

I. PHILOSOPHY

The 6th 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 – Ability to complete fraction operations
3. Processes of Measurement – Use appropriate formulas to determine measurements
4. Geometric Relationships – Identify and compare properties of two-dimensional shapes
5. Data Analysis – Ability to organize, display, and analyze data
6. Probability – Calculate probabilities in lowest terms
7. Algebraic Concepts - Analyze mathematical situations using numbers, symbols, and words

III. COURSE OF STUDY

A. Course Name: PSSA Math Prep

B. Grade Level: 6

C. Length of Course: Full year

1. Frequency: 60 Days per school year

2. Duration: 44 minutes

D. Academic Level: 6th 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 6 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 2.5.8.A Invent, select, use, and justify the appropriate methods, materials, and strategies to solve problems.</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>Solve and explain work during journal examples.</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>
<p>PA Standard 2.5.8.D Determine pertinent information in problem situations and whether any further information is needed for solution.</p>	<p>Teacher will guide students to:</p> <p>Identify the information needed to solve the problem and eliminate information not needed.</p> <p>Establish if enough information is given to solve an open-ended question.</p> <p>Solve and explain work during journal examples.</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 6 Mathematics

CORE CONCEPT 2: Number Systems

MAJOR OBJECTIVE: Ability to complete fraction operations

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 2.1.8.A Represent and use numbers in equivalent forms (e.g., integers, fractions, decimals, percents, exponents, scientific notation, square roots).	Teacher will guide students to: Represent percents as fractions or decimals. Convert between fractions and decimals. Identify a terminating decimal compared to a repeating decimal. Identify value of fractions using a number line or convert to decimals to help order or compare.	Teacher evaluation of: Students' written responses Individuals during small group work Whole class discussion	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials
PA Standard 2.1.8.C Distinguish between and order rational and irrational numbers.	Teacher will guide students to: Use a number line to order numbers including fractions and decimals. Identify differences between rational and irrational numbers. Determine if a number is rational or irrational.	Teacher evaluation of: Students' written responses Independent activities Whole class discussion Student observations	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials

CONTENT: Grade 6 Mathematics

CORE CONCEPT 2: Number Systems

MAJOR OBJECTIVE: Ability to complete fraction operations

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 2.2.8.B Add, subtract, multiply, and divide different kinds and forms of rational numbers including integers, decimals, fractions, percents, and proper and improper fractions.</p>	<p>Teacher will guide students to:</p> <p>Review number theory concepts and strategies for finding them.</p> <p>Discuss addition and subtraction of fractions by using pictures of real life examples.</p> <p>Memorize strategies and concepts of completing each operation of fractions.</p> <p>Practice using the LCM to solve addition and subtraction of fraction problems.</p> <p>Review rules or concepts and practice multiplying and dividing fractions.</p>	<p>Teacher evaluation of:</p> <p>Students' written responses</p> <p>Independent activities</p> <p>Whole class discussion</p> <p>Student observations</p> <p>Individuals during small group work</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 6 Mathematics

CORE CONCEPT 3: Processes of Measurement

MAJOR OBJECTIVE: Use appropriate formulas to determine measurements

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 2.3.8.A Develop formulas and procedures for determining measurements (e.g., area, volume, distance).	Teacher will guide students to: Identify the formulas used to find perimeter and area of specified shapes. Make calculations finding perimeter and area to practice using formulas. Use rulers to find dimensions of objects around the classroom and use collected data to calculate perimeter and area.	Teacher evaluation of: Students' written responses Individuals during small group work Whole class discussion Teacher observation	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials Rulers
PA Standard 2.3.8.B Solve rate problems (e.g. rate x time = distance, principal x interest rate = interest).	Teacher will guide students to: Review types of geometric figures or shapes. Identify the formulas used to find perimeter and area of specified shapes. Make calculations finding perimeter and area to practice using formulas.	Teacher evaluation of: Students' written responses Individuals during small group work Whole class discussion Teacher observation	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials Rulers

CONTENT: Grade 6 Mathematics

CORE CONCEPT 3: Processes of Measurement

MAJOR OBJECTIVE: Use appropriate formulas to determine measurements

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 2.3.8.D Estimate, use and describe measures of distance, rate, perimeter, area, volume, weight, mass, and angles.</p>	<p>Teacher will guide students to:</p> <p>Review and identify vocabulary words throughout measurement unit.</p> <p>Measure lengths and distances to determine measurements of perimeter and area of objects throughout the classroom.</p> <p>Identify properties of weight, mass, and volume.</p> <p>Determine volume of objects brought in from home (dishware, cups, and bottles).</p>	<p>Teacher evaluation of:</p> <p>Students' written responses</p> <p>Individuals during small group work</p> <p>Whole class discussion</p> <p>Teacher observation</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> <p>Rulers</p>

CONTENT: Grade 6 Mathematics

CORE CONCEPT 4: Geometric Relationships

MAJOR OBJECTIVE: Identify and compare properties of two-dimensional shapes

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 2.9.8.C Classify familiar polygons as regular or irregular up to a decagon.</p>	<p>Teacher will guide students to:</p> <p>Define basic properties of polygons ranging from a triangle to a decagon.</p> <p>Identify and compare polygons based on the number of sides.</p>	<p>Teacher evaluation of:</p> <p>Students' written responses</p> <p>Individuals during small group work</p> <p>Whole class discussion</p> <p>Teacher observation</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>
<p>PA Standard 2.9.8.D Identify, name, draw, and list properties of squares, cubes, pyramids, parallelograms, quadrilaterals, trapezoids, polygons, rectangles, rhombi, circles, spheres, triangles, prisms, and cylinders.</p>	<p>Teacher will guide students to:</p> <p>Discuss types of triangles including scalene, equilateral, isosceles, obtuse, acute, and right.</p> <p>Compare triangles based on measures of angles.</p> <p>Create each type of triangle using Geoboards or dot paper.</p>	<p>Teacher evaluation of:</p> <p>Students' written responses</p> <p>Individuals during small group work</p> <p>Whole class discussion</p> <p>Independent activities</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> <p>Geoboards and dot paper</p>

CONTENT: Grade 6 Mathematics

CORE CONCEPT 4: Geometric Relationships

MAJOR OBJECTIVE: Identify and compare properties of two-dimensional shapes

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 2.9.8.F Distinguish between similar and congruent polygons.</p>	<p>Teacher will guide students to:</p> <p>Identify and copy vocabulary words congruent and similar.</p> <p>Explain the differences between similar and congruent.</p> <p>Draw five examples of similar and five examples of congruent sets of polygons.</p>	<p>Teacher evaluation of:</p> <p>Students' written responses</p> <p>Congruent and similar shapes</p> <p>Whole class discussion</p> <p>Teacher observation</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> <p>Construction paper</p> <p>Scissors</p>

CONTENT: Grade 6 Mathematics

CORE CONCEPT 5: Data Analysis

MAJOR OBJECTIVE: Ability to organize, display, and analyze data

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 2.6.8.A Compare and contrast different plots of data using values of mean, median, mode, quartiles, and range.	Teacher will guide students to: Identify the measures of central tendency. Practice finding the measures using different data samples provided. Analyze which measure would be best or most appropriate for a given situation.	Teacher evaluation of: Students' written responses Partner work Independent activities Student observations Whole class discussion	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials
PA Standard 2.6.8.C Fit a line to the scatter plot of two quantities and describe any correlation of the variables.	Teacher will guide students to: Identify the data represented by points in a scatter plot. Determine if a scatter plot suggests a trend. Draw a line of best fit for the scatter plot to determine the strength of correlation.	Teacher evaluation of: Students' written responses Individual during small group work Whole class discussion Partner project	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials Graph paper

CONTENT: Grade 6 Mathematics

CORE CONCEPT 6: Probability

MAJOR OBJECTIVE: Calculate probabilities in lowest terms

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 2.7.8.A Determine the number of combinations and permutations for an event.	Teacher will guide students to: List all possible combinations that could be use of a given situation (ex: three course meal, outfits). Create tree diagrams to organize and list combinations more easily.	Teacher evaluation of: Students' written responses Student performance Individuals during small group work Oral question and answer	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 representations.	Teacher will guide students to: Conduct an experiment using either dice or a coin. Record data collected throughout the experiment in a frequency table. Create a graph to display the collected data.	Teacher evaluation of: Students' written responses Student performance Individuals during small group work Students experiments	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials

CONTENT: Grade 6 Mathematics

CORE CONCEPT 6: Probability

MAJOR OBJECTIVE: Calculate probabilities in lowest terms

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
PA Standard 2.7.8.C Analyze predictions (e.g., election polls).	Teacher will guide students to: Discuss why we make predictions and when we have seen predictions on the news or other places. Make predictions based on small sampling and apply to larger sample. Calculate probabilities of future events based on experimental probability.	Teacher evaluation of: Students' written responses Student performance Student calculations Oral question and answer	Textbook resources Library/AV resources Computer programs/web sites Journal or notebook Publisher's supplemental materials

CONTENT: Grade 6 Mathematics

CORE CONCEPT 7: Algebraic Concepts

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

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 2.8.8.A Apply simple algebraic patterns to basic number theory and to spatial relations.</p>	<p>Teacher will guide students to:</p> <p>Locate the pattern in the series of numbers or shapes.</p> <p>Identify the next three terms of patterns involving basic operations.</p> <p>Create a pattern using geometric shapes for a classmate to identify and continue.</p>	<p>Teacher evaluation of:</p> <p>Students' written responses</p> <p>Student performance</p> <p>Individuals during small group work</p> <p>Oral question and answer</p> <p>Students' created patterns</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>
<p>PA Standard 2.8.8.B Discover, describe, and generalize patterns, including linear, exponential, and simple quadratic relationships.</p>	<p>Teacher will guide students to:</p> <p>Find the pattern of a mathematical sequence.</p> <p>Identify patterns as linear, exponential or quadratic.</p> <p>Create a pattern for a classmate to describe and continue.</p>	<p>Teacher evaluation of:</p> <p>Students' written responses</p> <p>Student performance</p> <p>Individuals during small group work</p> <p>Oral question and answer</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 6 Mathematics

CORE CONCEPT 7: 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.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: Solve one-step equations problems using inverse operation and balancing equation. Determine a way to check answers (substitution). Create an equation from a word problem and solve the problem.	Teacher evaluation of: Students' written responses Student performance Individuals during small group work Oral question and answer	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 6th 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.