

WARREN COUNTY SCHOOL DISTRICT
PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Advanced Mathematics – Grade 6

Course Number: 00209

Course Prerequisites: Completion of Mathematics –Grade 5, 80% on placement test and 93% average in first three nine weeks of the fifth grade math course.

Course Description:

In Grade 6, instructional time will focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking.

Suggested Grade Level: Grade 6

Length of Course: One Semester X Two Semesters Other

(Describe)

Units of Credit: 1 (Insert *NONE* if appropriate.)

PDE *Certification and Staffing Policies and Guidelines (CSPG)* Required Teacher Certification(s) (Insert certificate title and CSPG#) CSPG #53 Middle Level Mathematics or CSPG #41 Elementary Education K-6 Elementary or CSPG #70 Grades 4-8 (All subjects 4-6, Mathematics 7-8)

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:

BOARD APPROVAL:

Date Written: Summer 2014

Date Approved:

Implementation Year: 2014-2015

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

Course Standards

PA Core Standards:

2.1 Numbers and Operations

2.2 Algebraic Concepts

2.3 Geometry

2.4 Measurement, Data, and Probability

WCSD Academic Standards: (List or 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**

PA Core Standard: M06.A-N The Number System

X – performance assessed during that semester

	Performance Indicators	1	2
A.	M06.A-N.1.1.1. Interpret and compute quotients of fractions (including mixed numbers), and solve word problems involving division of fractions by fractions.	X	
B.	M06.A-N.2.1.1. * Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. * Solve problems involving operations (+, −, ×, ÷) with whole numbers, decimals (through thousandths), straight computation or word problems.	X	
C.	M06.A-N.2.2.2. Apply the distributive property to express a sum of two whole numbers, 1 through 100, with a common factor as a multiple of a sum of two whole numbers with no common factor.	X	
D.	M06.A-N.3.1.1 Represent quantities in real-world contexts using positive and negative numbers, explaining the meaning of 0 in each situation.	X	
E.	M06.A-N.3.1.2 Determine the opposite of a number and recognize that the opposite of the opposite of a number is the number itself.	X	
F.	M06.A-N.3.1.3 Locate and plot integers and other rational numbers on a horizontal or vertical number line; locate and plot pairs of integers and other rational numbers on a coordinate plane.	X	
G.	M06.A-N.3.2.1 Write, interprets, and explains statements of order for rational numbers in real-world contexts.	X	
H.	M06.A-N.3.2.2 Interpret the absolute value of a rational number as its distance from 0 on the number line and as a magnitude for a positive or negative quantity in a real-world situation.	X	
I.	M06.A-N.3.2.3 Solve real-world and mathematical problems by plotting points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	X	
J.	M07.A-N.1.1.1. Apply properties of operations to add and subtract rational numbers, including real-world contexts.		X
K.	M07.A-N.1.1.2 Represent addition and subtraction on a horizontal or vertical number line.		X
L.	M07.A-N.1.1.3 Apply properties of operations to multiply and divide rational numbers, including real-world contexts; demonstrate that the decimal form of a rational number terminates or eventually repeats.		X

PA Core: M06.A-R Ratios and Proportional Relationships

X – performance assessed during that semester

	Performance Indicators	1	2
A.	M06.A-R.1.1.1 Use ratio language and notation (such as 3 to 4, 3:4, 3/4) to describe a ratio relationship between two quantities.	X	
B.	M06.A-R.1.1.2 Find the unit rate a/b associated with a ratio $a:b$ (with $b \neq 0$), and use rate language in the context of a ratio relationship.	X	
C.	M06.A-R.1.1.3 Construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and/or plot the pairs of values on the coordinate plane. Use tables to compare ratios.	X	
D.	M06.A-R.1.1.4 Solve unit rate problems including those involving unit pricing and constant speed.	X	
E.	M06.A-R.1.1.5 Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.	X	

PA Core: M06.B-E Expressions and Equations

X – performance assessed during that semester

	Performance Indicators	1	2
A.	M06.B-E.1.1.1 Write and evaluate numerical expressions involving whole-number exponents.		X
B.	M06.B-E.1.1.2 Write algebraic expressions from verbal descriptions		X
C.	M06.B-E.1.1.3 Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity).		X
D.	M06.B-E.1.1.4 Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems.		X
E.	M06.B-E.1.1.5 Apply the properties of operations to generate equivalent expressions.		X
F.	M06.B-E.2.1.1 Use substitution to determine whether a given number in a specified set makes an equation or inequality true.		X
G.	M06.B-E.2.1.2 Write algebraic expressions to represent real-world or mathematical problems.		X
H.	M06.B-E.2.1.3 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q and x are all non-negative rational numbers.		X
I.	M06.B-E.2.1.4 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem and/or represent solutions of such inequalities on number lines.		X

J.	M06.B-E.3.1.1 Write an equation to express the relationship between the dependent and independent variables. Example: In a problem involving motion at constant speed, write the equation $d = 65t$ to represent the relationship between distance and time.		X
K.	M06.B-E.3.1.2 Analyze the relationship between the dependent and independent variables using graphs and tables, and/or relate these to an equation.		X

PA Core: M06.C-G Geometry

X – performance assessed during that semester

	Performance Indicators	1	2
A.	M06.C-G.1.1.1 Determine the area of triangles and special quadrilaterals (i.e., square, rectangle, parallelogram, rhombus, and trapezoid). Formulas will be provided.	X	
B.	M06.C-G.1.1.2 Find the area of irregular or compound polygons.	X	
C.	M06.C-G.1.1.3 Determine the volume of right rectangular prisms with fractional edge lengths. Formulas will be provided.	X	
D.	M06.C-G.1.1.4 Given coordinates for the vertices of a polygon in the plane, use the coordinates to find side lengths and area of the polygon (limited to triangles and special quadrilaterals). Formulas will be provided.	X	
E.	M06.C-G.1.1.5 Represent three-dimensional figures using nets made up of rectangles and triangles.	X	
F.	M06.C-G.1.1.6 Determine the surface area of triangular and rectangular prisms (including cubes). Formulas will be provided.	X	

PA Core: M06.D-S Statistics and Probability

X – performance assessed during that semester

	Performance Indicators	1	2
A.	M06.D-S.1.1.1 Display numerical data in plots on a number line, including dot plots, histograms, and box-and-whisker plots.		X
B.	M06.D-S.1.1.2 Determine quantitative measures of center (e.g., median, mean, and/or mode) and variability (e.g., range, interquartile range and/or mean absolute deviation).		X
C.	M06.D-S.1.1.3 Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered.		X
D.	M06.D-S.1.1.4 Relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.		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: X Yes _____ No

Course Challenge Assessment

Not applicable

REQUIRED COURSE SEQUENCE AND TIMELINE

(Content must be tied to objectives)

*****See curriculum map for sequence and timeline

*****Placement test to be given by the end of April

Objectives:

1. Mathematical relationships among numbers can be represented, compared, and communicated.
2. Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.
3. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
4. Patterns exhibit relationships that can be extended, described, and generalized.
5. Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.
6. Patterns exhibit relationships that can be extended, described, and generalized.

7. Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/visualization.
8. Data can be modeled and used to make inferences
9. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
10. Data can be modeled and used to make inferences.
11. Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.

WRITING TEAM: Warren County School District middle level mathematics instructors

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)