

I. PHILOSOPHY

The 8th Grade PSSA Math Prep course of the Pine Grove Area School District has been structured to review and build upon the five core mathematical concepts including numbers and operations, measurement, geometry, algebraic concepts, and data analysis and probability. Developmentally appropriate activities will include opportunities for collaborative learning using manipulatives. The course will allow for the accommodation of many learning styles, motivational levels, and academic abilities.

CORE CONCEPTS

1. Open Ended Questions – Understand and apply strategies for solving open-ended questions
2. Number Systems – Understand meanings of operations and how they relate to each other
3. Data Analysis – Organize, display, interpret, and analyze data
4. Algebraic Concepts – Analyze mathematical situations using numbers, symbols, and words
5. Geometric Relationships – Identify, use, and describe properties of geometric figures

III. COURSE OF STUDY

A. Course Name: PSSA Math Prep

B. Grade Level: 8

C. Length of Course: One Semester

1. Frequency: 30 Days per school year

2. Duration: 44 minutes

D. Academic Level: 8th grade, Basic and Below Basic PSSA students

E. Credits: 0.333

F. Prerequisites: 0

G. Course Description:

The PSSA Math Prep course will provide remediation to students in the five core areas of mathematics. The course will help prepare to students to successfully complete the PSSA Math Test. Emphasis will be placed on meeting every student's needs and learning style. Accommodations will be made for students who need additional assistance. Extra help will be provided as necessary.

IV. CONTENT: Grade 8 Mathematics

CORE CONCEPT 1: Open-Ended Questions

MAJOR OBJECTIVE: Understand and apply strategies for solving open-ended questions

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 2.8.8.C Justify strategies and defend approaches used and conclusions reached.</p>	<p>Teacher will guide students to:</p> <p>View examples of responses ranging from 1 – 5 to find differences.</p> <p>Use correct technique in answering open ended questions.</p> <p>Explain how their work was done in finding a solution.</p> <p>Explain the strategy used to solve the problem and how they reached their answer.</p>	<p>Teacher evaluation of:</p> <p>Students’ written responses</p> <p>Individuals during small group work</p> <p>Whole class discussion</p>	<p>Textbook resources</p> <p>Library/AV resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Publisher’s supplemental materials</p>

CONTENT: Grade 8 Mathematics

CORE CONCEPT 2: Number Systems

MAJOR OBJECTIVE: Understand meanings of operations and how they relate to each other

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 2.2.8.B Add, subtract, multiply, divide different kinds and forms of rational numbers including integers, decimals, fractions, and percents.	Teacher will guide students to: Identify rules for performing integer operations. Apply rules for solving problems with fraction and decimal operations. Practice problems including all operations of fractions, decimals, and integers.	Teacher evaluation of: Students' written responses Whole class discussion Independent activities	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials
PA Standard 2.2.8.D Estimate amount of tips and discounts using ratios, proportions, and percents.	Teacher will guide students to: Record vocabulary terms into vocabulary notebook. List the application of rates and percents to the real world and the frequency they are used. Solve problems involving tax, discounts, interest, rates, and distance.	Teacher evaluation of: Students' written responses Partner projects Independent activities Student observation	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials

CONTENT: Grade 8 Mathematics

CORE CONCEPT 3: Data Analysis

MAJOR OBJECTIVE: Organize, display, interpret, and analyze data

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 2.6.8.E Analyze and display data in stem-and-leaf and box-and-whisker plots.	Teacher will guide students to: Record vocabulary in vocabulary notebook. Identify properties of stem-and-leaf and box-and-whisker plots. Examine how to analyze the data on these plots and how to find items such as the range, minimum, maximum, and mean.	Teacher evaluation of: Students' written responses Student performance Independent activities Student observation	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials
PA Standard 2.7.8.B Present the results of an experiment using visual representation.	Teacher will guide students to: Collect data on a topic of their choice. Using collected data create a stem and leaf and box-and-whisker plot. Write a 1 page summary analyzing your plots and draw conclusions on your data.	Teacher evaluation of: Students' written responses Data collection Independent activities Whole Class discussion	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials

CONTENT: Grade 8 Mathematics

CORE CONCEPT 4: Algebraic Concepts

MAJOR OBJECTIVE: Analyze mathematical situations using numbers, symbols, and words

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 2.8.8.C Create and interpret expressions, equations, or inequalities that model problem situations.	Teacher will guide students to: Discuss parts needed to create an equation or expression. Write an expression or equation from a written situation. Identify the correct equation that matches a written situation.	Teacher evaluation of: Students' written responses Student performance Independent activities Student observation	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials
PA Standard 2.8.8.E Select and use a strategy to solve an equation or inequality, explain the solution and check the solution for accuracy.	Teacher will guide students to: Review solving-one step equations. Show how to solve two-step equations using same strategy as one-step equations (inverse operation). Determine a way to check answers (substitution).	Teacher evaluation of: Students' written responses Student performance Independent activities Student observation	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials

CONTENT: Grade 8 Mathematics

CORE CONCEPT 5: Geometric Relationships

MAJOR OBJECTIVE: Identify, use, and describe properties of geometric figures

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 2.9.8.B Draw, label, measure and list the properties of complementary, supplementary and vertical angles.	Teacher will guide students to: Identify and record vocabulary words such as complementary, supplementary, and vertical angles into journals. Discuss and list properties of different types of angles. Draw and label the angles according to the properties discussed of each angle.	Teacher evaluation of: Students' written responses Class discussion Independent activities Individuals during small group work	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials
PA Standard 2.9.8.E Construct parallel lines, draw a transversal and measure and compare angles formed (e.g., alternate interior and exterior angles).	Teacher will guide students to: Identify and record vocabulary words such as alternate interior and exterior angles. Discuss and list properties of the angles. Use a city street map to identify types of angles in real life situations.	Teacher evaluation of: Students' written responses Class discussion Independent activities Individuals during small group work	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials City street map

CONTENT: Grade 8 Mathematics

CORE CONCEPT 5: Geometric Relationships

MAJOR OBJECTIVE: Identify, use, and describe properties of geometric figures

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 2.9.8.H Use simple geometric figures (e.g. triangles, squares) to create, through rotation, transformational figures in three dimensions.	Teacher will guide students to: Record vocabulary words (e.g., net, prism, pyramid). Cutout nets and create three-dimensional figures. Identify figures that can be created from a given net. Create a net for a given figure.	Teacher evaluation of: Students' written responses Class discussion Independent activities Individuals during small group work	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials
PA Standard 2.9.8.J Analyze geometric patterns (e.g. tessellations, sequences of shapes) and develop descriptions of the patterns.	Teacher will guide students to: Predict "nth" terms in visual geometric patterns. Describe how the patterns changes in each figure. Create a pattern for a partner to describe and predict.	Teacher evaluation of: Students' written responses Class discussion Independent activities Individuals during small group work	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials

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MAJOR OBJECTIVE: Identify, use, and describe properties of geometric figures

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 2.9.8.K Analyze objects to determine whether they illustrate tessellations, symmetry, congruence, similarity, and scale.	Teacher will guide students to: Memorize vocabulary words (e.g., symmetry, tessellations, congruence). Identify all letters that have each type of symmetry. Describe a tessellation you have seen in the real world. Create an example of a tessellation.	Teacher evaluation of: Students' written responses Class discussion Independent activities Individuals during small group work	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials

V. EXPECTED LEVELS OF ACHIEVEMENT

A. Students are expected to reach the 8th Grade level of achievement in mathematics. These skills include all of those noted in the specific content area of this curriculum.

B. Grading system for PSSA Math Prep class is as follows:

Grading Scale	
Proficient	62% – 100%
Basic	0% - 61%

C. Each student’s grade will be determined at the conclusion of each marking period.