COURSE DESCRIPTION

Course Title: Mathematics – Grade 7

Course Number: 00204

Course Description and Prerequisites: Completion of Mathematics – Grade 6, 60% year average and basic operations w/o calculator usage

This course is a continuation of Mathematics 6.   Algebraic concepts such as the language of algebra, integers, one-step equations, factors and fractions, adding, subtracting, multiplying and dividing rational numbers, proportions and percents are intertwined with Geometry, statistics and probability. Opportunities in this course provide students with concrete background of algebraic concepts and enrich the application of problem-solving.

Suggested Grade Level: Seventh grade

Length of Course: ____One Semester   _X_ Two Semesters ____Other

Units of Credit: None

PDE *Certification and Staffing Policies and Guidelines (CSPG)* Required Teacher Certification(s) Middle Level Mathematics, Mathematics (7-12)

Certification verified by WCSD Human Resources Department:
  _X_ Yes   ____No

Board Approved Textbooks, Software, Materials:
Title:
Publisher:
ISBN #:
Copyright Date:
Date of WCSD Board Approval:

Suggested Supplemental Materials: Geoboard, tangram pieces, pentonimoes, attribute blocks, probability dice, spinner, calculator, ruler and PSSA formula sheet.

Course Standards

PA Academic Standards:
2.1   Numbers, Number Systems and Number Relationships
2.2   Computation and Estimation
2.3   Measurement and Estimation
2.4   Mathematical Reasoning and Connections
2.5   Mathematical Problem Solving and Communication
2.6   Statistics and Data Analysis
2.7   Probability and Predictions
2.8   Algebra and Functions
2.9   Geometry
2.10 Trigonometry
2.11 Concepts of Calculus

WCSD Academic Standards: None

Industry or Other Standards: None

WCSD EXPECTATIONS

WCSD K-12 Expectations for instruction in writing, reading, mathematics and, technology have been developed and revised annually. The teacher will integrate all WCSD Expectations into this planned instruction

SPECIAL EDUCATION AND GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (I.E.P.) or Gifted Individual Education Plan (G.I.E.P.).

REQUIRED COURSE SEQUENCE AND TIMELINE

Content Sequence	Dates
Problem-solving strategies	throughout year
Language of Algebra	August/September
Integers	September/October
One-step equations	October/November
Data Analysis	November
Factors and Fractions	December/January
Rational numbers: Adding and subtracting	January/February
Rational numbers: Multiplying and dividing	March
Proportions and percents	April/May
Review and test taking strategies	

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A yearly review will be done following the PDE release of the annual Eligible Content. Our goal is to keep the math planned instruction updated and effective.

WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? _X_Yes   ____ No

2. Does this course issue a mark/grade for the report card?

     _X_Yes____ No

3. Does this course issue a Pass/Fail mark?   ____ Yes   _X_No

4. Is the course mark/grade part of the GPA calculation?

     ____ Yes   _X_No

5. Is the course eligible for Honor Roll calculation? _X_Yes ____ No

6. What is the academic weight of the course?

     _X_ No weight/Non credit   ____ Standard weight

     ____ Enhanced weight   (Describe)_____

SPECIFIC EDUCATIONAL OBJECTIVES/CORRESPONDING STANDARDS AND ELIGIBLE CONTENT WHERE APPLICABLE

The Eligible Content is not in sequence. It is a checklist to be used to comply with state standards.

2.1 Numbers, Number Systems and Number Relationships
Mathematics – Grade 7

	Eligible Content	Performance Indicator	Assessment
2.1.8A	M7.A.1.1	• Convert between fractions, decimals and/or percents • Identify prime and composite numbers. • Rename decimals as fractions. • Convert a fraction to a repeating or terminating decimal. • Write fractions as terminating or repeating decimals. • Write fractions as percents. • Use percents to solve problems involving discounts and interest. • Write numbers in scientific notation. • Use the GCF to simplify fractions. • Find the LCM and GCF of two or more integers.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Tests/quizzes • Problem-solving journal/activity • Create an illustration • Develop a model using manipulatives • Hands on representation • Evaluate oral response • Self-evaluation • 4Sight • Portfolio • K-W-L • Venn diagram • Homework • Interview
2.1.8B	M7.A.2.1.1	• Use the order of operations to evaluate numeric expressions. • Evaluate expressions containing exponents. • Multiply and divide powers.	
2.1.8C	M7.A.1.2.1	• Identify, compare and order rational numbers • Write a math sentence with integers using <, >, or = symbols. • Put integers in order from least to greatest.	**Summative Assessments:** • Portfolio • Test • Performance assessment • Cooperative project • PSSA • Final Exam • Otis Hannah • Orleans Readiness
2.1.8D	M7.A.2.2.1 M7.A.2.2.3 M7.A.2.2.5	• Solve for a variable in a given proportion. • Use proportions to determine if two quantities are equivalent. • Solve a proportion given a problem situation involving distance, rate, and/or time. • Write ratios in simplest form and determine unit of rates.	
2.1.8E		Use variables to evaluate algebraic expressions.	
2.1.8F	M7.A.1.2.3	Locate decimals, fractions, mixed numbers and/or integers on a number line.	

	Eligible Content	Performance Indicator	Assessment
2.1.8G		• Solve an open sentence. • Use inverse operations to solve equations.	

2.2 Computation and Estimation
Mathematics – Grade 7

	Eligible Content	Performance Indicator	Assessment
2.2.8A		Determine the truth value of a statement and its negation.	**Formative Assessments:** • Observation
2.2.8B	M7.A.3.2.1 M7.A.3.2.2	• Add, subtract, multiply and divide all forms of rational numbers with and without a calculator. • Solve problems involving addition and subtraction of whole numbers. • Use divisibility rules to determine factors of a number line.	• Evaluate written work • Performance assessment • Tests/quizzes • Problem-solving journal/activity • Evaluate oral response • Homework
2.2.8C		• Round and estimate decimals, sums and differences. • Solve proportions.	• Interview • 4Sight
2.2.8D			**Summative Assessments:**
2.2.8E		Use = and ≈ correctly.	• Test
2.2.8F	M7.A.3.1.1	Estimate answers to problems involving whole numbers, decimals, fractions or mixed numbers.	• Final Exam • Otis Hannah • Orleans Readiness

2.3 Measurement and Estimation
Mathematics – Grade 7

	Eligible Content	Performance Indicator	Assessment
2.3.8A	M7.B.2.1.1 M7.B.2.1.3	• Solve problems using formulas (include perimeter and areas of squares and rectangles). • Introduce the area of triangles and/or all types of parallelograms.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Tests/quizzes
2.3.8B	M7.A.2.2.4	Calculate and/or apply units of rates or unit prices.	• Problem-solving journal/activity
2.3.8C			• Create an illustration
2.3.8D	M7.B.1.1.1 M7.B.2.1.2	• Convert, add and subtract customary measures with or without grouping (e.g., inches, feet, yard, oz, cup, pint, quart, gallon, Lb, second, minute, hour, day). • Find the circumference and area of circles.	• Develop a model using manipulatives • Evaluate oral response • Homework • Interview • 4Sight
2.3.8E			**Summative Assessments:**
2.3.8F	M7.B.2.2.2	Interpret and/or apply scales shown on maps, blueprints, models, etc.	• Test • Performance assessment
2.3.8G	M7.B.2.2.2	Determine and/or apply an appropriate scale for reduction or enlargement.	

2.4 Mathematical Reasoning and Connection
Mathematics – Grade 7

	Eligible Content	Performance Indicator	Assessment
2.4.8A		• Make inference to prime and composite numbers through estimation, prediction and logical reasoning. • Read analogies using bar graph, double & stacked graph and basic circle.	**Formative Assessments:** • Observation • Performance assessment • Problem-solving journal/activity • Develop a model using manipulatives • Hands on representation • Evaluate oral response • Homework **Summative Assessments:** • Test • Otis Hannah • Orleans Readiness
2.4.8B			
2.4.8C			
2.4.8D		• Recognize and apply properties. • Explain the procedures for estimating the sum, difference, product and quotients of rational numbers.	
2.4.8E			
2.4.8F		Use measurements and statistics to explain the given solution.	

2.5 Mathematical Problem Solving and Communication
Mathematics – Grade 7

	Eligible Content	Performance Indicator	Assessment
2.5.8A		• Solve an open sentence. • Solve problems by selecting a strategy from the following list: guess & check, working backwards, elimination, finding a pattern, drawing, or making a list or chart	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Problem-solving journal/activity • Hands on representation • Evaluate oral response • 4Sight **Summative Assessments:** • Test • Otis Hannah • Orleans Readiness • PSSA
2.5.8B		Show representation for the solution to a problem using graphing, tables, equations, formulas, charts and diagrams.	
2.5.8C		Explain the procedures or order of operations followed for solving a problem.	
2.5.8D		Solve a problem by using an equation.	

2.6 Statistics and Data Analysis
Mathematics – Grade 7

	Eligible Content	Performance Indicator	Assessment
2.6.8A	M7.E.2.1.1	Calculate mean, median, mode and range from a stem & leaf plot and a frequency table.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Problem-solving
2.6.8B		Interpret, read and analyze graphs.	
2.6.8C		Read and interpret data using the coordinate plane.	

		Design, conduct and display the results from a survey.	journal/activity
2.6.8D			• Venn diagram
2.6.8E	M7.E.1.1.1	Analyze data pertaining to a stem & leaf plot, histogram, double bar graph, multiple line graphs.	• Evaluate oral response
2.6.8F		Use the calculator to calculate the mean, median and mode.	**Summative Assessments:** • Test • PSSA
2.6.8G		Analyze the validity of data displayed in a newspaper.	• Otis Hannah • Orleans Readiness

2.7 Probability and Predictions
Mathematics – Grade 7

	Eligible Content	Performance Indicator	Assessment
2.7.8A		Determine and display (graph, chart, diagram) all possible combinations and permutations of a given set of data.	**Formative Assessments:** • Evaluate written work • Problem-solving journal/activity
2.7.8B		Conduct and display the results of an experiment in a chart, table, bar graph, circle graph or line plot.	• Create an illustration • Develop a model using manipulatives
2.7.8C		Use and validate predictions using guess and check.	
2.7.8D			**Summative Assessments:**
2.7.8E	M7.E.3.1.1 M7.E.3.1.2	• Find the theoretical probability of a simple and/or compound event. • Find the theoretical probability of an event not occurring.	• Test • Otis Hannah • Orleans Readiness

2.8 Algebra and Functions
Mathematics – Grade 7

	Eligible Content	Performance Indicator	Assessment
2.8.8A			**Formative Assessments:**
2.8.8B	M7.D.1.1.1	Describe, extend or find a missing element of a pattern.	• Observation • Evaluate written work
2.8.8C	 M7.D.2.1.1 M7.D.2.2.1	• Write verbal phrases as algebraic expressions. • Evaluate inequalities. • Select and/or use appropriate strategies to solve one-step equations. • Identify expressions, equations or inequalities that model mathematical situations.	• Performance assessment • Tests/quizzes • Problem-solving journal/activity • Create an illustration • Hands on representation • Evaluate oral response • Self-evaluation
2.8.8D			• Homework
2.8.8E	 M7.D.2.1.2	• Solve an open sentence. • Use addition, subtraction, multiplication and division to solve an equation. • Use substitution of one and/or two variable to simplify expressions.	• Interview • 4Sight **Summative Assessments:** • Test • Otis Hannah
2.8.8F			

	Eligible Content	Performance Indicator	Assessment
2.8.8G	M7.C.2.1.1 M7.C.2.1.2	• Plot and/or identify ordered pairs on a coordinate plane (all four quadrants). • Identify Quadrants I, II, III, IV the x- & y-axes and the origin on a coordinate plane.	• Orleans Readiness • PSSA
2.8.8H			
2.8.8I			
2.8.8J			

2.9 Geometry
Mathematics – Grade 7

	Eligible Content	Performance Indicator	Assessment
2.9.8A	M7.C.1.1.3	Identify parallel, perpendicular and/or skew line segments within three-dimensional figures.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Tests/quizzes • Create an illustration • Develop a model using manipulatives • Hands on representation • Evaluate oral response • Homework
2.9.8B			
2.9.8C			
2.9.8D	M7.C.1.1.1	Identify, describe and define diameter, radius, chord and/or circumference in circles.	
2.9.8E			
2.9.8F	M7.C.1.2.1	Identify and/or use polygons that are similar and/or congruent, given either measurements or tic and angle marks.	
2.9.8G			**Summative Assessments:** • Test • Performance assessment • Otis Hannah • Orleans Readiness
2.9.8H			
2.9.8I			
2.9.8J			
2.9.8K			

2.10 Trigonometry
Mathematics – Grade 7

	Eligible Content	Performance Indicator	Assessment
2.10.8A	M7.A.2.2.6 M7.C.1.2.2	Identify corresponding sides and/or angles of congruent or similar polygons.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment
2.10.8B			

2.11 Concepts of Calculus
Mathematics – Grade 7

	Eligible Content	Performance Indicator	Assessment
2.11.8A			**Formative Assessments:** • Evaluate written work • Performance assessment
2.11.8B	M7.D.3.1.1 M7.D.3.1.2	• Solve problems involving a constant rate of change. • Describe and/or use the relationship of data displayed on a rate of change graph.	**Summative Assessments:** • Test • Otis Hannah • Orleans Readiness
2.11.8C		Identify and extend patterns and sequences.	

ASSESSMENTS

PSSA Assessment Anchors Addressed: The teacher must be knowledgeable of the PDE Assessment Anchors and/or Eligible Content and incorporate them into this planned instruction. Current assessment anchors can be found at pde@state.pa.us.

Formative Assessments: The teacher will develop and use standards-based assessments throughout the course.

Portfolio Assessment: _____ Yes   __X_No

District-wide Final Examination Required: __X__Yes   _____ No

Course Challenge Assessment: To be developed by Math Team