DELAWARE VALLEY SCHOOL DISTRICT

PLANNED INSTRUCTION

A PLANNED COURSE FOR:

Math 7

Curriculum Writing Committee:

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Grade Level: 7

Date of Board Approval: June 2025

DELAWARE VALLEY SCHOOL DISTRICT

Course Weighting: Math 7

	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Chapter Tests	45%	45%	45%	45%
Quizzes	35%	35%	35%	35%
Homework/ Classwork	10%	10%	10%	10%
Graded Assignments	10%	10%	10%	10%
Total Percent	100%	100%	100%	100%

Curriculum Map

Overview:
This course is available to students in grade 7 who have successfully completed Math 6. The curriculum for Math 7 is intended to prepare students for Math 8. In this course, students learn to understand and apply properties of real numbers. Students will apply and extend an understanding of operations with rational and irrational numbers. Students will analyze proportional relationships and use them to solve real-world and mathematical problems. Students will explore one variable equations and linear relationships using numerical and algebraic expressions and equations. Geometry concepts will be explored by drawing, constructing and describing geometric figures and exploring the relationships between them. Data analysis and statistics will be used to draw inferences about populations. Students will develop effective mathematical communication skills using appropriate mathematical vocabulary both verbally and in written form.

Time/Credit for the Course: Full academic year, 180 days, 1 period per day

Goals:

Marking Period One - 45 days

Unit 1 Integers- 12 days

Understanding of:

- Defining Absolute Value
- Adding and Subtracting Integers & Fractions
- Multiplying and Dividing Integers & Fractions

Unit 2 Rational Numbers- 14 days

Understanding of:

- Defining Rational Numbers
- Defining Terminating and Repeating Decimals
- Comparing and Ordering Rational Numbers
- Adding and Subtracting Fractions with Common and Uncommon Denominators

- Multiplying and Dividing Fractions

Unit 3 Ratios and Proportional Reasoning- 19 days

Understanding of:

- Finding a Unit Rate
- Performing Operations with Complex Fractions
- Identifying Proportional and Nonproportional Relationships
- Graphing Proportional Relationships on Quadrant 1
- Solving Proportions
- Identifying Rates of Change from a Graph and from a Table of Values
- Creating and Using Scale Drawings
- CDT

2. Marking Period Two - 45 days

Unit 4 Percents- 14 days

Understanding of:

- Finding the Percent of a Number
- Evaluating the Percent Proportion
- Evaluating the Percent of Change
- Sales Tax, Tips, Markups, Discounts, and Simple Interest

Unit 5 Expressions- 18 days

Understanding of:

- Simplifying Algebraic Expressions
- Using Properties of Operations with Algebraic Expressions
- Distributing Expressions
- Simplifying Linear Expressions
- Adding and Subtracting Linear Expressions
- Factoring a Linear Expressions

Unit 6 Equations and Inequalities- 13 days

Understanding of:

- Solving and Writing One Step Equations with Addition and Subtraction
- Solving and Writing One Step Equations with Multiplication and Division
- Solving Equations with Rational Coefficients
- Solving and Writing Two Step Equations
- Solving, Writing, and Graphing One Step Inequalities with Addition and Subtraction

3. Marking Period Three - 45 days

Unit 6 Equations and Inequalities (continued)- 7 days

Understanding of:

- Solving, Writing, and Graphing One Step Inequalities with Multiplication and Division
- Solving, Writing, and Graphing Two Step Inequalities
- CDT

Unit 7 Statistics- 14 days

Understanding of:

- Finding and Comparing Measures of Center
- Finding and Comparing Measures of Variability
- Calculating Mean Absolute Deviation

- Making Predictions of Outcomes
- Comparing Unbiased and Biased Samples
- Comparing Populations

Unit 8 Probability- 9 days

Understanding of:

- Finding Probability of Simple Events
- Finding and Comparing Theoretical and Experimental Probability
- Finding Probability of Compound Events
- Determining the Number of Outcomes Using the Fundamental Counting Principle
- Finding and Comparing Independent and Dependent Events

Unit 9 Triangles and Angles - 12 days

Understanding of:

- Classifying and Finding Missing Angles
- Identifying and Finding Missing Measurements of Complementary and Supplementary Angles
- Identifying and Finding Missing Measurements of Alternate Interior, Alternate Exterior, Vertical, and Corresponding Angles
- Classifying Triangles
- Finding Missing Angles of Triangles
- Using the Triangle Inequality Theorem

Unit 10 Volume and Surface Area- 3 days

Understanding of:

- Calculating the Circumference and Area of Circles
- Finding the Area of Composite Figures

4. Marking Period Four – 45 days

Unit 10 Volume and Surface Area (continued)-17 days

Understanding of:

- Calculating the Volume of Prisms and Cubes
- Calculating the Surface Area of Prisms and Cubes
- Finding the Volume and Surface Area of Composite Figures
- Describing the Shape Resulting from a Cross Section
- PSSA Review

Unit 11: Introduction to Algebra- 28 days

Understanding of:

- Simplifying Powers and Exponents
- Multiplying and Dividing Monomials
- Simplifying Powers of Monomials
- Writing Negative and Positive Exponents
- Adding, Subtracting, Multiplying, and Dividing with Scientific Notation
- Simplifying Square and Cube Roots
- Estimating Square and Cube Roots
- Solving One Step Equations with Square and Cube Roots

Big Ideas

Big Idea #1: Mathematical relationships among numbers can be represented, compared, and communicated.
Big Idea #2: Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
Big Idea #3: Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
Big Idea #4: Patterns exhibit relationships that can be extended, described, and generalized.
Big Idea #5: Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.
Big Idea #6: Data can be modeled and used to make inferences.
Big Idea #7: Geometric relationships can be described, analyzed and classified based on spatial reasoning and/or visualization.
Big Idea #8: Measurement attributes can be quantified, and estimated using customary and non customary units of measure.

Primary Textbooks and Supplemental Resources:

Primary Textbook:

- Glencoe Math Course 2 (2016)
  Textbook ISBN #: 978-0-02-138984-1
  Textbook Publisher & Year of Publication: Pearson Education, Inc. 2016

Additional Resources:

- Textbook:
  - Glencoe Math Course 3 (2016)
    Textbook ISBN #: 978-0-02-145425-9
    Textbook Publisher & Year of Publication: McGraw-Hill 2016
- Supplemental resources for differentiation and remediation:
  - Teacher created worksheets with Kuta Software
  - Teacher created worksheets with PDE SAS
  - IXL
  - Desmos
  - PDE PSSA item samplers for grade 7

Delaware Valley School District

Curriculum Plan

Unit 1: Integers **Time Range in Days:** 12 days

Standard(s):
CC.2.1.7.E.1-Apply and extend previous understandings of operations with fractions to operations with rational numbers.

Anchors:
M07.A-N.1 Apply and extend previous understandings of operations to add, subtract, multiply, and divide rational numbers.

Eligible Content:
M07.A-N.1.1.1 Apply properties of operations to add and subtract rational numbers, including real-world contexts.
M07.A-N.1.1.2 Represent addition and subtraction on a horizontal or vertical number line.

Objectives:
Students will be able to:
1. Identify, graph, and compute absolute value (DOK 1, 2)
2. Calculate integers by adding, subtracting, multiplying, and dividing (DOK 1)
3. Compare integers (DOK 3)
4. Construct real life situations with integers (DOK 3)

Core Activities and Corresponding Instructional Methods:

- Corresponding textbook/workbook: i.e. Glencoe Math Course Two student consumable chapter 3 lessons 1-5.
- Review core lesson vocabulary in both written and verbal form (integers, positive, negative, graph, absolute value, opposites and additive inverses) through classroom discussion and practice exercises.
- Apply vocabulary in reasoning, explaining processes, and solving problems through authentic classroom discussions, and CRQ practice.
- Explain and apply concepts of integers, through writing, given a real world problem, using PSSA Constructed Response Questions found in the math department public folder.
- Perform math by hand to promote a deeper understanding of mathematical concepts to actively engage with the learning process. Students will use a calculator to provide a quick and accurate answer.
- Make connections with integers in the real world
    - Part 2 activity at https://www.teachy.app/en/project/middle-school-en-US/us-6th-grade/math/exploring-the-world-of-whole-numbers-and-integers-elevators-temperature-and-real-world-applications
- Discover operations with integers with hands on two colored counters or virtual counters
    - https://oryxlearning.com/manipulatives/integer-chips.
    - Guide students in modeling all four operations with integers to discover patterns

Assessments:

Diagnostic

- Teacher questioning and observations
- Teacher prepared diagnostic test
- Pennsylvania CDT/FireFly Diagnostic Assessment

Formative

- Teacher observations
- Group activities
- Homework assignments from corresponding textbook or teacher created worksheets
- Quizzes/graded assignment from Unit 1

Summative

- Common Assessment Unit 1 Test with CRQ

Delaware Valley School District

Curriculum Plan

Unit 2: Rational Numbers **Time Range in Days:** 14 days

Standard(s):
CC.2.1.7.E.1-Apply and extend previous understandings of operations with fractions to operations with rational numbers.

Anchors:
M07.A-N.1 Apply and extend previous understandings of operations to add, subtract, multiply, and divide rational numbers.

Eligible Content:
M07.A-N.1.1.1 Apply properties of operations to add and subtract rational numbers, including real-world contexts.
M07.A-N.1.1.2 Represent addition and subtraction on a horizontal or vertical number line.
M07.A-N.1.1.3 Apply properties of operations to multiply and divide rational numbers, including real-world contexts; demonstrate that the decimal form of a rational number terminates or eventually repeats.
M07.B-E.2.3.1 Determine the reasonableness of answer(s) or interpret the solution(s) in the context of the problem. Example: If you want to place a towel bar that is 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

Objectives:
Students will be able to:
1. Write fractions as terminating or repeating decimals and write decimals as fractions. (DOK 1)
2. Compare and order rational numbers. (DOK 3)
3. Add and subtract rational numbers, expressed as fractions. (DOK 2)
4. Add and subtract fractions with unlike denominators, including mixed numbers. (DOK 2)
5. Multiply and divide fractions and mixed numbers. (DOK 2)
6. Apply concepts of rational numbers to solve real-world and mathematical problems. (DOK 4)

Core Activities and Corresponding Instructional Methods:
- Corresponding textbook/workbook: i.e. Glencoe Math Course Two student consumable chapter 4 lessons 1- 6 and 8.
- Review core lesson vocabulary in both written and verbal form**: (**repeating decimal, bar notation, terminating decimals, rational number, common denominator, uncommon denominator, least common multiple, greatest common factor, and reciprocal) through classroom discussion and practice exercises.
- Apply vocabulary in reasoning, explaining processes, and solving problems through authentic classroom discussions and CRQ practice.
- Explain and apply concepts of rational numbers, through writing, given a real world

problem, using PSSA Constructed Response Questions found in the math department public folder.
- Perform math by hand to promote a deeper understanding of mathematical concepts to actively engage with the learning process. Students will use a calculator to provide a quick and accurate answer.
- Operations with rational numbers activities and resources found at Education.com
- Fraction and rational number practice, riddles, engagement tools and worksheets at math-salamanders.com

Assessments:

Diagnostic
- Teacher questioning and observations
- Teacher prepared diagnostic test
- Pennsylvania CDT/FireFly Diagnostic Assessment

Formative
- Teacher observations
- Group activities
- Homework assignments from corresponding textbook or teacher created worksheets
- Quizzes/graded assignment from Unit 2

Summative
- Common Assessment Unit 2 Test and CRQ

Delaware Valley School District

Curriculum Plan

Unit 3: Ratios and Proportional Reasoning **Time Range in Days:** 19 days

Standard(s):

CC.2.1.7.D.1-Analyze proportional relationships and use them to model and solve real-world and mathematical problems.

CC.2.2.7.B.3 Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

Anchors:

M07.A-R.1 Demonstrate an understanding of proportional relationships

Eligible Content:

M07.A-R.1.1.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. Example: If a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2 / 1/4 miles per hour, equivalently 2 miles per hour.

M07.A-R.1.1.2 Determine whether two quantities are proportionally related (e.g., by testing for equivalent ratios in a table, graphing on a coordinate plane and observing whether the graph is a straight line through the origin).

M07.A-R.1.1.3 Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

M07.A-R.1.1.4 Represent proportional relationships by equations. Example: If total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.

M07.A-R.1.1.5 Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r), where r is the unit rate.

M07.A-R.1.1.6 Use proportional relationships to solve multi-step ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease.

M07.C-G.1.1.1 Solve problems involving scale drawings of geometric figures, including finding length and area.

Objectives:

Students will be able to:

1. Compare ratios and unit rates. (DOK 2)
2. Compute unit rates.(DOK 2)
3. Apply concepts to compute unit rates associated with ratios measured in like or unlike units. (DOK 4)
4. Simplify a complex fraction. (DOK 2)
5. Prove whether two quantities are proportionally related. (DOK 4)
6. Identify proportional and non-proportional relationships (DOK 2)
7. Analyze proportional relationships on a graph and represented by equations. (DOK 4)

8. Use proportions to solve mathematical and real-world problems. (DOK 3)
9. Represent and identify constant rates of change. (DOK 2)
10. Connect what a point on the graph of a proportional relationship means in terms of the situation. (DOK 4)
11. Use proportional relationships to solve multi-step ratio and percent problems. (DOK 3)
12. Use direct variation to solve problems. (DOK 3)
13. Analyze how changing the scale factor affects the dimensions and area of a figure. (DOK 3)
14. Justify the process of using proportions to calculate missing dimensions in a scale drawing. (DOK 3)
15. Identify the scale factor of a given scale drawing. (DOK 1)
16. Solve problems using proportions to find missing dimensions in a scale drawing. (DOK 2)

Core Activities and Corresponding Instructional Methods:

- Corresponding textbook/workbook: i.e. Glencoe Math Course Two student consumable chapter 1 lessons 1,2,4,5, 6, 7 and chapter 7 lesson 4.
- Review core lesson vocabulary in both written and verbal form**: (**rate, unit rate, complex fraction, ratio, equivalent ratios, proportional, non-proportional, direct variation, scale drawings, scale model, scale, scale factor, linear, rate of change, constant rate of change, coordinate plane, quadrants, ordered pair, x-coordinate, y-coordinate, x-axis, y-axis, origin, proportion, cross products, inverse operation, variable) through classroom discussion and practice exercises.
- Apply vocabulary in reasoning, explaining processes, and solving problems through authentic classroom discussions and CRQ practice.
- Explain and apply concepts of proportional relationships, through writing, given a real world problem, using PSSA Constructed Response Questions found in the math department public folder.
- Perform math by hand to promote a deeper understanding of mathematical concepts to actively engage with the learning process. Students will use a calculator to provide a quick and accurate answer.
- Exploration and practice activities found at geogebra.org/ratios-rates

Assessments:

Diagnostic

- Teacher questioning and observations
- Teacher prepared diagnostic test
- Pennsylvania CDT/FireFly Diagnostic Assessment

Formative

- Teacher observations
- Group activities
- Homework assignments from corresponding textbook or teacher created worksheets
- Quizzes/graded assignment from Unit 3

Summative

- Common Assessment Chapter 3 Test and CRQ

Delaware Valley School District

Curriculum Plan

Unit 4: Percents **Time Range in Days:** 14 days

Standard(s):
CC.2.1.7.E.1 Apply and extend previous understandings of operations with fractions to operations with rational numbers.

Anchors:
M07.A-N.1 Apply and extend previous understandings of operations to add, subtract, multiply, and divide rational numbers.

Eligible Content:
M07.A-R.1.1.6 Use proportional relationships to solve multi-step ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease.
M07.B-E.2.1.1 Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate. Example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50 an hour (or 1.1 × $25 = $27.50).
M07.B-E.2.3.1 Determine the reasonableness of answer(s) or interpret the solution(s) in the context of the problem. Example: If you want to place a towel bar that is 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.
A1.1.1.4.1 Use estimation to solve problems.

Objectives:
Students will be able to:
1. Compute percent of a number (DOK 2)
2. Estimate percents of a number and check for reasonableness (DOK 2)
3. Convert percents to decimals and fractions and compute percent of a number (DOK 2)
4. Construct a proportion to find percent, whole, or part (DOK 3)
5. Compute percent of change and differentiate if it is an increase or decrease (DOK 2)
6. Compute tax, tip, markup, and discount (DOK 2)
7. Apply concepts of tax, tip, markup, and discount to find the total cost (DOK 4)
8. Calculate simple interest (DOK 2)

Core Activities and Corresponding Instructional Methods:
- Corresponding textbook/workbook: i.e. Glencoe Math Course Two student consumable chapter 2 lessons 1, 3, 5, 6, 7, and 8.
- Review core lesson vocabulary in both written and verbal form: (discount, gratuity, markdown, markup, percent equation, percent error, percent of change, percent of decrease, percent of increase, percent proportion, principal, sales tax, selling price, simple interest, and tip) through classroom discussion and practice exercises.

- Apply vocabulary in reasoning, explaining processes, and solving problems through authentic classroom discussions and CRQ practice.
- Explain and apply concepts of percents and financial literacy through writing, given a real world problem, using PSSA Constructed Response Questions found in the math department public folder.
- Perform math by hand to promote a deeper understanding of mathematical concepts to actively engage with the learning process. Students will use a calculator to provide a quick and accurate answer.
- Show students a visual and use of strategies when finding a percent of a number at https://madeformath.com/percent-of-a-number/.
- A group activity to practice finding the percent of a number can be found at https://www.education.com/activity/article/percent-flash/.

Assessments:

Diagnostic

- Teacher questioning and observations
- Teacher prepared diagnostic test
- Pennsylvania CDT/FireFly Diagnostic Assessment

Formative

- Teacher observations
- Group activities
- Homework assignments from corresponding textbook or teacher created worksheets
- Quizzes/graded assignment from Unit 4

Summative

- Common Assessment Unit 4 Test and CRQ

Delaware Valley School District
Curriculum Plan

Unit 5: Expressions **Time Range in Days:** 18 days

Standard(s):
CC.2.2.7.B.1 Apply properties of operations to generate equivalent expressions.
CC.2.2.7.B.3 Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

Anchors:
M07.B-E.1 Represent expressions in equivalent forms.
M07.B-E.2 Solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities.

Eligible Content:
M07.B-E.1.1.1 Apply properties of operations to add, subtract, factor, and expand linear expressions with rational coefficients. Example 1: The expression 1/2 • (x + 6) is equivalent to 1/2 • x + 3. Example 2: The expression 5.3 – y + 4.2 is equivalent to 9.5 – y (or –y + 9.5). Example 3: The expression 4w – 10 is equivalent to 2(2w – 5).

Objectives:
Students will be able to:
1. Evaluate simple algebraic expressions (DOK 2)
2. Identify and use mathematical properties to simplify algebraic expressions (DOK 2)
3. Apply the distributive property to rewrite algebraic expressions (DOK 2)
4. Simplify algebraic expressions (DOK 2)
5. Add, subtract and factor linear expressions (DOK 3)

Core Activities and Corresponding Instructional Methods:
- Corresponding textbook/workbook: i.e. Glencoe Math Course Two student consumable chapter 5 lessons 1, 3, 4, 5, 6, 7, and 8.
- Review core lesson vocabulary in both written and verbal form: (algebraic expression, coefficient, constant, variable, distribute, equivalent expressions, factor, like terms, linear expression, monomial, simplest form, term, additive Identity Property, Commutative Property, Associative Property, Distributive Property, Multiplicative Identity Property, Multiplicative Property of Zero) through classroom discussion and practice exercises.
- Apply vocabulary in reasoning, explaining processes, and solving problems through authentic classroom discussions and CRQ practice.
- Explain and apply concepts of expressions through writing, given a real world problem, using PSSA Constructed Response Questions found in the math department public folder.
- Perform math by hand to promote a deeper understanding of mathematical concepts to actively engage with the learning process. Students will use a calculator to provide a quick and accurate answer.
- Use of Algebra Tiles to help students determine unlike terms and how to combine. Examples can be found at https://www.youtube.com/watch?v=EdZm5jTCEIo.

Assessments:

Diagnostic

- Teacher questioning and observations
- Teacher prepared diagnostic test
- Pennsylvania CDT/FireFly Diagnostic Assessment

Formative

- Teacher observations
- Group activities
- Homework assignments from corresponding textbook or teacher created worksheets
- Quizzes/graded assignment from Unit 5

Summative

- Common Assessment Unit 5 Test and CRQ

Delaware Valley School District
Curriculum Plan

Unit 6: Equations and Inequalities **Time Range in Days:** 20 days

Standard(s):
CC.2.2.7.B.3 Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.

Anchors:
M07.B-E.2 Solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities.

Eligible Content:
M07.B-E.2.2.2 Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers, and graph the solution set of the inequality. Example: A salesperson is paid $50 per week plus $3 per sale. This week she wants her pay to be at least $100. Write an inequality for the number of sales the salesperson needs to make and describe the solutions.
M07.B-E.2.2.1 Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Example: The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

Objectives:
Students will be able to:
1. Use models to write and solve addition and subtraction equations (DOK 2)
2. Solve and write one-step multiplication and division problems (DOK 3)
3. Solve and write two-step equations (DOK 3)
4. Solve two-step equations of the form $p(x + q) = r$ (DOK 2)
5. Solve, write, and graph inequalities by using the addition and subtraction properties of inequality (DOK 3)
6. Solve, write, and graph inequalities using multiplication and division properties of inequality (DOK 3)
7. Solve, write, and graph two-step inequalities (DOK 3)
8. Design a number line to represent the solution to a two-step inequality (DOK 4)

Core Activities and Corresponding Instructional Methods:
- Corresponding textbook/workbook: i.e. Glencoe Math Course Two student consumable chapter 6 lessons 1-8.
- Students will review core lesson vocabulary in both written and verbal form: (addition property of equality, addition property of inequality, coefficient, division property of equality, division property of inequality, equation, equivalent equation, inequality, multiplication property of equality, multiplication property of inequality, solution, subtraction property of equality, subtraction property of inequality, two-step equation, two-step inequality, term) through classroom discussion and practice exercises.
- Apply vocabulary in reasoning, explaining processes, and solving problems through authentic classroom discussions and CRQ practice.
- Explain and apply concepts of equations and inequalities through writing, given a real

world problem, using PSSA Constructed Response Questions found in the math department public folder.

- Students will do math by hand to promote a deeper understanding of mathematical concepts to actively engage with the learning process. Students will use a calculator to provide a quick and accurate answer.
- Worksheets, interactive activities, and slides to practice, refine, and enhance learning found at https://www.mathspad.co.uk/resources.php?topic=Equations%20%26%20Inequalities

Assessments:

Diagnostic

- Teacher questioning and observations
- Teacher prepared diagnostic test
- Pennsylvania CDT/Fire Fly Diagnostic Assessment

Formative

- Teacher observations
- Group activities
- Homework assignments from corresponding textbook or teacher created worksheets
- Quizzes/graded assignment from Unit 6

Summative

- Common Assessment Unit 6 Test and CRQ

Unit 7: Statistics **Time Range in Days:** 14 days

Standard(s):
CC.2.4.7.B.1 Draw inferences about populations based on random sampling concepts.
CC.2.4.7.B.2 Draw informal comparative inferences about two populations.

Anchors:
M07.D-S.1 Use random sampling to draw inferences about a population.
M07.D-S.2 Draw comparative inferences about populations.

Eligible Content:
M07.D-S.2.1.1 Compare two numerical data distributions using measures of center and variability. Example 1: The mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team. This difference is equal to approximately twice the variability (mean absolute deviation) on either team. On a line plot, note the difference between the two distributions of heights. Example 2: Decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth grade science book.
M07.D-S.1.1.1 Determine whether a sample is a random sample given a real-world situation.
M07.D-S.1.1.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Example 1: Estimate the mean word length in a book by randomly sampling words from the book. Example 2: Predict the winner of a school election based on randomly sampled survey data.

Objectives:
Students will be able to:
1. Analyze a sample to predict actions of a larger group (DOK 4)
2. Determine whether sample methods are valid (DOK 3)
3. Identify misleading graphs and statistics (DOK 3)
4. Analyze similarities and differences between two populations (DOK 4)
5. Select, organize, and construct appropriate data displays (DOK 4)
6. Identify measures of center and variability (DOK 2)
7. Interpret data using mean absolute deviation (DOK 2)
8. Compare measures of center and variability (DOK 4)

Core Activities and Corresponding Instructional Methods:
- Corresponding textbook/workbook: i.e. Glencoe Math Course Two student consumable chapter 10 lessons 1, 2, and 4 and teacher created lessons.
- Students will review core lesson vocabulary in both written and verbal form**:** (biased sample, convenience sample, double box plot, double dot plot, mean, mean absolute deviation, median, mode, quartiles, interquartile range, population, range, sample, simple random sample, statistics, survey, systematic random sample, unbiased sample, voluntary response sample) through classroom discussion and practice exercises.
- Apply vocabulary in reasoning, explaining processes, and solving problems through authentic classroom discussions and CRQ practice.

- Explain and apply concepts of statistics through writing, given a real world problem, using PSSA Constructed Response Questions found in the math department public folder.
- Students will do math by hand to promote a deeper understanding of mathematical concepts to actively engage with the learning process. Students will use a calculator to provide a quick and accurate answer.
- Enrichment and extra practice worksheets can be found at:
    - https://math-drills.com/statistics.php
    - https://www.mathworksheets4kids.com/statistics.php

Assessments:

Diagnostic

- Teacher questioning and observations
- Teacher prepared diagnostic test
- Pennsylvania CDT/Fire Fly Diagnostic Assessment

Formative

- Teacher observations
- Group activities
- Homework assignments from corresponding textbook or teacher created worksheets
- Quizzes/graded assignment from Unit 7

Summative

- Common Assessment Unit 7 Test and CRQ

Unit 8: Probability **Time Range in Days:** 9 days

Standard(s):
CC.2.4.7.B.3 Investigate chance processes and develop, use, and evaluate probability models.

Anchors:
M07.D-S.3 Investigate chance processes and develop, use, and evaluate probability models.

Eligible Content:
M07.D-S.3.1.1 Predict or determine whether some outcomes are certain, more likely, less likely, equally likely, or impossible (i.e., a probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event).
M07.D-S.3.2.1 Determine the probability of a chance event given relative frequency. Predict the approximate relative frequency given the probability. Example: When rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times but probably not exactly 200 times.
M07.D-S.3.2.2 Find the probability of a simple event, including the probability of a simple event not occurring. Example: What is the probability of not rolling a 1 on a number cube?
M07.D-S.3.2.3 Find probabilities of independent compound events using organized lists, tables, tree diagrams, and simulation.
Eligible Content - A1.2.3.3.1 Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal or percent).

Objectives:
Students will be able to:
1. Interpret a simple event and its complement to find the probability (DOK 2)
2. Differentiate theoretical and experimental probabilities (DOK 3)
3. Analyze probabilities of compound events (DOK 4)
4. Perform probability simulations to model real world situations involving uncertainty (DOK 4)
5. Use the Fundamental Counting Principle to calculate the number of outcomes and find probabilities (DOK 3)
6. Find the probability of independent events (DOK 2)
7. Determine probability using multiple methods (organized lists, tables, tree diagrams, and simulations) (DOK 2)
8. Classify probability outcomes (DOK 2)

Core Activities and Corresponding Instructional Methods:

- Corresponding textbook/workbook: i.e. Glencoe Math Course Two student consumable chapter 9 lessons 1, 2, 3, 5, and 7.
- Students will review core lesson vocabulary in both written and verbal form**:** (complementary events, compound events, dependent events, experimental probability, fair, independent events, outcome, probability, random, relative frequency, sample space, simple event, theoretical probability, unfair) through classroom discussion and practice exercises.
- Apply vocabulary in reasoning, explaining processes, and solving problems through authentic classroom discussions and CRQ practice.
- Explain and apply concepts of probability through writing, given a real world problem,

using PSSA Constructed Response Questions found in the math department public folder.

- Students will do math by hand to promote a deeper understanding of mathematical concepts to actively engage with the learning process. Students will use a calculator to provide a quick and accurate answer.
- Worksheets found at https://www.commoncoresheets.com/probability-worksheets
- Interactive activities found at:
    - https://www.learn-with-math-games.com/probability-games.html
    - https://wordwall.net/en-gb/community/probability/games

Assessments:

Diagnostic

- Teacher questioning and observations
- Teacher prepared diagnostic test
- Pennsylvania CDT/Fire Fly Diagnostic Assessment

Formative

- Teacher observations
- Group activities
- Homework assignments from corresponding textbook or teacher created worksheets
- Quizzes/graded assignment from Unit 8

Summative

- Common Assessment Unit 8 Test and CRQ

Unit 9: Triangles and Angles **Time Range in Days:** 12 days

Standard(s):
CC.2.3.7.A.1 Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.

Anchors:
M07.C-G.2 Solve real-world and mathematical problems involving angle measure, circumference, area, surface area, and volume.
M07.C-G.1 Demonstrate an understanding of geometric figures and their properties.

Eligible Content:
M07.C-G.2.1.1 Identify and use properties of supplementary, complementary, and adjacent angles in a multistep problem to write and solve simple equations for an unknown angle in a figure.
M07.C-G.2.1.2 Identify and use properties of angles formed when two parallel lines are cut by a transversal (e.g., angles may include alternate interior, alternate exterior, vertical, corresponding).
M07.C-G.1.1.2 Identify or describe the properties of all types of triangles based on angle and side measures.
M07.C-G.1.1.3 Use and apply the triangle inequality theorem.

Objectives:
Students will be able to:
1. Identify pairs of complementary and supplementary angles (DOK 2)
2. Classify angles and identify vertical and adjacent angles (DOK 3)
3. Identify and classify triangles and find the missing angle measure (DOK 3)
4. Analyze measurements to determine if a triangle can be formed using the Triangle Inequality Theorem (DOK 3)
5. Apply knowledge of angles and triangles to solve real-world problems (DOK 3)
6. Write and solve equations to find missing angles (DOK 3)

Core Activities and Corresponding Instructional Methods:
- Corresponding textbook/workbook: i.e. Glencoe Math Course Two student consumable chapter 7 lessons 1, 2, and 3 and teacher created lessons.
- Students will review core lesson vocabulary in both written and verbal form**:** (vertex, right angle, acute angle, obtuse angle, straight angle, vertical angles, congruent, adjacent angles, complementary angles, supplementary angles, acute triangle, right triangle, obtuse triangle, scalene triangle, isosceles triangle, equilateral triangle, triangle, Triangle Inequality Theorem, and congruent segments) through classroom discussion and practice exercises.
- Apply vocabulary in reasoning, explaining processes, and solving problems through authentic classroom discussions and CRQ practice.
- Explain and apply concepts of triangles and angles through writing, given a real world problem, using PSSA Constructed Response Questions found in the math department public folder.
- Students will do math by hand to promote a deeper understanding of mathematical

concepts to actively engage with the learning process. Students will use a calculator to provide a quick and accurate answer.

- Enhance instruction with worksheets from https://mathmonks.com/?submit=Go&s=triangles
- Interactive websites:
    - https://www.mathsisfun.com/geometry/triangles-interactive.html
    - https://www.sheppardsoftware.com/math/geometry/triangle-splat-game/
    - https://www.turtlediary.com/game/angles-find-the-correct-answer.html
    - https://www.geogebra.org/m/JHgTXKrt

Assessments:

Diagnostic

- Teacher questioning and observations
- Teacher prepared diagnostic test
- Pennsylvania CDT/Fire Fly Diagnostic Assessment

Formative

- Teacher observations
- Group activities
- Homework assignments from corresponding textbook or teacher created worksheets
- Quizzes/graded assignment from Unit 9

Summative

- Common Assessment Unit 9 Test and CRQ

Unit 10: Volume and Surface Area **Time Range in Days:** 20 days

Standard(s):
CC.2.3.7.A.1 Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.
CC.2.3.7.A.2 Visualize and represent geometric figures and describe the relationships between them.

Anchors:
M07.C-G.2 Solve real-world and mathematical problems involving angle measure, circumference, area, surface area, and volume.
M07.C-G.1 Demonstrate an understanding of geometric figures and their properties.

Eligible Content:
M07.C-G.2.2.1 Find the area and circumference of a circle. Solve problems involving area and circumference of a circle(s). Formulas will be provided.
M07.C-G.2.2.2 Solve real-world and mathematical problems involving area, volume, and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. Formulas will be provided.
M07.C-G.1.1.4 Describe the two-dimensional figures that result from slicing three-dimensional figures. Example: Describe plane sections of right rectangular prisms and right rectangular pyramids.

Objectives:
Students will be able to:
1. Identify three-dimensional figures (DOK 2)
2. Identify the circumference and area of circles (DOK 2)
3. Apply formulas to calculate the area, volume and surface area of two and three-dimensional objects (DOK 2)
4. Apply knowledge of volume and surface area to solve multi-step word problems involving real-world contexts (DOK 3)
5. Analyze and describe the two-dimensional cross-sections that result from slicing three-dimensional figures (DOK 4)
6. Identify and describe cross sections when sliced parallel, perpendicular, or diagonally to the base and analyze how these cross sections relate to angles and triangles (DOK 2)

Core Activities and Corresponding Instructional Methods:
- Corresponding textbook/workbook: i.e. Glencoe Math Course Two student consumable chapter 8 lessons 1, 2, 3, 4, 6, and 8, chapter 7 lesson 6, and teacher created lessons.
- Students will review core lesson vocabulary in both written and verbal form:(circle, center, circumference, diameter, radius, pi, semicircle, composite figure, volume, surface area, prism, bases, plane, coplanar, parallel, polygon, edge, face, vertex, diagonal, skew lines, cross section) through classroom discussion and practice exercises.
- Apply vocabulary in reasoning, explaining processes, and solving problems through authentic classroom discussions and CRQ practice.

- Explain and apply concepts of area, volume, and surface area through writing, given a real world problem, using PSSA Constructed Response Questions found in the math department public folder.
- Students will do math by hand to promote a deeper understanding of mathematical concepts to actively engage with the learning process. Students will use a calculator to provide a quick and accurate answer.
- Interactive materials found at:
    - https://www.scaffoldedmath.com/2018/06/interactive-volume-and-surface-area.html
    - https://www.legendsoflearning.com/learning-objectives/area-surface-area-and-volume-math-games/
    - https://wvia.pbslearningmedia.org/subjects/mathematics/k-8-mathematics/geometry/area-surface-area-and-volume/?rank_by=recency

Assessments:

Diagnostic

- Teacher questioning and observations
- Teacher prepared diagnostic test
- Pennsylvania CDT/Fire Fly Diagnostic Assessment

Formative

- Teacher observations
- Group activities
- Homework assignments from corresponding textbook or teacher created worksheets
- Quizzes/graded assignment from Unit 10

Summative

- Common Assessment Unit 10 Test and CRQ

Delaware Valley School District
Curriculum Plan

Unit 11: Introduction to Algebra **Time Range in Days:** 28 days

Standard(s):
CC.2.1.8.E.1 Distinguish between rational and irrational numbers using their properties.
CC.2.1.8.E.4 Estimate irrational numbers by comparing them to rational numbers.
CC.2.2.8.B.1 Apply concepts of radicals and integer exponents to generate equivalent expressions.

Anchors:
M08.A-N.1 Demonstrate an understanding of rational and irrational numbers.
M08.B-E.1 Demonstrate an understanding of expressions and equations with radicals and integer exponents.

Eligible Content:
M08.A-N.1.1.1 Determine whether a number is rational or irrational. For rational numbers, show that the decimal expansion terminates or repeats (limit repeating decimals to thousandths).
M08.A-N.1.1.2 Convert a terminating or repeating decimal to a rational number (limit repeating decimals to thousandths).
M08.A-N.1.1.3 Estimate the value of irrational numbers without a calculator (limit whole number radicand to less than 144). Example: √5 is between 2 and 3 but closer to 2.
M08.A-N.1.1.4 Use rational approximations of irrational numbers to compare and order irrational numbers.
M08.A-N.1.1.5 Locate/identify rational and irrational numbers at their approximate locations on a number line.
M08.B-E.1.1.2 Use square root and cube root symbols to represent solutions to equations of the form x^2 = p and x^3 = p, where p is a positive rational number. Evaluate square roots of perfect squares (up to and including 12^2) and cube roots of perfect cubes (up to and including 5^3) without a calculator. Example: If x^2 = 25 then x = ±√25.
A1.1.1.1.2 Simplify square roots (e.g., √24 = 2√6).
A1.1.1.1.1 Compare and/or order any real numbers (rational and irrational may be mixed).
A1.1.1.3.1 Simplify/evaluate expressions involving properties/laws of exponents, roots and/or absolute value to solve problems (exponents should be integers from -10 to 10).

Objectives:
Students will be able to:
1. Students will be able to calculate the sum, difference, product, and quotient of real numbers (DOK1)
2. Students will be able to evaluate expressions by applying the order of operations which includes grouping symbols and exponents (DOK1)
3. Students will be able to classify, graph and compare real numbers which includes square roots (DOK2)
4. Students will be able to represent and use numbers in equivalent forms (DOK2)
5. Students will be able to evaluate rational squares and roots (DOK2)

6. Students apply number theory concepts to show relationships between real numbers in problem-solving settings (DOK3)

Core Activities and Corresponding Instructional Methods:

- Corresponding textbook/workbook: i.e. Glencoe Math Course Three student consumable chapter 1 lessons 1, 8, 9, 10 and teacher created lessons.
- Students will review core lesson vocabulary in both written and verbal form (integer, simplify, equivalent, rational number, repeating decimal, terminating decimal, square root, perfect square, radical sign, cube root, perfect cube, irrational number, real number) through classroom discussion and practice exercises.
- Apply vocabulary in reasoning, explaining processes, and solving problems through authentic classroom discussions and CRQ practice.
- Explain and apply concepts of rational and irrational numbers through writing, given a real world problem, using PSSA Constructed Response Questions found in the math department public folder.
- Students will do math by hand to promote a deeper understanding of mathematical concepts to actively engage with the learning process. Students will use a calculator to provide a quick and accurate answer.
- Interactive materials and instructional worksheets found at:
    - https://newpathworksheets.com/math/grade-7/rational-and-irrational-numbers
    - https://study.com/skill/pennsylvania-core-standards-in-mathematics-math-grades-6-8-skills-practice.html
    - https://www.education.com/game/dino-crunch-irrational-numbers/
    - https://wordwall.net/en-us/community/numbers/rational-and-irrational
    - https://www.matific.com/us/en-us/home/maths/all-grades/topics/powers-and-roots

Assessments:

Diagnostic

- Teacher questioning and observations
- Teacher prepared diagnostic test
- Pennsylvania CDT/Fire Fly Diagnostic Assessment

Formative

- Teacher observations
- Group activities
- Homework assignments from corresponding textbook or teacher created worksheets
- Teacher created quizzes/graded assignment

Summative

- Teacher created common assessment/CRQ