Warren County School District

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Mathematics – Grade 5

Course Number: 08523

Course Description and Prerequisites: Completion of Mathematics – Grade 4

This course strengthens and stretches previously learned math skills and prepares students to begin to think abstractly. Grade 5 mathematics will help students enhance their understanding of fractions, decimals, and measurement as these skills are intertwined with algebraic concepts and geometry. Students will be encouraged to support their thinking and application of prior knowledge through conceptual understanding and higher order thinking.

Suggested Grade Level: Fifth 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 5

	Eligible Content	Performance Indicator	Assessment
2.1.5A	M5.A.1.1.1	• Use expanded notation, standard notation and word forms to represent whole numbers or decimals.	**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
2.1.5B	M5.A.1.2.1	• Apply number theory concepts to rename a number quantity. • Match the standard form to the word form of decimals.	
2.1.5C		Demonstrate that mathematical operations can represent a variety of problem situations.	
2.1.5D	M5.A.1.5 M5.A.1.5.1	• Use models to represent fractions and decimals. • Use or develop regions or sets (e.g., base ten blocks, circle graph) to model fractions and mixed numbers.	
2.1.5E	M5.A.1.6.1 M5.A.1.6.2	• Identify prime and composite numbers. • Define, list and identify factors or multiples of a given whole number.	
2.1.5F	M5.A.1.4 M5.A.1.4.1 M5.A.1.4.2	• Use simple concepts of negative numbers. • Locate and identify integers on a number line. • Identify negative temperatures on a thermometer.	
2.1.5G	M5.A.1.6	• Develop and apply number theory concepts (e.g., primes, factors, multiples, composites) to represent numbers in various ways.	

2.2 Computation and Estimation
Mathematics – Grade 5

	Eligible Content	Performance Indicator	Assessment
2.2.5A	M5.A.2.1.1 M5.A.3.2.1	Create and solve word problems involving addition, subtraction, multiplication, and division of whole numbers and decimals with money, with and without a calculator.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Tests/quizzes • Problem-solving journal/activity • Create an illustration • Develop a model using manipulatives
2.2.5B	M5.A.2.1.2	Solve word problems that involve addition, subtraction, and multiplication of decimals, fractions and mixed numbers that include like and unlike denominators.	

2.2.5C		Develop, model and apply algorithms to solve addition and subtraction of fractions, with or without common denominators.	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
2.2.5D	M5.A.3.1.1	• Demonstrate the ability to round numbers. • Round whole number through millions and decimals through hundredths.	
2.2.5E	M5.A.3.1.2	Use estimation to solve problems involving addition, subtraction, multiplication and division of whole numbers and decimals.	
2.2.5F			
2.2.5G	M5.A.3.1.2	Apply estimation strategies to a variety of problems including time and money.	
2.2.5H			
2.2.5I	M5.A.2.1.3	Choose the correct operation to solve a problem.	

2.3 Measurement and Estimation
Mathematics – Grade 5

	Eligible Content	Performance Indicator	Assessment
2.3.5A	M5.B.1.1.1 M5.B.2.2.3	• Select the appropriate unit for measuring weight (mass), capacity, length, perimeter and area.	**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
2.3.5B	M5.B.2.1.1 M5.B.2.2.1 M5.B.2.2.2	• Select and use standard tools to measure the size of figures with specified accuracy to the nearest 1/8 inch or centimeter, including length, width, perimeter and area. • Use appropriate problem-solving strategies. • Find the perimeter of a figure drawn and labeled. • Find the area of a square or rectangle.	
2.3.5C	M5.B.1.3.2	Estimate, refine and verify specified measurements of an object shown on a grid.	
2.3.5D	M5.B.1.2.1	Convert linear measurements within the same system.	
2.3.5E	M5.B.1.2.2	Add and subtract linear measurements (feet & inches) or units of time (hours & minutes).	

2.4 Mathematical Reasoning and Connection
Mathematics – Grade 5

	Eligible Content	Performance Indicator	Assessment
2.4.5A		Compare quantities and magnitudes of numbers.	**Formative Assessments:** • Observation • Performance assessment • Problem-solving journal/activity • Develop a model using manipulatives • Hands on representation • Evaluate oral response • Homework **Summative Assessments:** • Test
2.4.5B		Use models, number facts, properties and relationships to check and verify predictions and explain reasoning.	
2.4.5C		Make inductive and deductive conclusions.	
2.4.5D		Distinguish between relevant and irrelevant information.	
2.4.5E		Interpret statements with precise language (e.g., every, none, some).	
2.4.5F		Use statistics to quantify issues.	

2.5 Mathematical Problem Solving and Communication
Mathematics – Grade 5

	Eligible Content	Performance Indicator	Assessment
2.5.5A		Develop a plan to analyze a problem, identify the information needed to solve the problem, carryout the plan, check whether an answer makes sense and explain how the problem was solved.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Problem-solving journal/activity • Develop a model using manipulatives • Hands on representation • Evaluate oral response • Self-evaluation • 4Sight • Homework **Summative Assessments:** • Test • Performance assessment • PSSA
2.5.5B		Use appropriate math terms, vocabulary, language symbols and graphs to explain clearly and logically solutions to problems.	
2.5.5C		Show ideas in a variety of ways, including words, numbers, symbols, pictures, charts, graphs, tables, diagrams and models.	
2.5.5D			
2.5.5E		Select, use and justify the methods, materials and strategies used to solve problems.	
2.5.5F		Use appropriate problem-solving strategies.	

2.6 Statistics and Data Analysis
Mathematics – Grade 5

	Eligible Content	Performance Indicator	Assessment
2.6.5A	M5.E.1.1.1	• Organize, display and interpret data using pictographs, tallies, tables, charts and bar graphs. • Organize data using a stem and leaf pattern.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment

2.6.5B	M5.E.2.1.1 M5.E.2.1.2	• Describe data sets using mean, median, mode and range. • Identify the mode in a set of data.	• Problem-solving journal/activity • Venn diagram • Evaluate oral response **Summative Assessments:** • Test • PSSA
2.6.5C		Organize, display, sort and interpret data using Venn diagrams.	
2.6.5D			
2.6.5E			

2.7 Probability and Predictions
Mathematics – Grade 5

	Eligible Content	Performance Indicator	Assessment
2.7.5A		Perform simulations with concrete devices to predict the chance of an event occurring.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Problem-solving journal/activity • Create an illustration • Develop a model using manipulatives • Hands on representation • Evaluate oral response • Self-evaluation • K-W-L • Venn Diagram • Homework • Interview **Summative Assessments:** • Test • Performance assessment • PSSA
2.7.5B		Determine the fairness of a spinner.	
2.7.5C	M5.E.3.1.2	Express probabilities as fractions and decimals.	
2.7.5D		Compare predictions based on theoretical probability and experimental results.	
2.7.5E	M5.E.3.1	Calculate the probability of simple event.	
2.7.5F		Determine patterns generated as a result of an experiment.	
2.7.5G		Determine the probability of an event involving “and”, “or” or “not”.	
2.7.5H	M5.E.3.1.1	Predict and determine why some outcomes are certain, more likely, less likely, equally likely or impossible.	
2.7.5I		Find all possible combinations and arrangements involving a limited number of variables.	
2.7.5J		Develop a tree diagram and list the elements.	

2.8 Algebra and Functions
Mathematics – Grade 5

	Eligible Content	Performance Indicator	Assessment
2.8.5A	M5.D.1.1.1 M5.D.1.1.2	• Explain the concepts of sequences/patterns of odd/even numbers. • Extend or find a missing element in a numerical or simple geometric pattern. • Create or replicate a numerical or geometric pattern.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Tests/quizzes • Problem-solving journal/activity • Create an illustration • Develop a model using manipulatives
2.8.5B			
2.8.5C	M5.D.1.2.1	Form a rule based on a given pattern, or illustrate a pattern based on a given rule.	

2.8.5D		Use concrete objects and numbers to create expression, equations that model mathematical situations.	manipulatives • Hands on representation • Evaluate oral response • Self-evaluation • 4Sight • SuccessMaker • Portfolio • K-W-L • Venn diagram • Homework • Interview **Summative Assessments:** • Test • Cooperative project • PSSA • Final Exam
2.8.5E		Explain the use of combinations of symbols and numbers in expressions, equations and inequalities.	
2.8.5F	M5.D.2.1.2	• Connect information from tables, data or graphs to realistic situation. • Match a realistic situation to an equation, expression, inequality, table or graph.	
2.8.5G	M5.D.2.1 M5.D.2.1.2	• Select and use appropriate strategies to solve number sentences and explain the method of solution. • Solve for a missing number in an equation involving a single operation.	
2.8.5H		Locate and identify points on a coordinate system.	
2.8.5I		Generate functions from tables of data and relate data to corresponding graphs and functions.	

2.9 Geometry
Mathematics – Grade 5

	Eligible Content	Performance Indicator	Assessment
2.9.5A		Define, classify and compare characteristics of geometric shapes including lines, line segments, rays, angles, planes, triangles, quadrilaterals, cubes, pyramids, circle, diameter and radius.	**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 • Homework **Summative Assessments:** • Portfolio • Test • Performance assessment • Cooperative project • PSSA • Final Exam
2.9.5B	M5.C.1.1.1 M5.C.1.1.2	• Identify and classify cubes, rectangular prisms or pyramids using faces, vertices and edges. • Identify and describe properties of all types of quadrilaterals.	
2.9.5C	M5.C.1.1	Define and use basic properties of circles (e.g., diameter, radius).	
2.9.5D		Describe in words how geometric shapes are constructed.	
2.9.5E		Construct two- and three-dimensional shapes and figures using manipulatives, geoboards and computer software.	
2.9.5F		Find familiar solids in the environment and describe them.	
2.9.5G		Create an original tessellation.	
2.9.5H		Describe the relationship between the perimeter and area of triangles, quadrilaterals and circles.	
2.9.5I	M5.C.1.2.1	Represent and use the concepts of line, point and plane.	
2.9.5J			

2.9.5K	M5.C.2.1.1	Draw or identify a translation (slide), reflection (flip) or rotation (turn) of a two-dimensional shape.	
2.9.5L	M5.C.2.1.2	Identify properties of geometric figures (e.g., parallel, perpendicular, similar, congruent, symmetrical).	

2.10 Trigonometry
Mathematics – Grade 5

	Eligible Content	Performance Indicator	Assessment
2.10.5A		Identify and compare parts of right triangles, including right angles, acute angels, hypotenuses and legs.	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment
2.10.5B		Create right triangles on a geoboard.	

2.11 Concepts of Calculus
Mathematics – Grade 5

	Eligible Content	Performance Indicator	Assessment
2.11.5A	M5.A.1.3 M5.A.1.3.2 M5.A.1.3.3	• Make comparisons of numbers with words such as more, less, same, least, most, greater than and less than. • Compare and order decimals. • Compare proper fractions through 16ths with like and unlike denominators	**Formative Assessments:** • Observation • Evaluate written work • Performance assessment • Tests/quizzes • Problem-solving journal/activity • Create an illustration • Hands on representation • Evaluate oral response • Homework **Summative Assessments:** • Test • Cooperative project
2.11.5B		Identify least and greatest values represented in bar and circle graphs.	
2.11.5C		Identify maximum and minimum.	
2.11.5D		Identify relationships between rates of change and times.	
2.11.5E	M5.B.1.3.1	Estimate areas and volumes as the sums of areas of tiles and volumes of cubes.	
2.11.5F		Describe the relationship between the size of the unit of measurement and the estimate of the areas and volumes.	

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
Numbers and operations Adding & subtracting decimals and whole numbers	September
Place value and operations	October
Whole number and decimal w/ operations	November
Data and statistics	December
Multiplying & dividing decimals	January
Geometry and measurement	January/February
Fractions (basic concepts) and operations	March/April
Working with fractions and two-digit division	May/June

WRITING TEAM:

Linda Davis Marcia Madigan

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)_____