

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Algebra IA
Course Number: 00225
Course Prerequisites: This course is designed for the student who has completed Pre-Algebra 8 but did not earn higher than 75%.

Course Description: Algebra IA is the first of the two-year Algebra course sequence. The recommended high school math sequence to graduate would be successful completion of Algebra IA, Algebra IB, and Geometry. Algebra IA uses practical problems to apply theory and connect algebra to the real world. This course includes a study of numbers and operations, algebraic concepts, equations, inequalities, linear functions, and probability. The Keystone Algebra Exam will be taken after completion of Algebra IB. District marking period assessments are required.

Suggested Grade Level: Grade 9
Length of Course: Two Semesters
Units of Credit: 1

PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:
CSPG #50 Mathematics (7-12), CSPG #53 Middle School Mathematics (6-9)

To find the CSPG information, go to [CSPG](#)

Certification verified by the WCSD Human Resources Department: Yes No

WCSD STUDENT DATA SYSTEM INFORMATION

Course Level: Academic
Mark Types: Check all that apply.
F – Final Average MP – Marking Period EXM – Final Exam

GPA Type: GPAEL-GPA Elementary GPAML-GPA for Middle Level NHS-National Honor Society
 UGPA-Non-Weighted Grade Point Average GPA-Weighted Grade Point Average

State Course Code: 02053

To find the State Course Code, go to [State Course Code](#), download the Excel file for SCED, click on SCED 6.0 tab, and choose the correct code that corresponds with the course.

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TEXTBOOKS AND SUPPLEMENTAL MATERIALS

Board Approved Textbooks, Software, and Materials:

Title: *enVision Algebra 1*
Publisher: SAVVAS Learning Company LLC
ISBN #: 978-0-328-93154-5
Copyright Date: 2018
WCSD Board Approval Date: 6/28/2020

Supplemental Materials: Kuta Software, Get More Math, SAS pdesas.org, Brainfuse, IXL, Calculator: TI-30XIIS, Online Calculator: Desmos

Curriculum Document

WCSD Board Approval:

Date Finalized: 5/23/2022
Date Approved: 6/13/2022
Date(s) Revised: 6/12/2023
Implementation Year: 2022-2023

SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

SCOPE AND SEQUENCE OF CONTENT, AND CONCEPTS

Marking Period 1: Probability, Expressions, and Equations

- Probability: Simple, Compound
- Operations of Real Numbers
- Review: Expressions: Write, Evaluate, Simplify
- Equations: Two-Step, Multi-Step, Variables on Both Sides
- **Marking Period 1 Review and Assessment**

Marking Period 2: Equations, Inequalities, and Absolute Value

- Equations: Proportions, Proofs/Justifications
- Inequalities
- Compound Inequalities
- Absolute Value: Equations, Inequalities
- **Marking Period 2 Review and Assessment**

Marking Period 3: Linear Equations

- Slope-Intercept Form
- Point-Slope Form
- Standard Form
- Parallel and Perpendicular Lines
- **Marking Period 3 Review and Assessment**

Marking Period 4: Linear Functions and Polynomials

- Relations and Functions
- Linear Functions
- Patterns
- Scatter Plots and Lines of Best Fit
- Analysis of the Lines of Best Fit
- Polynomials: Classification and Standard Form
- Polynomials: Addition and Subtraction
- Polynomials: Multiplication (No larger than first degree FOIL of binomials)
- **Marking Period 4 Review and Assessment**

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PLANNED INSTRUCTION

Standards/Eligible Content and Skills

Performance Indicator	PA Core Standard and/or Eligible Content	Marking Period Taught
Compute the theoretical probability of a single event to model real-world and mathematical problems	A1.2.3.3 M07.D-S.3.2.2	MP1
Compute the experimental probability of a single event to model real-world and mathematical problems	A1.2.3.3 M07.D-S.3.2.2	MP1
Find probabilities for compound events to model real-world and mathematical problems (e.g., find probability of red and blue, find probability of red or blue)	A1.2.3.3.1	MP1
Represent probability as a fraction, decimal, and/or percent	A1.2.3.3.1	MP1
Compare and order real numbers	A1.1.1.1.1	MP1
Classify real numbers	A1.1.1.1.1	MP1
Find and estimate square roots	A1.1.1.1.2 A1.1.1.4.1	MP1
Perform operations of real numbers: Sums, Differences, Products, Quotients	CC.2.1.HS.F.2	MP1
Write algebraic expressions to model word phrases	CC.2.2.HS.D.2	MP1
Evaluate expressions using the order of operations (Include absolute value)	CC.2.2.HS.D.2	MP1
Simplify expressions by combining like terms	CC.2.2.HS.D.2	MP1
Simplify expressions by using the Distributive Property	CC.2.2.HS.D.2	MP1
Verify solutions to equations and inequalities	A1.1.2.1.3 A1.1.3.1.3	MP1
Solve two-step equations in one variable	A1.1.2.1.1	MP1
Solve multi-step equations in one variable	A1.1.2.1.1	MP1
Solve equations with variables on both sides	A1.1.2.1.1	MP1
Understand equations with infinitely many or no solutions	A1.1.2.1.1 A1.1.2.1.3	MP1
Write and solve equations to model real-world and mathematical problems	A1.1.2.1.1 A1.1.2.1.2 A1.1.2.1.3	MP1
Marking Period 1 Review and Assessment		MP1
• Review and demonstrate knowledge of Probability		MP1
• Review and demonstrate knowledge of Expressions		MP1
• Review and demonstrate knowledge of Equations		MP1
Solve proportion equations	A1.1.2.1.1	MP2
Complete a proof to justify a solution method for equations (Fill in missing statements or reasons)	A1.1.2.1.1 A1.1.2.1.3 CC.2.2.HS.D.9	MP2
Write and graph inequalities	A1.1.3.1.1 A1.1.3.1.2	MP2
Identify solutions of inequalities	A1.1.3.1.3	MP2

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Performance Indicator	PA Core Standard and/or Eligible Content	Marking Period Taught
Solve two-step inequalities	A1.1.3.1.1 A1.1.3.1.2	MP2
Solve multi-step inequalities	A1.1.3.1.1 A1.1.3.1.2	MP2
Solve inequalities with variables on both sides	A1.1.3.1.1 A1.1.3.1.2	MP2
Understand inequalities with infinitely many or no solutions	A1.1.3.1.1 A1.1.3.1.3	MP2
Write and solve inequalities to model real-world and mathematical problems	A1.1.3.1.1 A1.1.3.1.3	MP2
Complete a proof to justify a solution method for inequalities (Fill in missing statements or reasons)	A1.1.2.1.2 A1.1.3.1.1 CC.2.2.HS.D.9	MP2
Understand compound inequalities	A1.1.3.1.1 A1.1.3.1.2 A1.1.3.1.3	MP2
Solve a compound inequality involving "OR"	A1.1.3.1.1 A1.1.3.1.2 A1.1.3.1.3	MP2
Solve a compound inequality involving "AND"	A1.1.3.1.1 A1.1.3.1.2 A1.1.3.1.3	MP2
Understand and solve absolute value equations	A1.1.2.1.1 A1.1.2.1.2	MP2
Apply absolute value equations to model and solve real-world and mathematical problems	A1.1.1.4.1 A1.1.2.1.1 A1.1.2.1.3	MP2
Understand and solve absolute value inequalities	AA.1.3.1.1 A1.1.3.1.2	MP2
Apply absolute value inequalities to model and solve real-world and mathematical problems	A1.1.1.4.1 A1.1.3.1.1 A1.1.3.1.2 A1.1.3.1.3	MP2
Marking Period 2 Review and Assessment		MP2
• Review and demonstrate knowledge of Equations		MP2
• Review and demonstrate knowledge of Inequalities		MP2
• Review and demonstrate knowledge of Absolute Value		MP2
Identify patterns and equations that represent linear and non-linear functions	A1.2.1.1.1 A1.2.1.2.1	MP3
Use tables to graph equations of linear and non-linear functions	A1.2.1.1.1 A1.2.1.2.1	MP3
Calculate the slope of a linear relationship	A1.2.1.1.1	MP3

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Performance Indicator	PA Core Standard and/or Eligible Content	Marking Period Taught
Graph linear equations in slope-intercept form	A1.1.2.1 A1.2.1.1.1 A1.2.1.2.1 CC.2.2.HS.D.8 CC.2.2.HS.D.10	MP3
Write a linear equation from a graph	A1.1.2.1.1 A1.2.2.1.3 A1.2.2.1.4	MP3
Write linear equations in slope-intercept form	A1.1.2.1.1 A1.2.1.2.1 A1.2.1.2.2 A1.2.2.1.3	MP3
Write linear equations in slope-intercept form to model real-world and mathematical problems	A1.1.1.4.1 A1.1.2.1.1 A1.2.1.2.1 A1.2.1.2.2 A1.2.2.1.3	MP3
Interpret the slope and y-intercept of linear equations that model real-world and mathematical problems	A1.1.1.4.1 A1.1.2.1.1 A1.2.1.2.1 A1.2.1.2.2 CC.2.2.HS.C.6	MP3
Write linear equations in point-slope form	A1.1.2.1.1 A1.2.1.2.1 A1.2.1.2.2 A1.2.2.1.3	MP3
Graph linear equations in point-slope form	A1.1.2.1 A1.2.1.1 A1.2.1.2.1 CC.2.2.HS.D.8 CC.2.2.H.S.D.10	MP3
Write linear equations in point-slope form to model real-world and mathematical problems	A1.1.1.4.1 A1.1.2.1.1 A1.1.2.1.3 A1.2.1.2.1 A1.2.2.1.1 A1.2.2.1.2 A1.2.2.1.3	MP3
Transform equations from point-slope to slope-intercept form and vice versa	A1.2.1.2.2 CC.2.2.HS.C.2	MP3
Graph an equation in standard form by using intercepts	A1.1.2.1 A1.2.1.1 A1.2.1.2.1 CC.2.2.HS.D.8 CC.2.2.HS.C.5	MP3
Relate standard form to horizontal and vertical lines	CC.2.2.HS.C.2 CC.2.2.HS.C.5	MP3

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Performance Indicator	PA Core Standard and/or Eligible Content	Marking Period Taught
Write linear equations in standard form to model real-world and mathematical problems	A1.1.1.4.1 A1.1.2.1.1 A1.1.2.1.2 A1.1.2.1.3 A1.2.1.2.1 A1.2.2.1.2 A1.2.2.1.3	MP3
Transform equations from standard form to slope-intercept form and vice versa	A1.1.2.1.1 A1.1.2.1.2 A1.2.1.2.2 CC.2.2.HS.C.2	MP3
Determine whether lines are parallel, perpendicular, or neither	A1.2.1.2.1 CC.2.1.HS.F.3 CC.2.2.HS.D.7	MP3
Write equations for parallel and perpendicular lines	A1.1.2.1.1 A1.1.2.1.2 A1.1.2.1.3 A1.2.1.2.1 A1.2.2.1.3 CC.2.2.HS.C.2 CC.2.2.HS.D.7	MP3
Marking Period 3 Review and Assessment		MP3
<ul style="list-style-type: none"> Review and demonstrate knowledge of Linear Equations 		MP3
Identify the domain and range of relations/functions	A1.2.1.1.3	MP4
Analyze and identify reasonable domains and ranges for real-world and mathematical problems	A1.2.1.1.2 A1.2.1.1.3	MP4
Classify domains as discrete or continuous	A1.2.1.1.3	MP4
Classify relations as functions; identify functions as one-to-one or not as one-to-one	A1.2.1.1.2 A1.2.1.1.3	MP4
Identify constraints on a domain	A1.2.1.1.2 A1.2.1.1.3	MP4
Evaluate functions in function notation	A1.1.2.1.1 A1.2.1.2.1 A1.2.1.2.2 CC.2.2.HS.C.1	MP4
Write a linear function rule	A1.1.2.1.1 A1.2.1.2.1 A1.2.1.2.2 CC.2.2.HS.C.1 CC.2.2.HS.C.3	MP4
Write linear functions to model and solve real-world and mathematical problems	A1.1.1.4.1 A1.1.2.1.1 CC.2.2.HS.C.1 CC.2.2.HS.C.3	MP4
Identify patterns within a set of data/sequence	A1.2.1.1.1	MP4

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Performance Indicator	PA Core Standard and/or Eligible Content	Marking Period Taught
Write a linear formula to represent patterns/sequences	A1.1.2.1.1 A1.2.1.1.1	MP4
Represent a pattern graphically	A1.2.1.1.1	MP4
Describe the type of association displayed in scatter plots: Positive, Negative	A1.2.1.1.1 A1.2.1.2.1 A1.2.3.2.2 A1.2.3.2.3 CC.2.2.HS.C.6	MP4
Identify the correlation shown in a scatter plot: Positive, Negative, None	A1.2.1.1.1 A1.2.1.2.1 A1.2.3.2.2 A1.2.3.2.3 CC.2.2.HS.C.6	MP4
Write the equation of a trend line/line of best fit for a scatter plot	A1.2.2.2.1	MP4
Interpret and make predictions with data using the graph and equation of a trend line/line of best fit	A1.1.1.4.1 A1.1.2.1.3 A1.2.1.2.1 A1.2.3.2.2 A1.2.3.2.3 CC.2.2.HS.C.1	MP4
Classify polynomials by their degree and number of terms	CC.2.2.HS.D.1	MP4
Write polynomials in standard form	CC.2.2.HS.D.1	MP4
Add and subtract polynomials	A1.1.1.5.1 CC.2.2.HS.D.3	MP4
Multiply polynomials (No larger than first degree FOIL of binomials)	A1.1.1.5.1 CC.2.2.HS.D.3	MP4
Marking Period 4 Review and Assessment		MP4
<ul style="list-style-type: none"> Review and demonstrate knowledge of Linear Functions 		MP4
<ul style="list-style-type: none"> Review and demonstrate knowledge of Polynomials 		MP4

ASSESSMENTS

PDE Academic Standards, Assessment Anchors, and Eligible Content: The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

Formative Assessments: The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

Effective formative assessments for this course include:

Suggested but not limited to:

- Pre-assessments of prior knowledge (e.g., Entrance cards or KWL chart)
- Bellringers/Problems of the Day (PODs)
- Discussions
- Exit ticket
- Teacher observations/Questioning
- Graphic organizers (e.g., Venn Diagrams, word mapping, webbing, KWL chart, etc.)
- Outlining
- Cooperative learning
- Written work
- Quizzes
- Oral response
- Self-evaluation
- Homework
- Summarizing
- Note-taking

Summative Assessments: The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

Effective summative assessments for this course include:

Suggested but not limited to:

- Performance assessment
- Chapter/unit tests
- Quizzes
- Marking period assessments
- Projects
- Student presentations