Lesson 8 (6 days), Lesson 9 (5 days), Lesson 10 (5 days), Unit Review & Assessment (2 days)
Student Learning Outcomes	The student will: ● Use ratios to write part-to-part and part-to-whole comparisons ● Identify & generate equivalent ratios using various methods & find missing values in tables, solve problems, and generate ordered pairs using equivalent ratios ● Understand and compare rates and use rates to describe ratio relationships ● Find unit rates and use them to compare ratios, find unknown values in equivalent ratios, and solve word problems ● Use tables to compare ratios & solve problems with part-to-part and part-to-whole ratios ● Understand that a percent is a rate per 100 & use models and fractions to represent percents ● Use percents to compare ratios & solve problems to find part, whole, and percent
Essential Questions	● Lesson 7: How can we use ratios to describe relationships between quantities? ● Lesson 7: How do we use ratios and rates to solve problems? ● Lesson 8: How can we use unit rates to solve real-world problems? ● Lesson 8: How can we use unit rates to solve real-world problems? ● Lesson 9: How do we use ratios and rates to solve problems? ● Lesson 10: How are ratios and percentages related? ● Lesson 10: How can we use percentages to solve real-world problems?
Content	● Lesson 7: Understand ratio concepts ● Lesson 7: Find equivalent ratios ● Lesson 8: Understand rate concepts ● Lesson 8: Use unit rates to solve problems ● Lesson 9: Use part-to-part and part-to-whole ratios (potentially cut this lesson) ● Lesson 10: Understand percents ● Lesson 10: Use percents to solve problems
Assessments	● Daily comprehension checks through bell ringers, exit tickets, class assignments ● Lesson quizzes after each lesson. ● Unit 1 Assessment at the end of the unit.

Standards	**M06.A-R.1.1.1** Use ratio language and notation (such as 3 to 4, 3:4, 3/4) to describe a ratio relationship between two quantities. **M06.A-R.1.1.2** Find the unit rate a/b associated with a ratio a:b (with b ≠ 0) and use rate language in the context of a ratio relationship. **M06.A-R.1.1.3** Construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and/or plot the pairs of values on the coordinate plane. Use tables to compare ratios. **M06.A-R.1.1.4** Solve unit rate problems including those involving unit pricing and constant speed. **M06.A-R.1.1.5** Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, given a part and the percentage.
Key Vocabulary	**Academic/Concept Vocabulary** ratio, equivalent ratio, coordinate plane, ordered pair, equivalent, per, rate, unit rate, percent, percent proportion, decimal, fraction
Materials/ Resources	● Teaching Slides, Ready Classroom, PSSA Performance Coach, Study Island, Get More Math ○ Unit 2 Google Drive

Unit 3: Expressions & Equations	
Time Frame	44 Days: Lesson 11 (4 days), Lesson 12 (4 days), Lesson 13 (4 days), Lesson 14 (4 days), Lesson 15 (6 days), Lesson 16 (5 days), Lesson 17 (5 days), Lesson 18 (5 days), Lesson 19 (5 days), Unit Review & Assessment (2 days)
Student Learning Outcomes	The student will: ● Recognize the different parts of an expression, write expressions from verbal descriptions, and evaluate expressions by replacing variables with given values and following order of operations. ● Write and evaluate expressions involving exponents. ● Write algebraic expressions from verbal descriptions. ● Identify the parts of an expression using mathematical vocabulary. ● Evaluate expressions with variables to solve real world problems. ● Generate and identify equivalent expressions through the use of distributive property and combining like terms. ● Apply properties of operations to simplify expressions. ● Understand that substitution is used to verify that a solution to an equation is true. ● Write and solve one-step equations, interpreting solutions in context. ● Write inequalities from real-world context and graph their solutions. ● Understand and express the relationships between dependent and independent variables using equations, tables, and graphs.
Essential Questions	● Lesson 11: What are expressions & how do we use them to solve problems? ● Lesson 12: How do we write algebraic expressions from verbal descriptions? ● Lesson 13: What are the parts of an expression? ● Lesson 14: What is a variable and how can we use variables to solve real world problems? ● Lesson 15: What makes expressions equivalent? ● Lesson 15: How do we use mathematical properties to evaluate expressions? ● Lesson 16: How do you determine whether a value is the solution to an equation? ● Lesson 17: What strategies can we use to solve equations? ● Lesson 18: How do we mathematically represent real-life situations involving inequalities? ● Lesson 19: When two variables are related, how do we describe that relationship mathematically?
Content	● Lesson 11: Work with algebraic expressions ● Lesson 12: Write and evaluate expressions with exponents. ● Lesson 13: Identify the parts of an expression using mathematical vocabulary.

	● Lesson 14: Evaluate expressions with variables to solve real world problems. ● Lesson 15: Write and identify equivalent expressions. ● Lesson 15: Apply the distributive property to evaluate expressions. ● Lesson 16: Understand solutions of equations. ● Lesson 17: Write and solve one-variable equations. ● Lesson 18: Write and graph one-variable inequalities. ● Lesson 19: Analyze two-variable relationships.
Assessments	● Daily comprehension checks through bell ringers, exit tickets, class assignments ● Lesson quizzes after each lesson. ● Unit 1 Assessment at the end of the unit.
Standards	**M06.B-E.1.1.1** Write and evaluate numerical expressions involving whole-number exponents. **M06.B-E.1.1.2** Write algebraic expressions from verbal descriptions. **M06.B-E.1.1.3** Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity). **M06.B-E.1.1.4** Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems. **M06.B-E.1.1.5** Apply the properties of operations to generate equivalent expressions. **M06.A-N.2.2.2** Apply the distributive property to express a sum of two whole numbers, 1 through 100, with a common factor as a multiple of a sum of two whole numbers with no common factor. **M06.B-E.2.1.1** Use substitution to determine whether a given number in a specified set makes an equation or inequality true. **M06.B-E.2.1.2** Write algebraic expressions to represent real-world or mathematical problems. **M06.B-E.2.1.3** Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q, and x are all non-negative rational numbers. **M06.B-E.2.1.4** Write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem and/or represent solutions of such inequalities on number lines. **M06.B-E.3.1.1** Write an equation to express the relationship between the dependent and independent variables. **M06.B-E.3.1.2** Analyze the relationship between the dependent and independent variables using graphs and tables and/or relate these to an equation.
Key Vocabulary	**Academic/Concept Vocabulary** Coefficient, Term, Variable, Base (of a power), Exponent, Power, Expression, Equation, Equivalent Expressions, Like Terms, Dependent variable, Independent variable, Like terms, Evaluate, Simplify

Materials/ Resources	● Teaching Slides, Ready Classroom, PSSA Performance Coach, Study Island, Get More Math ○ Unit 3 Google Drive

Unit 4: Geometry	
Time Frame	27 Days: Lesson 20 (4 days), Lesson 21 (4 days), Lesson 22 (4 days), Lesson 23 (4 days), Lesson 24 (4 days), Lesson 25 (5 days), Unit Review & Assessment (2 days)
Student Learning Outcomes	The student will: ● Identify the base and height of a parallelogram and use this to find area with a formula or by decomposing/composing . ● Identify the base and height of a triangle and use this to find area with a formula or by decomposing/composing. ● Determine the area of irregular compound polygons. ● Determine the area or side lengths of polygons given coordinates of the polygon's vertices. ● Identify and draw nets for rectangular & triangular prisms then find the surface area using the formula & the sum of the area of the figure's faces. ● Find the volume of rectangular prisms with fractional lengths using cubes and the formula.
Essential Questions	● Lesson 20: How do we find the area of polygons using a formula & what we already know about shapes? ● Lesson 21: How do we find the area of irregular polygons using a formula & what we know about shapes? ● Lesson 22: How do we use coordinates to find the side lengths or area of a polygon? ● Lesson 23 & 24: How do we find surface area of 3D figures using formulas & nets? ● Lesson 25: What is volume and how do we find the volume of a rectangular prism?
Content	● Lesson 20: Find the area of a parallelogram. ● Lesson 20: Find the area of triangles & other polygons. ● Lesson 21: Find the area of irregular polygons. ● Lesson 22: Use coordinates to find the side lengths and area of a polygon. ● Lesson 23 & 24: Use nets to find surface area. ● Lesson 25: Solve volume problems with fractions.
Assessments	● Daily comprehension checks through bell ringers, exit tickets, class assignments ● Lesson quizzes after each lesson. ● Unit 1 Assessment at the end of the unit.
Standards	**M06.C-G.1.1.1** Determine the area of triangles and special quadrilaterals (i.e., square, rectangle, parallelogram, rhombus, and trapezoid). Formulas will be provided.

	M06.C-G.1.1.2 Determine the area of irregular or compound polygons. Example: Find the area of a room in the shape of an irregular polygon by composing and/or decomposing. **M06.C-G.1.1.3** Determine the volume of right rectangular prisms with fractional edge lengths. Formulas will be provided. **M06.C-G.1.1.4** Given coordinates for the vertices of a polygon in the plane, use the coordinates to find side lengths and area of the polygon (limited to triangles and special quadrilaterals). Formulas will be provided. **M06.C-G.1.1.5** Represent three-dimensional figures using nets made of rectangles and triangles. **M06.C-G.1.1.6** Determine the surface area of triangular and rectangular prisms (including cubes). Formulas will be provided.
Key Vocabulary	**Academic/Concept Vocabulary** Base (of parallelogram), Height (of parallelogram), Base (of triangle), Height (of triangle), Net, Prism, Pyramid, Right prism, Right rectangular prism, Irregular polygon, vertices, coordinates, Volume,
Materials/ Resources	● Teaching Slides, Ready Classroom, PSSA Performance Coach, Study Island, Get More Math ○ Unit 4 Google Drive

Unit 5: Statistics & Probability	
Time Frame	20 Days: Lesson 26 (6 days), Lesson 27 (6 days), Lesson 28 (6 days), Unit Review & Assessment (2 days)
Student Learning Outcomes	The student will: ● Understand that statistical questions provide data that varies. ● Display data in dot plots and histograms and describe the shape of the distribution. ● Create boxplots and interpret the median and IQR. ● Calculate and interpret the mean and MAD, understanding how they are affected by outliers. ● Choose the best measure of center/variability to represent a given data set.
Essential Questions	● Lesson 26:What is a statistical question? ● Lesson 26: How can we display and describe data using dot plots and histograms? ● Lesson 27: What do median and IQR tell us about data? ● Lesson 28: What do mean and MAD tell us about our data? ● Lesson 28: How do we know which measures are best to represent our data?
Content	● Lesson 26: Understand statistical questions and data distributions ● Lesson 26: Use dot plots and histograms to describe data distributions ● Lesson 27: Interpret median and interquartile range in box plots ● Lesson 28: Interpret mean and mean absolute deviation ● Lesson 28: Use measures of center and variability to summarize data
Assessments	● Daily comprehension checks through bell ringers, exit tickets, class assignments ● Lesson quizzes after each lesson. ● Unit 1 Assessment at the end of the unit.
Standards	**M06.D-S.1.1.1** Display numerical data in plots on a number line, including line plots, histograms, and box-and whisker plots. **M06.D-S.1.1.2** Determine quantitative measures of center (e.g., median, mean, mode) and variability (e.g., range, interquartile range, mean absolute deviation). **M06.D-S.1.1.3** Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered. **M06.D-S.1.1.4** Relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

Key Vocabulary	**Academic/Concept Vocabulary** Distribution, Dot plot, Frequency, Range, Statistical question, Variability, Cluster, Gap, Histogram, Outlier, Peak, Skewed left, Skewed right, Symmetric, Box plot, Interquartile range (IQR), Lower quartile, Measure of center, Measure of variability, Median, Upper quartile, Mean, Mean absolute deviation (MAD)
Materials/ Resources	• Teaching Slides, Ready Classroom, PSSA Performance Coach, Study Island, Get More Math ○ Unit 5 Google Drive

Danville Area School District
Course Overview and Scope and Sequence

Course Title: 6th Grade Math
Content Area: Mathematics
Grade Level: 6
Date Developed: 6/8/26
Date Updated: 8/20/26
Board Approval Date: October 14, 2026

COURSE OVERVIEW: Grade 6 Mathematics transitions students from elementary arithmetic to middle school algebraic and statistical reasoning. Fully aligned with the Pennsylvania Core Standards, this course emphasizes conceptual understanding, procedural fluency, and real-world application. Key focus areas include fraction division, decimal operations, ratio and rate reasoning, writing and solving algebraic expressions/equations, geometry concepts (area, surface area, and volume), and statistical data analysis.
ANCHOR STANDARDS: **M06.A-N The Number System** **M06.A-R Ratios & Proportional Relationships** **M06.B-E Expressions & Equation M06.C-G Geometry** **M06.D-S Statistics & Probability**
KEY COURSE TEXT AND MATERIALS: Ready Classroom, PSSA Performance Coach, Study Island, Get More Math, Teaching Slides, Unit Google Drive Folders.
KEY ASSESSMENTS: **Diagnostic & Benchmark: Firefly Testing, MAP Testing** **State Standardized: PSSAs (Pennsylvania System of School Assessment)** **Formative: Daily comprehension checks through bell ringers, exit tickets, and class assignments** **Summative: End-of-lesson quizzes and comprehensive Unit Assessments**

SCOPE AND SEQUENCE					
Unit	PRIORITY STANDARDS	SUPPORTING STANDARDS	ASSESSMENT	MATERIALS	TIMEFRAME
Unit 1: The Number System	**CC.2.1.6.E.1** Apply/extend previous understandings of multiplication and division to divide fractions by fractions. **CC.2.1.6.E.2** Compute fluently with multi-digit numbers and find common factors/multiples. **CC.2.1.6.E.4** Apply/extend previous understandings of numbers to the system of rational numbers.	**M06.A-N.1.1.1** Quotient of fractions **M06.A-N.2.1.1** Multi-digit decimal operations **M06.A-N.2.2.1** GCF & LCM **M06.A-N.3.1.1** Pos/neg numbers in context **M06.A-N.3.1.2** Opposite numbers **M06.A-N.3.1.3** Plotting on number lines/planes **M06.A-N.3.2.1** Ordering rational numbers **M06.A-N.3.2.2** Absolute value **M06.A-N.3.2.3** 4-quadrant coordinate plane	Exit tickets, lesson quizzes, Unit 1 Assessment	Ready Classroom, PSSA Performance Coach, Study Island, Get More Math, Unit 1 Google Drive	34 Days

Unit 2: Ratios & Proportional Relationships	**CC.2.1.6.D.1** Understand ratio concepts and use ratio reasoning to solve problems.	**M06.A-R.1.1.1** Ratio language & notation **M06.A-R.1.1.2** Find unit rate a/b **M06.A-R.1.1.3** Tables of equivalent ratios **M06.A-R.1.1.4** Solve unit rate problems **M06.A-R.1.1.5** Percents & percent problems	Exit tickets, lesson quizzes, Unit 2 Assessment	Ready Classroom, PSSA Performance Coach, Study Island, Get More Math, Unit 2 Google Drive	23 Days
Unit 3: Expressions & Equations	**CC.2.2.6.B.1** Apply/extend arithmetic to algebraic expressions. **CC.2.2.6.B.2** Solve 1-variable equations and inequalities. **CC.2.2.6.B.3** Represent/analyze relationships between independent and	**M06.B-E.1.1.1** Exponents **M06.B-E.1.1.2** Write algebraic expressions **M06.B-E.1.1.3** Parts of an expression **M06.B-E.1.1.4** Evaluate expressions **M06.B-E.1.1.5** Equivalent expressions	Exit tickets, lesson quizzes, Unit 3 Assessment	Ready Classroom, PSSA Performance Coach, Study Island, Get More Math, Unit 3 Google Drive	44 Days

	dependent variables.	**M06.A-N.2.2.2** Distributive property **M06.B-E.2.1.1** Substitution **M06.B-E.2.1.2** Algebraic expressions in context **M06.B-E.2.1.3** Solve x+p=q & px=q **M06.B-E.2.1.4** Write & graph inequalities **M06.B-E.3.1.1** Independent & dependent variables **M06.B-E.3.1.2** Analyze graphs/tables of 2 variables			
Unit 4: Geometry	**CC.2.3.6.A.1** Apply tools to solve real-world and mathematical problems involving	**M06.C-G.1.1.1** Area of triangles & quadrilaterals **M06.C-G.1.1.2** Area of compound polygons	Exit tickets, lesson quizzes, Unit 4 Assessment	Ready Classroom, PSSA Performance Coach, Study Island, Get More Math, Unit 4 Google Drive	27 Days

	area, surface area, and volume.	**M06.C-G.1.1.3** Volume with fractional edge lengths **M06.C-G.1.1.4** Polygon coordinates & side lengths **M06.C-G.1.1.5** Nets of 3D figures **M06.C-G.1.1.6** Surface area using formulas			
Unit 5: Statistics & Probability	**CC.2.4.6.B.1** Demonstrate an understanding of statistical variability and summarize/describe distributions.	**M06.D-S.1.1.1** Display data (dot plots, histograms, box plots) **M06.D-S.1.1.2** Measures of center & variability **M06.D-S.1.1.3** Describe patterns & deviations **M06.D-S.1.1.4** Select appropriate measures	Exit tickets, lesson quizzes, Unit 5 Assessment	Ready Classroom, PSSA Performance Coach, Study Island, Get More Math, Unit 5 Google Drive	20 Days