

WARREN COUNTY SCHOOL DISTRICT
PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Mathematics Grade 5

Course Number: 08523

Course Prerequisites: Completion of Mathematics Grade 4

Course Description: (Include “no final exam” or “final exam required”)

This course continues to strengthen and prepare students for real world math applications and to be able to communicate mathematically. Content throughout fifth grade will also strengthen and build previously learned math skills. Students will be involved in hands-on activities that provide daily challenges to enhance student achievement.

Suggested Grade Level: Fifth Grade

Length of Course: One Semester X Two Semesters Other

(Describe)

Units of Credit: None (Insert NONE if appropriate.)

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

(Insert certificate title and CSPG#) Elementary Education CSPG #41

Certification verified by WCSD Human Resources Department:

 X Yes No

Board Approved Textbooks, Software, Materials:

Title: Mathematics

Publisher: Scott Foresman

ISBN #:

Copyright Date: 2008

Date of WCSD Board Approval:

BOARD APPROVAL:

Date Written: _____ Spring 2012

Date Approved: _____

Implementation Year: _____ 2012-2013

Suggested Supplemental Materials: (List or insert **None**) Calculators, Successmaker Enterprises/Successmaker, geoboards, dice, spinners, rulers, fraction bars, protractors, compasses, laptops, Microsoft Excel, place value charts, number lines, fraction number lines, formula sheets, thermometers, highlighters

Course Standards

PA Academic Standards: (List by Number and Description)

2.1 Numbers and Operations

2.2 Algebraic Concepts

2.3 Geometry

2.4 Data Analysis and Probability

PA Common Core Standards: (List by Number and Description)

2.1 Numbers and Operations

(B) Number and Operations in Base Ten

(C) Number and Operations-Fractions

2.2 Algebraic Concepts

(A) Operations and Algebraic Thinking

2.3 Geometry

(A) Geometry

2.4 Data Analysis and Probability

(A) Measurement and Data

WCSD Academic Standards: (List or **None**)

None

Industry or Other Standards: (List, Identify Source or **None**)

None

SPECIAL EDUCATION AND GIFTED REQUIREMENTS

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

**SPECIFIC EDUCATIONAL OBJECTIVES/CORRESPONDING STANDARDS AND
ELIGIBLE CONTENT WHERE APPLICABLE**

(List Objectives, PA Standards #'s, Other Standards (see samples at end))

**PA Standard: 2.1 Numbers and Operations
M05.A-T Numbers and Operations in Base Ten**

STD or EC Code	Performance Indicators	Mastery	Introduced
M05.A-T.1.1.1	Demonstrate an understanding that in a multi-digit number, a digit in one place represents 1/10 of what it represents in the place to its left.	X	
M05.A-T.1.1.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	X	
M05.A-T.1.1.3	Read and write decimals to thousandths using base-ten numerals, word form, and expanded form.	X	
M05.A-T.1.1.4	Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols.	X	
M05.A-T.1.1.5	Round decimals to any place (limit rounding to ones, tenths, hundredths, or thousandths place).		
M05.A-T.2.1.1	Multiply multi-digit whole numbers (not to exceed 3-digit by 3-digit).	X	
M05.A-T.2.1.2	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.	X	
M05.A-T.2.1.3	Add, subtract, multiply, and divide decimals to hundredths (no divisors with decimals).	X	
M5.A.3.1.2	Use estimation to solve problems involving whole numbers and/or decimals (up to 2-digit multipliers, single-digit divisors or multiples of 10; whole numbers through thousands and decimals through hundredths).	X	
M5.A.1.2.1	Match the standard form to the word form of decimal numbers through the hundredths.	X	
M5.A.1.2.2	Identify the place value of a digit (from millions through hundredths).	X	
M5.A.1.3.1	Compare whole numbers through 9 digits using the words, more, less, equal, least, most, greater than, less than or the symbols <, >, =.	X	
M5.A.1.4.1	Locate/Identify integers on a number line (greater than or equal to -20).	X	
M6.A.1.3.1	Find the Greatest Common Factor (GCF) of two numbers (through 50) and/or use the GCF to simplify fractions.		X
M6.A.1.3.2	Find the Least Common Multiple (LCM) of two numbers (through 50) and/or use the LCM to find the common denominator of two fractions		X
M6.A.1.3.3	Use divisibility rules for 2, 3, 5 and/or 10 to draw conclusions and/or solve problems.		X
M6.A.3.1.1	Use estimation to solve problems involving whole numbers and decimals (up to 2-digit divisors and 4 operations).		X
M7.A.1.1.1	Convert between fractions, decimals and/or percents (e.g., 20% = 0.2 = 1/5) (terminating decimals only).		X

PA Standard: 2.1 Numbers and Operations
M05.A-F Fractions

STD or EC Code	Performance Indicators	Mastery	Introduced
M05.A-F.1.1.1	Add and subtract fractions (including mixed numbers) with unlike denominators. (May include multiple methods and representations.)	X	
M05.A-F.2.1.1	Solve word problems involving division of whole numbers leading to answers in the form of fractions (including mixed numbers).	X	
M05.A-F.2.1.2	Multiply a fraction (including mixed numbers) by a fraction.	X	
M05.A-F.2.1.3	Demonstrate an understanding of multiplication as scaling (resizing). <i>Example 1: Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.</i> <i>Example 2: Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number.</i>	X	
M05. A-F.2.1.4	Divide unit fractions by whole numbers and whole numbers by unit fractions.	X	
M5.A.1.3.3	Compare proper fractions through 16ths with like and unlike denominators.	X	
M5.A.1.5.1	Use or develop regions and/or sets (e.g., circle graph, base ten blocks) to model fractions and mixed numbers through hundredths (may include reducing the fractions).	X	
M5.A.1.6.1	Define/list/identify prime and composite numbers less than or equal to 100.	X	
M5.A.1.6.2	Define/list/identify factors and/or multiples of a given whole number less than or equal to 50.	X	
M5.A.2.1.3	Choose the correct operation(s) to solve a problem (no more than 2 operations).	X	
M6.A.1.1.1	Represent common percents as fractions and/or decimals (e.g., $25\% = \frac{1}{4} = .25$)—common percents are 1%, 10%, 25%, 50%, 75%, 100%.		X
M6.A.1.1.3	Represent a number in exponential form (e.g., $10 \times 10 \times 10 = 10^3$).		X
M6.A.1.2.1	Compare and/or order whole numbers, mixed numbers, fractions and/or decimals (do not mix fractions and decimals—decimals through thousandths).		X
M6.A.1.1.4	Represent a mixed number as an improper fraction.		X

M6.A.1.4.1	Model percents (through 100%) using drawings, graphs and/or sets (e.g., circle graph, base ten blocks, etc).		X
M7.A.1.2.1	Compare and/or order integers, mixed numbers, fractions and decimals (fractions and decimals may be mixed—no more than 5 numbers in a set to be ordered).		X

PA Standard: 2.2 Algebraic Concepts:
M05.B-O Operations and Algebraic Thinking

STD or EC Code	Performance Indicators	Mastery	Introduced
M05.B-O.1.1.1	Use multiple grouping symbols (parentheses, brackets, or braces) in numerical expressions, and evaluate expressions containing these symbols.	X	
M05.B-O.1.1.2	Write simple expressions that model calculations with numbers, and interpret numerical expressions without evaluating them. <i>Example 1: Express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$.</i> <i>Example 2: Recognize that $3 \times (18,932 + 921)$ is three times as large as $18,932 + 921$, without having to calculate the indicated sum or product.</i>	X	
M05.B-O.2.1.1	Generate two numerical patterns using two given rules.	X	
M05.B-O.2.1.2	Identify apparent relationships between corresponding terms of two patterns with the same starting numbers that follow different rules. <i>Example: Given two patterns in which the first pattern follows the rule “add 8” and the second pattern follows the rule “add 2,” observe that the terms in the first pattern are 4 times the size of the terms in the second pattern.</i>		
M5.D.1.1.2	Create or replicate a numerical or geometric pattern showing 3 repetitions of that pattern (+, -, x or ÷ of whole numbers may be used).	X	
M5.D.1.2.1	Form a rule based on a given pattern, or illustrate a pattern based on a given rule (+, -, x or ÷ of whole numbers may be used). Patterns must show 3 repetitions.	X	
M5.D.2.1.1	Solve for a missing number (blank, question mark, variable) in an equation involving a single operation whole numbers only.	X	
M5.D.2.1.2	Match a realistic situation to an equation, expression, inequality (<, >, =), table or graph (variable must be isolated, e.g., $17 + 39 = n$).	X	
M6.D.1.1.1	Create, extend or find a missing element in a pattern displayed in a table, chart or graph (pattern must show at least 3 repetitions—may use up to 2 operations with whole numbers).		X
M6.D.1.2.1	Determine a rule based on a pattern or illustrate a pattern based on a given rule (displayed on a table, chart or graph; pattern must show at least 3 repetitions).		X
M6.D.2.1.1	Identify the inverse operation needed to solve a one-step equation.		X
M7.D.1.1.1	Describe, extend or find a missing element of a pattern (show 3 repetitions of the pattern) • fractions or decimals - may use only one operation from +, - or x • whole numbers – may use only one operation from +, -, x,		X

	÷ or squares.		
M7.D.2.1.1	Select and/or use appropriate strategies to solve one-step equations (no negative numbers).		X
M8.D.1.1.1	Continue a numeric or algebraic pattern (pattern must show 3 repetitions—may include up to 2 operations, squares and square roots).		X
M8.D.1.1.2	Find missing elements in numeric or geometric patterns and/or functions (may be given a table or rule—pattern must show 3 repetitions).		X

PA Standard: 2.3 Geometry

M05.C-G Geometry

STD or EC Code	Performance Indicators	Mastery	Introduced
M05.C-G.1.1.1	Identify parts of the coordinate plane (x-axis, y-axis, and the origin) and the ordered pair (x-coordinate and y-coordinate). Limit the coordinate plane to quadrant I.	X	
M05.C-G.1.1.2	Represent real-world and mathematical problems by plotting points in quadrant I of the coordinate plane, and interpret coordinate values of points in the context of the situation.	X	
M05.C-G.2.1.1	Classify two-dimensional figures in a hierarchy based on properties. <i>Example 1: All polygons have at least 3 sides, and pentagons are polygons, so all pentagons have at least 3 sides.</i> <i>Example 2: A rectangle is a parallelogram, which is a quadrilateral, which is a polygon; so, a rectangle can be classified as a parallelogram, as a quadrilateral, and as a polygon.</i>	X	
M5.C.1.1.1	Identify and/or classify cubes, rectangular prisms or pyramids using faces, vertices and edges.	X	
M5.C.1.2.1	Identify, draw and/or label points, lines, line segments and rays.	X	
M5.C.2.1.2	Identify the number of lines of symmetry and/or draw all lines of symmetry in a two-dimensional polygon.	X	
M6.C.1.1.3	Identify and/or determine the measure of the diameter and/or radius of a circle (when one or the other is given).		X
M6.C.3.1.1	Plot, locate or identify points in Quadrant I and/or on the x and y axes with intervals of 1, 2, 5 or 10 units - up to a 200 by 200 grid. Points may be in-between lines.		X

PA Standard: 2.4 Data Analysis and Probability:

M05.D-M Measurement and Data

STD or EC Code	Performance Indicators	Mastery	Introduced
M05.D-M.1.1.1	Convert among different-sized measurement units within a given measurement system. A table of equivalencies will be provided.	X	
M05.D-M.2.1.1	Solve problems involving computation of fractions by using information presented in line plots.	X	
M05.D-M.2.1.2	Display and interpret data shown in tallies, tables, charts, pictographs, bar graphs, and line graphs,	X	

	and use a title, appropriate scale, and labels. A grid will be provided to display data on bar graphs or line graphs.		
M05.D-M.3.1.1	Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems. Formulas will be provided.	X	
M5.A.1.4.2	Identify negative temperatures on a thermometer (through 20 ° C or °F).	X	
M5.B.1.1.1	Select the appropriate unit for measuring weight (mass), capacity, length, perimeter and area.	X	
M5.B.1.2.1	Convert using linear measurements, capacity, and weight (mass) within the same system to the unit immediately above or below the given unit (using only the units below—use a conversion chart or a “hint” with problems e.g., hint: 16oz = 1lb). • Metric using mm, cm, m and km; mL and L; g and kg • Customary using cup, pint, quart, gallon; in, ft, yd; oz, lb	X	
M5.B.1.2.2	Add or subtract linear measurements, (feet and inches) or units of time (hours and minutes), without having to regroup with subtraction (answer should be in simplest form).	X	
M5. B.1.3.1	Estimate which polygon (shown on a grid) has a greater perimeter or area (compare either area to area or perimeter to perimeter).	X	
M5. B.1.3.2	Estimate the area of an irregular figure shown on a grid.	X	
M5.B.2.1.1	Use a ruler to measure to the nearest 1/8 inch or centimeter.	X	
M5.B.2.2.1	Find the perimeter of a figure drawn and labeled (with the same units throughout).	X	
M5.B.2.2.2	Find the area of a square or rectangle (with the same units throughout-whole numbers only).	X	
M5.B.2.2.3	Solve problems involving weight, time, temperature, length and capacity (with the same units throughout—limited to 3 digits).	X	
M5.E.3.1.1	Predict or determine whether some outcomes are certain, more likely, less likely, equally likely, or impossible (information could be represented by pictographs, bar graphs, charts, tables and/or spinners).	X	
M5.E.3.1.2	Determine the probability of an outcome (e.g., a coin toss, a roll of a number cube) and express as a fraction without reduction.	X	
M5.E.2.1.1	Determine the mean/average (answer is a whole number), median (answer is a whole number or average of 2 numbers) and range of data (up to 10 numbers).	X	
M5.E.2.1.2	Identify the mode in a set of data (up to 10 numbers).	X	
M6.E.1.1.1	Analyze data and/or answer questions pertaining to data represented in frequency tables, circle graphs, double bar graphs, double line graphs or line plots (for circle graphs, no computation with percents).		X
M6.B.2.1.1	Use or read a ruler to measure to the nearest 1/16 inch or millimeter.		X
M6.E.3.1.1	Define and/or find the probability of a simple event (express as a fraction in lowest terms).		X

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: _____ Yes X No

Course Challenge Assessment (Describe):
NA

REQUIRED COURSE SEQUENCE AND TIMELINE

(Content must be tied to objectives)

Content Sequence	Dates
<u>Place Value</u>	September
M05.A-T.1.1.1	
M05.A-T.1.1.2	
M05.A-T.1.1.3	
M05.A-T.1.1.4	
M05.A-T.1.1.5	
M5.A-T.1.2.1	
M5.A-T.1.2.2	
M5.A-T.1.3.1	
<u>Multiplication and Division</u>	October/November
M05.A-T.2.1.1	
M05.A-T.2.1.2	
M05.A-T.2.1.3	
M5.A.3.1.2	
M5A.2.1.3	
<u>Fractions</u>	December/January
M05.A-F.1.1.1	
M05.A-F.2.1.1	
M05.A-F.2.1.2	
M05.A-F.2.1.3	
M05.A-F.2.1.4	
M5.A.1.3.3	
M5.A.1.5.1	
M5.A.1.6.1	

M5.A.1.6.2

M6.A.1.1.1

M6.A.1.1.3

M6.A.1.2.1

M6.A.1.1.4

M6.A.1.4.1

M7.A.1.2.1

Geometry

February

M05.C-G.1.1.1

M05.C-G.1.1.2

M05.C-G.2.1.1

M5.C.1.1.1

M5.C.1.2.1

M5.C.2.1.2

M6.C.1.1.3

M6.C.3.1.1

Measurement/Data/Probability

March/April

M05.D-M.1.1.1

M05.D-M.2.1.1

M05.D-M.2.1.2

M05.D-M.3.1.1

M5.A.1.4.2

M5.B.1.1.1

M5.B.1.2.1

M5.B.1.2.2

M5.B.1.3.1

M5.B.1.3.2

M5.B.2.1.1

M5.B.2.2.1

M5.B.2.2.2

M5.B.2.2.3

M5.E.3.1.1

M5.E.3.1.2

M5.E.2.1.1

M5.E.2.1.2

M6.E.1.1.1

M6.B.2.1.1

M6.E.3.1.1

Algebraic Concepts

May

M05.B-O.1.1.1

M05.B-O.2.1.1

M05.B-O.2.1.2

M5.A.1.4.1

M5.D.1.1.2

M5.D.1.2.1

M5.D.2.1.1

M5.D.2.1.2

M6.D.1.1.1

M6.D.1.2.1

M6.D.2.1.1

M7.D.1.1.1

M7.D.2.1.1

M8.D.1.1.1

M8.D.1.1.2

Objectives:

- Apply place value concepts to show an understanding of operations and rounding as they pertain to whole numbers and decimals.
- Extend an understanding of operations with whole numbers to perform operations including decimals.
- Use the understanding of equivalency to add and subtract fractions.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
- Interpret and evaluate numerical expressions using order of operations.
- Analyze patterns and relationships using two rules.
- Graph points in the first quadrant on the coordinate plane and interpret these points when solving real world and mathematical problems.
- Classify two-dimensional figures into categories based on an understanding of their properties.
- Solve problems using conversions within a given measurement system.
- Represent and interpret data using appropriate scale.
- Solve problems involving computation of fractions using information provided in a line plot.
- Apply concepts of volume to solve problems and relate volume to multiplication and to addition.

WRITING TEAM: Warren County School District Math Teachers

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)