

Warren County School District

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Mathematics – Grade 4

Course Number: 08423

Course Description and Prerequisites: Completion of Mathematics – Grade 3

This course continues strengthening the student's preparation for understanding mathematical concepts. Numbers, place value, addition, and subtraction are essential skills required to work through fourth grade mathematics. Students will be introduced to problem-solving strategies that explore mathematical reasoning, measurement, and estimation. Opportunities should provide students with challenges to enrich learning

Suggested Grade Level: Fourth Grade

Length of Course: ☐ One Semester ☒ 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:

☒ 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 4

	Eligible Content	Performance Indicator	Assessment
2.1.5A	M4.A.1.1.3 M4.A.1.1.4	<ul style="list-style-type: none"> • Match the standard number form to the word form of decimal numbers. • Use expanded notation to represent whole numbers. 	Formative Assessments: <ul style="list-style-type: none"> • 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
2.1.5B		<ul style="list-style-type: none"> • Introduce, practice, and apply whole number, multiples, subtraction, division, and expanded notation number theory concepts of using various names for the same number (e.g., four, 4, $16 \div 4$, 2×2). 	
2.1.5C		<ul style="list-style-type: none"> • Practice and master addition and subtraction. • Demonstrate that mathematical operations can represent a variety of problem situations. 	
2.1.5D	M4.A.1.1.2 M4.A.1.1.1	<ul style="list-style-type: none"> • Practice uses of models and create a drawing to represent fractions and decimals. • Write a fraction or decimal, including mixed numbers, which corresponds to a set or drawing. 	
2.1.5E	M4.A.1.3.2	<ul style="list-style-type: none"> • Introduce the concept of prime and composite numbers. • List and identify multiples of a number. 	Summative Assessments: <ul style="list-style-type: none"> • Portfolio • Test • Performance assessment • Cooperative project • PSSA • Final Exam
2.1.5F	M4.A.1.2.1	Locate and identify fractions or decimals on a number line.	
2.1.5G	M4.A.1.3	<ul style="list-style-type: none"> • Develop and apply number theory concepts using multiplication using one digit to represent numbers in different ways (e.g., factors, multiples). • Develop and apply number theory concepts using division. 	

2.2 Computation and Estimation

Mathematics – Grade 4

	Eligible Content	Performance Indicator	Assessment
2.2.5A	M4.A.2.1.1 M4.A.2.1.2	<ul style="list-style-type: none"> • Solve problems involving addition & subtraction of whole numbers, explain the solution (e.g., multiply then add). • Solve problems involving addition & subtraction with decimals through the tenths or money to the cent, explain the solution. 	Formative Assessments: <ul style="list-style-type: none"> • Observation • Evaluate written work • Performance assessment • Tests/quizzes • Problem-solving

2.2.5B	M4.A.3.2.1	Develop and apply algorithms to solve word problems with addition and subtraction with decimals, with or without regrouping.	journal/activity <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Portfolio • Test • Performance assessment • Cooperative project • PSSA • Final Exam
2.2.5C	M4.A.3.2.2	Develop and apply algorithms to solve word problems with fractions and mixed numbers that include like and unlike denominators.	
2.2.5D	M4.A.3.1.1	<ul style="list-style-type: none"> • Round whole numbers to the nearest ten, hundred, thousand, ten-thousand, or hundred-thousand. 	
	M4.A.3.1.2	<ul style="list-style-type: none"> • Round money to the nearest dollar. 	
2.2.5E	M4.A.3.1	Determine through estimation the reasonableness of answers to problems involving addition and subtraction of whole numbers.	
2.2.5F		Introduce demonstrating skills for using fraction calculators to verify conjectures, confirm computations, and explore complex problem solving situations.	
2.2.5G	M4.A.3	Apply estimation strategies to problems including time and money.	
2.2.5H		Explain multiplication and division algorithms.	
2.2.5I		Select a method for computation to solve word problems and explain why it is appropriate	

2.3 Measurement and Estimation

Mathematics – Grade 4

	Eligible Content	Performance Indicator	Assessment
2.3.5A	M4.B.1.1.1	<ul style="list-style-type: none"> • Select and use appropriate instruments and units for measuring quantities of weight, time, and temperature. • Introduce perimeter, area, and volume. 	Formative Assessments: <ul style="list-style-type: none"> • 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 • Homework • Interview
	M4.B.1.1.2	<ul style="list-style-type: none"> • Match and create analog time to the same time written on a digital clock. • Identify time as the amount of minutes before and after the hour. 	
2.3.5B	M4.B.2.1	<ul style="list-style-type: none"> • Select and use standard tools to measure the size of figures. 	
	M4.B.2.1.1	<ul style="list-style-type: none"> • Use and read a ruler to measure to the nearest $\frac{1}{4}$ inch or centimeter. 	
2.3.5C	M4.B.2.2.1	Estimate, refine, and verify measurements of objects to $\frac{1}{4}$ inch, $\frac{1}{2}$ inch, and centimeters.	
2.3.5D		Convert linear measurements within the same system.	

2.3.5E		Add and subtract measurements.	Summative Assessments: <ul style="list-style-type: none"> • Test • Performance assessment • PSSA • Final Exam
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2.4 Mathematical Reasoning and Connection

Mathematics – Grade 4

	Eligible Content	Performance Indicator	Assessment
2.4.5A	M4.A.1.2.2	Compare and/or order quantities and magnitudes of whole numbers and amounts of money.	Formative Assessments: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Test • Performance assessment • PSSA
2.4.5B		<ul style="list-style-type: none"> • Use models, number facts, properties and relationships to check and verify predictions and explain reasoning. • Use models to check and verify predictions and explain reasoning. 	
2.4.5C		Use inductive (start with a conclusion and work backward) and deductive (step by step to develop answer) conclusions for addition and subtraction problems.	
2.4.5D		Distinguish between relevant and irrelevant information in addition and subtraction problems.	
2.4.5E			
2.4.5F		Use statistics to quantify issues in social studies and science.	

2.5 Mathematical Problem Solving and Communication

Mathematics – Grade 4

	Eligible Content	Performance Indicator	Assessment
2.5.5A	M4.A2	Develop a plan to analyze a problem, identify the information needed to solve a problem, carry out the plan, check whether an answer makes sense and explain how the problem was solved.	Formative Assessments: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Test • Performance assessment • PSSA
2.5.5B		Use appropriate math terms, vocabulary, language symbols and graphs to explain clearly and logically solution to problems.	
2.5.5C	M4.E.1.2.2	Translate and show ideas in a variety of ways, including tallies, table, chart, bar graph or pictograph.	
2.5.5D			
2.5.5E	M4.A2 M4A.3	Select, use and justify the methods, materials and strategies used to solve problems.	
2.5.5F		Use appropriate problem-solving strategies such as a picture or diagram.	

2.6 Statistics and Data Analysis

Mathematics – Grade 4

	Eligible Content	Performance Indicator	Assessment
2.6.5A	M4.E.1.1.1 M4.E.1.2.1	<ul style="list-style-type: none"> Describe, interpret and answer questions based on data shown in tables, charts, bar graphs or pictographs. Organize and graph data using pictures, tallies, tables, charts, bar graphs and circle graphs. 	Formative Assessments: <ul style="list-style-type: none"> Observation Evaluate written work Performance assessment Problem-solving journal/activity Hands on representation Evaluate oral response Summative Assessments: <ul style="list-style-type: none"> Test PSSA
2.6.5B		Introduce mean, median, mode and range.	
2.6.5C		Introduce and sort data using Venn diagrams.	
2.6.5D	M4.E.2.1.1	Practice predicting the likely number of times a condition will occur based on the analyzed data.	
2.6.5E		Construct and defend conclusions based on data.	

2.7 Probability and Predictions

Mathematics – Grade 4

	Eligible Content	Performance Indicator	Assessment
2.7.5A		Generate a list of all possible outcomes of given events by constructing a table or developing an organized list.	Formative Assessments: <ul style="list-style-type: none"> 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 4Sight SuccessMaker Portfolio K-W-L Venn diagram Homework
2.7.5B		Utilize and explain the results of an experiment to analyze the probability of an event.	
2.7.5C		Introduce expressing probabilities as fractions and events.	
2.7.5D			
2.7.5E		Calculate the probability of a simple event.	
2.7.5F		Determine patterns generated as a result of an experiment.	
2.7.5G		Introduce the probability of an event involving “and”, “or” and “not.”	
2.7.5H		Introduce predicting and determining 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.	<ul style="list-style-type: none"> • Interview Summative Assessments: <ul style="list-style-type: none"> • Test • Performance assessment • PSSA
2.7.5J		Introduce making a tree diagram and listing the elements.	

2.8 Algebra and Functions

Mathematics – Grade 4

	Eligible Content	Performance Indicator	Assessment
2.8.5A	M4.D.1.1.1 M4.D.1.1.2	<ul style="list-style-type: none"> • Extend or find a missing element in a numerical or geometric pattern. • Identify or describe the rule for a numerical or geometric pattern. 	Formative Assessments: <ul style="list-style-type: none"> • 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 • Homework • Interview Summative Assessments: <ul style="list-style-type: none"> • Test • Cooperative project • PSSA • Final Exam
2.8.5B		<ul style="list-style-type: none"> • Create a picture on a grid, and identify the coordinate points. • Introduce connecting patterns to geometric relations and basic number skills. 	
2.8.5C		Interpret and draw conclusions about data.	
2.8.5D		Gather information analyze the collected data, and display it in a table.	
2.8.5E	M4.D.2.1.1	<ul style="list-style-type: none"> • Explain the use of combinations of symbols and numbers in expressions, equations and inequalities. • Correlate story situations with expression or equations. 	
2.8.5F		Describe a realistic situation using information given in equations, inequalities, tables and graphs.	
2.8.5G	M4.D.2.2.1	<ul style="list-style-type: none"> • Select and use appropriate strategies, including concrete materials to solve number sentences and explain the method of a solution. • Solve for a missing number in an equation. 	
2.8.5H	M4.C.3.1.1	Identify and locate points within the coordinate system.	
2.8.5I	M4.D.1.2.1 M4.D.1.2.2	<ul style="list-style-type: none"> • Determine the missing elements in a function table. • Determine the rule for a function given a table. 	

2.9 Geometry

Mathematics – Grade 4

	Eligible Content	Performance Indicator	Assessment
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2.9.5A		<ul style="list-style-type: none"> • Create a labeled drawing of a real life person, place, or thing using geometric shapes. 	Formative Assessments: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Portfolio • Test • Performance assessment • Cooperative project • PSSA • Final Exam
2.9.5B		Identify, draw and label quadrilaterals.	
2.9.5C		<ul style="list-style-type: none"> • Create a reflection of a given drawing. • Measure the diameter and radius of a circle. 	
2.9.5D		<ul style="list-style-type: none"> • Draw congruent polygons and identify lines of symmetry. • Define in words how geometric figures are constructed. 	
2.9.5E	M4.C.1.1.1 M4.C.1.1.2	<ul style="list-style-type: none"> • Identify, classify, and compare two-dimensional figures (circle, triangle, square or rectangle). • Identify three-dimensional figures such as cube, sphere and pyramid. 	
2.9.5F			
2.9.5G		<ul style="list-style-type: none"> • Identify the rotation of a drawing or object. • Practice creating an original tessellation. 	
2.9.5H		<ul style="list-style-type: none"> • Define parallel and perpendicular lines. • Define the relationship between perimeter and area of triangles, quadrilaterals and circles. 	
2.9.5I	M4.C.1.2.1	Identify points, lines, line segments or rays.	
2.9.5J			
2.9.5K			
2.9.5L	M4.C.1.2.2	Identify parallel and perpendicular lines.	

2.10 Trigonometry

Mathematics – Grade 4

	Eligible Content	Performance Indicator	Assessment
2.10.5A		Compare right angles with acute and obtuse angles.	Formative Assessments: <ul style="list-style-type: none"> • Observation • Evaluate written work • Performance assessment
2.10.5B		Identify, draw, and label right, obtuse, acute, and straight angles.	

2.11 Concepts of Calculus

Mathematics – Grade 4

	Eligible Content	Performance Indicator	Assessment
2.11.5A	M4.A.1.2.2	<ul style="list-style-type: none"> • Compare and order whole numbers with words such as more, less, same, least, most, greater than or less than. 	Formative Assessments: <ul style="list-style-type: none"> • Observation • Evaluate written work • Performance assessment
2.11.5B		Create a bar graph and circle graph and identify the least and greatest values.	

2.11.5C		Observe patterns of numbers and make predictions to determine and continue a sequence.	<ul style="list-style-type: none"> • Tests/quizzes • Problem-solving journal/activity • Create an illustration • Hands on representation • Evaluate oral response • Homework Summative Assessments: <ul style="list-style-type: none"> • Test • Cooperative project
2.11.5D		Calculate area of rectangles and squares.	
2.11.5E	M4.B.1.1.3 M4.B.1.1.4	<ul style="list-style-type: none"> • Determine time and calculate elapsed time. • Give illustrations of real life events involving changing rates (e.g., speed, time, and heat). 	
2.11.5F			

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 ☐ No

District-wide Final Examination Required: ☐ Yes ☒ No

Course Challenge Assessment: N/A

REQUIRED COURSE SEQUENCE AND TIMELINE

Content Sequence	Dates
Addition & subtraction Whole number & money Place value	September to mid October
Multiplication & division facts Multiplication with one-digit	October to November
Multiplication with two-digit	December
Division with one-digit Graphing and probability	January to mid February
Measurement Geometry	February to mid March

Fraction/decimal review based on PSSA assessment anchors/eligible content	March to April
Fractions & decimals	April to May
Review	June

WRITING TEAM: 4th Grade Teachers

WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? ☐ Yes ☒ No
2. Does this course issue a mark/grade for the report card?
☒ Yes ☐ No
3. Does this course issue a Pass/Fail mark? ☐ Yes ☒ No
4. Is the course mark/grade part of the GPA calculation?
☐ Yes ☒ No
5. Is the course eligible for Honor Roll calculation? ☐ Yes ☒ No
6. What is the academic weight of the course?
☒ No weight/Non credit ☐ Standard weight
☐ Enhanced weight (Describe) _____