

WARREN COUNTY SCHOOL DISTRICT
PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Algebra IA

Course Number: _____

Course Prerequisites: This course is designed for the student who has completed Pre-Algebra 8, but did not earn greater than 75%.

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

Algebra IA is the first of the two year Algebra course; in the sequence Algebra IA, Algebra IB, and Geometry. In order to take this course, a student must have completed Pre-Algebra 8 **but did not earn greater than 75%.** This course includes a study of numbers and operations, algebraic concepts, and data analysis and probability. A final exam is required.

Suggested Grade Level: 9

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#) BS/BA Secondary Education/Mathematics

Certification verified by WCSD Human Resources Department:

X Yes _____ No

Board Approved Textbooks, Software, Materials:

Title: Algebra I

Publisher: Prentice Hall Mathematics

ISBN #:

Copyright Date:

Date of WCSD Board Approval:

BOARD APPROVAL:

Date Written: February 2012

Date Approved: _____

Implementation Year: _____

Suggested Supplemental Materials: (List or insert **None**) None

Course Standards

PA Academic Standards: (List by Number and Description)

- 2.1.11 Numbers, Number Systems, and Number Relationships
- 2.2.11 Computation and Estimation (integrated throughout)
- 2.4.11 Mathematical Reasoning and Connection (integrated throughout)
- 2.5.11 Mathematical Problem Solving and Communication (integrated throughout)
- 2.6.11 Statistics and Data Analysis
- 2.7.11 Probability and Predictions
- 2.8.11 Algebra and Functions

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

None

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

Common Core

Domains:

- The Real Number System
- Quantities
- Seeing Structure and Expressions
- Creating Equations
- Reasoning with Equations and Inequalities
- Interpreting Functions
- Building Functions
- Linear, Quadratic, and Exponential Models
- Interpreting Categorical and Quantitative Data

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: 2.1.11 Numbers, Number Systems, and Number Relationships

	Performance Indicators
M11.A.1.3.1	Locate/identify irrational numbers at the approximate location on a number line.
M11.A.3.1.1	Simplify/evaluate expressions using the order of operations to solve problems (any rational numbers may be used).
M11.A.1.1.1	Find the square root of an integer to the nearest tenth using either a calculator or estimation.
M11.A.1.1.2	Express numbers and/or simplify expressions using scientific notation (including numbers less than 1).
M11.A.2.1.1	Solve problems using operations with rational numbers including rates and percents (single and multi-step and multiple procedure operations)
M11.A.2.1.3	Identify and/or use proportional relationships in problem solving settings.

PA Standard: 2.8.11 Algebra and Functions

	Performance Indicators
A1.1.1.4.1	Use estimation to solve problems.
A1.1.1.3.1	Simplify/evaluate expressions involving properties/laws of exponents, roots and/or absolute value to solve problems (exponents should be integers from -10 to 10).
A1.1.1.5.1	Add, subtract and/or multiply polynomial expressions (express answers in simplest form – nothing larger than a binomial multiplied by a trinomial).
A1.1.2.1.1	Write and solve a linear equation: including absolute value equations.
A1.1.2.1.2	Use and/or identify an algebraic property to justify any step in an equation solving process (linear equations only).
A1.1.3.1.1	Write or solve compound inequalities and/or graph their solution sets on a number line.
A1.1.3.1.2	Identify or graph the solution set to a linear inequality on a number line.
A1.2.2.1.1	Identify, describe and/or use constant rates of change.
A1.2.2.1.2	Apply the concept of linear rate of change (slope) to solve problems.
A1.2.2.1.3	Write or identify a linear equation when given • the graph of the line • 2 points on the line, or • the slope and a point on a line, (Linear equation may be in point-slope, standard and/or slope-intercept form).
A1.2.2.1.4	Determine the slope and/or y-intercept represented by a linear equation or graph.

M11.D.1.1.3	Identify the domain, range or inverse of a relation (may be presented as ordered pairs or a table).
A1.1.1.1.1	Compare and/or order any real numbers (rational and irrational may be mixed).
A1.2.1.1.1	Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically.
A1.2.1.2.2	Translate from one representation of a linear function to another (graph, table and equation).
A1.2.1.1.2	Determine if a relation is a function given a set of points or a graph.
A1.2.1.1.3	Identify the domain or range of a relation (may be presented as ordered pairs, a graph, or a table).
A1.2.1.2.1	Create, interpret and/or use the equation, graph or table of a linear function.

PA Standard: 2.6.11 Statistics and Data Analysis
2.7.11 Probability and Predictions

	Performance Indicators
M11.E.3.1.2	Find, convert and/or compare the probability and/or odds of a simple event.
M11.E.3.2.1	Determine the number of permutations and/or combinations or apply the fundamental counting principle. (Formula provided on the reference sheet).
M11.E.2.1.1	Calculate or select the appropriate measure of central tendency (mean, mode or median) of a set of data given or represented on a table, line plot or stem-and-leaf plot.
A1.2.3.1.1	Calculate and/or interpret the range, quartiles and interquartile range of data.
M11.E.4.1.2	Use probability to predict outcomes.
A1.2.3.2.1	Estimate or calculate to make predictions based on a circle, line, bar graph, measures of central tendency, or other representations.

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 and Summative Assessments: The teacher will develop and use standards-based assessments throughout the course.

Suggested Assessments (but not limited to):

Observations
Evaluate written work
Performance assessment
Tests
Quizzes
Evaluate oral response
Self-evaluation
Cooperative Learning
Homework
Classroom Diagnostic Tool

Portfolio Assessment: _____ Yes X No

District-wide Final Examination Required: X Yes _____ No

Course Challenge Assessment (Describe):
Not applicable

REQUIRED COURSE SEQUENCE AND TIMELINE

(Content must be tied to objectives)

Content Sequence	Dates
I. Variables, Functions, Patterns, Graphs	August/September
II. Properties of Real Numbers	October
III. Solving Linear Equations (simple absolute value)	November
IV. Graphs and Functions (direct and inverse)	December
V. Linear Equations: Forms and Graphs	January
VI. Solving and Graphing Linear Inequalities	February
VII. Exponents and Exponential Functions	March
VIII. Polynomials	April
IX. Probability and Statistics	May/June

Objectives:

Students will:

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

WRITING TEAM: WCSD Math Teachers

WCSD STUDENT DATA SYSTEM INFORMATION

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