Warren County School District

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Mathematics – Grade 6

Course Number: 00203

Course Description and Prerequisites: Completion of Mathematics – Grade 5

This course strengthens previously learned skills with fractions, decimals, percents and geometry. Students will be encouraged to further explore problem-solving to enhance simple algebraic concepts such as integers, equations and expressions. Daily math activities will require students to make several connections, relate skills within the content area and among others, and develop various approaches to become confident problem solvers.

Suggested Grade Level: Sixth Grade

Length of Course: ___ One Semester _X_ Two Semesters ____ Other

Units of Credit: N/A

PDE *Certification and Staffing Policies and Guidelines (CSPG)* Required Teacher Certification(s) Elementary

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, color tiles, tangram pieces, pentonimoes, clock, attribute blocks, probability dice, spinner, pattern blocks, snap cubes, coins & dollar bills, base ten blocks, calculator, thermometer and ruler.

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.).

SPECIFIC EDUCATIONAL OBJECTIVES/CORRESPONDING STANDARDS AND ELIGIBLE CONTENT WHERE APPLICABLE

2.1 Numbers, Number Systems and Number Relationships
Mathematics – Grade 6

	Eligible Content	Performance Indicator	Assessment
2.1.8A	M6.A.1.1.1 M6.A.1.1.2 M6.A.1.1.4	• Represent and explain relationships among decimals, fractions and percents and distinguish appropriate form to use to solve problems. • Represent percents as fractions and decimals. • Convert between fractions and decimal and differentiate between terminating and repeating decimal. • Convert mixed numbers to improper fractions.	**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 • SuccessMaker • Portfolio • K-W-L • Venn diagram • Homework • Interview **Summative Assessments:** • Portfolio • Test • Performance assessment • Cooperative project • PSSA • Final Exam
2.1.8B	M6.A.2.1.1 M6.A.1.13	• Simplify numerical expressions including ones that contain exponents and use the order of operations when required. • Simplify expressions involving powers.	
2.1.8C	M6.A.1.2.1	• Use a number line to represent and compare whole numbers, fractions, decimals and mixed numbers and to model real life situations. • Round decimals. • Compare and order fractions.	
2.1.8D		• Use appropriate rations and proportions to solve problems.	
2.1.8E	M6.A.1.3.1 M6.A.1.3.2	• Classify numbers including prime, composite, factors and multiples. • Find the greatest common factor. • Find the least common multiple.	
2.1.8F		• Model and solve real life situations using one step equations.	
2.1.8G		Solve equations that involve whole numbers, fractions, decimals and mixed numbers by undoing the operation.	

2.2 Computation and Estimation
Mathematics – Grade 6

	Eligible Content	Performance Indicator	Assessment
2.2.8A	M6.A.3.2.1	Simplify expressions using the order of operations.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment
2.2.8B	M6.A.1.3.3	Add, subtract, multiply and divide decimals, fractions (like and unlike denominators) and mixed numbers.	

2.2.8C		Create and solve word problems involving decimals, fractions and integers.	• Tests/quizzes • Problem-solving journal/activity • Create an illustration • Develop a model using manipulatives • Hands on representation • Evaluate oral response • Homework • Interview **Summative Assessments:** • Test • Final Exam
2.2.8D	M6.A.1.4.1	• Define percent. • Solve percent problems by estimating the answer using appropriate techniques. • Model percents using drawings, graphs and sets.	
2.2.8E		• Use estimation to determine the reasonableness of an answer.	
2.2.8F	M6.A.3.1.1	• Solve problems that require estimated or rounded answers. • Solve problems that require exact answers.	

2.3 Measurement and Estimation
Mathematics – Grade 6

	Eligible Content	Performance Indicator	Assessment
2.3.8A	M6.B.2.2	Solve problems involving length, perimeter, area and volume of geometric figures.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Tests/quizzes • Problem-solving journal/activity • Create an illustration • Develop a model using manipulatives • Evaluate oral response • Homework • Interview **Summative Assessments:** • Test • Performance assessment
2.3.8B	M6.B.1.1.1	Determine and compare elapsed time.	
2.3.8C	M6.B.2.1.3 M6.B.2.3.1	• Select and use an appropriate tool to measure angles and line segments. • Draw, label and name angles as acute, right, obtuse, straight utilizing protraction.	
2.3.8D		• Apply appropriate conversion to measurement in real life situations. • Solve area, perimeter, and volume problems making sure to use the correct units with the answers.	
2.3.8E			
2.3.8F	M6.B.2.1.2	• Choose the more precise measurement of an object. • Find actual and scale measurements using the scale for a map or a diagram.	
2.3.8G			

2.4 Mathematical Reasoning and Connection
Mathematics – Grade 6

	Eligible Content	Performance Indicator	Assessment
2.4.8A		Estimate, predict, solve problems and use logical reasoning.	**Formative Assessments:** • Observation • Performance assessment • Problem-solving journal/activity • Develop a model using manipulatives
2.4.8B		Create and solve word problems which represent characteristics of learned concepts.	
2.4.8C		Predict possible outcomes using the five-step problem solving process with given information.	

2.4.8D		Estimate and solve problems by adding, subtraction, multiplying and dividing whole numbers, fractions, decimals and mixed numbers.	• Hands on representation • Evaluate oral response • Homework **Summative Assessments:** • Test
2.4.8E			
2.4.8F			

2.5 Mathematical Problem Solving and Communication
Mathematics – Grade 6

	Eligible Content	Performance Indicator	Assessment
2.5.8A		Select one of the following methods to solve problems guess and check, use a formula, determining a method of computation, make a list, eliminate possibilities, and draw a picture, and justify your choice.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Problem-solving journal/activity • Hands on representation • Evaluate oral response
2.5.8B		Create a visual representation to solve a problem.	
2.5.8C		Explain why a strategy was chosen.	
2.5.8D			

2.6 Statistics and Data Analysis
Mathematics – Grade 6

	Eligible Content	Performance Indicator	Assessment
2.6.8A	M6.E.2.1.1	Calculate mean, median, mode and range.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Problem-solving journal/activity • Venn diagram • Evaluate oral response **Summative Assessments:** • Test • PSSA
2.6.8B	M6.E.1.1.1	Interpret data using pictures, tallies, tables, charts, bar graphs and circle graphs.	
2.6.8C			
2.6.8D		Conduct a survey to collect data.	
2.6.8E			
2.6.8F		Use a calculator to compute fractions and decimal data.	
2.6.8G		Collect and analyze data to make predictions.	

2.7 Probability and Predictions
Mathematics – Grade 6

	Eligible Content	Performance Indicator	Assessment
2.7.8A	M6.E.3.1.2	Determine and show all possible combinations of a given set of arrangements.	**Formative Assessments:** • Evaluate written work • Problem-solving journal/activity • Create an illustration • Develop a model using manipulatives
2.7.8B	M6.E.1.1.2 M6.E.1.1.3	Present the results of an experiment in a chart, table, bar graph, circle graph or line plot.	
2.7.8C		Use guess & check to analyze predictions.	
2.7.8D			

2.7.8E	M6.E.3.1.1	Determine the probability of an event.	**Summative Assessments:** • Test

2.8 Algebra and Functions
Mathematics – Grade 6

	Eligible Content	Performance Indicator	Assessment
2.8.8A			**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 • Homework • Interview **Summative Assessments:** • Test
2.8.8B	M6.D.1.1.1 M6.D.1.2.1	• Create, extend, or find a missing element in a pattern displayed in a chart, table or graph. • Determine a rule based on a pattern or illustrate a pattern based on a given rule.	
2.8.8C	M6.d.2.2.1	• Solve problems with variable expressions or equations.	
2.8.8D			
2.8.8E	M6.D.2.1.1 M6.D.2.1.2	• Identify the inverse operation needed to solve a one-step equation. • Solve a one-step equation using the inverse operation.	
2.8.8F			
2.8.8G			
2.8.8H	M6.C.2.1.1	Plot, locate and identify points in Quadrant 1 and on the x and y axes.	
2.8.8I			
2.8.8J			

2.9 Geometry
Mathematics – Grade 6

	Eligible Content	Performance Indicator	Assessment
2.9.8A	M6. C.1.2.1	Identify, describe and label parallel, perpendicular and intersecting lines.	**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 • Homework **Summative Assessments:** • Test • Performance assessment
2.9.8B	M6.C.1.1.4	Identify and use the total number of degrees in a triangle, quadrilateral and circle.	
2.9.8C	M6.C.1.1.1	Identify, classify and compare polygons.	
2.9.8D	M6.C.1.1.2 M6.C.1.1.3	• Identify and describe properties of all types of triangles (e.g., scalene, equilateral, isosceles, right, acute and obtuse). • Identify and determine the measure of the diameter and radius of a circle.	
2.9.8E			
2.9.8F			
2.9.8G			
2.9.8H			
2.9.8I			
2.9.8J			
2.9.8K			

2.10 Trigonometry
Mathematics – Grade 6

	Eligible Content	Performance Indicator	Assessment
2.10.8A			**Formative Assessments:** • Observation • Evaluate written work • Performance assessment
2.10.8B			

2.11 Concepts of Calculus
Mathematics – Grade 6

	Eligible Content	Performance Indicator	Assessment
2.11.8A			**Formative Assessments:** • Evaluate written work • Performance assessment **Summative Assessments:** • Test
2.11.8B			
2.11.8C	M6.D.1.1.1	Create, extend, or find a missing element in a pattern displayed in a chart, table or graph.	

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: __X__ Yes ____ No

District-wide Final Examination Required: ____ Yes __X__ No

Course Challenge Assessment: N/A

REQUIRED COURSE SEQUENCE AND TIMELINE

Content Sequence	Dates
Data & statistics	September
Fractions	October
Addition & subtraction of fractions	November
Multiplication & division of fractions	December
Geometry and measurement	January/February
Perimeter, area, and volume	March
Integers	
Ratios & probability	April
Percents	
Multiplication & division of whole numbers & decimals	May/June
Numeration	

WRITING TEAM:

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WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? ____ Yes __X__ 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?____ Yes __X__ No
6. What is the academic weight of the course?
   __X__ No weight/Non credit ____ Standard weight
   ____ Enhanced weight (Describe)_____