

Wilson Area School District Planned Course Guide

Title of planned course: Algebra 1 Part A

Subject Area: Mathematics

Grade Level: 9th

Course Description: This course will include the study of numerical and algebraic expressions, properties of real numbers, solving equations in one variable, an introduction to linear functions and equations, solving multi-step inequalities and compound inequalities, properties of exponents, simplifying radical expressions, and an introduction to polynomials. Multi-step problem solving skills utilizing multiple topics will be practiced. (Course requirements include: tests, quizzes, projects, presentations, notebook, daily homework, and usage of calculators.) It is highly recommended that each student have a four function calculator only, to help perform basic mathematical operations during more complex tasks.

Time/Credit for this Course: One Full Academic Year / 1.0 Credit

Curriculum Writing Committee: Christal Vitko

Curriculum Map

August: Numerical and Algebraic Expressions

September: Numerical and Algebraic Expressions

October: Equations in One Variable

November: Equations in One Variable

December: Introduction to Linear Functions

January: Introduction to Writing Linear Equations

February: Inequalities and Linear Inequalities

March: Exponents and Square Roots

April: Introduction to Polynomials

May: Operations with Polynomials

June: Operations with Polynomials

Wilson Area School District Planned Course Materials

Course Title: Algebra 1 Part A

Textbook: (Reveal) Algebra 1
McGraw Hill © 2020

Supplemental Books: Algebra 1
Holt, McDougal © 2012

Teacher Resources:

- (Reveal) Algebra 1 McGraw Hill © 2020 Assessment Readiness Workbook and Extra Practice Workbooks
- Kuta Software (Pre – Algebra, Algebra I)

Curriculum Scope & Sequence

Planned Course: Algebra 1 Part A

Unit: Numeric and Algebraic Expressions

Time frame: 16 - 18 Blocks

State Standards: CC.2.1.8.E.1, CC.2.1.8.E.4, CC.2.1.HS.F.2, CC.2.2.HS.D.2, CC.2.2.HS.D.10

Anchor(s) or adopted anchor: A1.1.1.1, A1.1.1.3, A1.1.1.5.3, A1.1.2.1.2, A1.1.2.1.3

Essential content/objectives: At end of the unit, students will be able to:

- Evaluate operations with signed numbers
- Write numerical expressions
- Evaluate numerical expressions
- Use the order of operations
- Write algebraic expressions
- Evaluate algebraic expressions
- Identify and apply the properties of equality
- Use descriptive modeling to describe real-world situations

Core Activities: Students will complete/participate in the following:

- Daily warm-ups and exit tickets
- Guided and independent practice
- Pair and group practice with Active Pairing such as Maypole and Nametags
- Think-Write-Pair-Share activities
- Student reflection and vocabulary practice in journals
- Peer teaching
- Using alternate methods to solve problems
- Use, select, and discuss solved problems to analyze algebraic reasoning and strategies
- Movement activities such as Jigsaw, Nametags
- Quiz, Quiz, Trade Activities
- What Can I Say Writing Activity
- Directions for a Friend Activities
- Online activities and investigations
- Spiral Review

Extensions:

- (Online activities via Open Learning (McGraw Hill)): The Four Digits Problem, Toothpick Triangles, Properties of Operations, Mayan Numerals, Making Conjectures about Absolute Value

Remediation:

- (Online activities via Open Learning (McGraw Hill)): Subtract Integers Practice WS, Divide Integers WS, Subtract Rational Numbers WS, Apply Rational Number Operations, Represent Integers
- Study Island
- Peer or teacher tutoring
- Instructional videos

Instructional Methods:

- Explicit Instruction
- Inquiry-based
- Flipped/Hybrid
- Facilitate discussion and group work

Materials & Resources:

- Textbook (Module 1 sections 1 - 5, digital and hard copy)
- McGraw Hill Open Learning online resources
- Calculators
- Worksheets
- Computers
- Journals

Assessments:

- Homework Assignments
- Journal entries
- Projects
- Quizzes
- Tests

Curriculum Scope & Sequence

Planned Course: Algebra 1 Part A

Unit: Equations in One Variable

Time frame: 20 - 22 Blocks

State Standards: CC.2.2.8.B.1, CC.2.2.7.B.3, CC.2.2.HS.D.9, CC.2.2.8.B.3, CC.2.2.HS.D.8, CC.2.2.HS.D.10, CC.2.1.HS.F.3

Anchor(s) or adopted anchor: A1.1.1.3, A1.1.2.1, A1.2.1.1, A1.2.1.2, A1.2.2.1

Essential content/objectives: At end of the unit, students will be able to:

- Write equations to represent relationships
- Interpret equations that represent relationships
- Solve one-step equations by using addition and subtraction
- Solve one-step equations by using multiplication and division
- Solve multi-step equations
- Solve equations with variables on each side
- Solve equations by applying the distributive property
- Solve equations involving absolute value
- Solve proportions
- Solve equations with more than one variable for a specific variable
- Convert units of measure by using dimensional analysis
- Create an equation to model a given situation and solve

Core Activities: Students will complete/participate in the following:

- Daily warm-ups and exit tickets
- Guided and independent practice
- Pair and group practice with Active Pairing such as Maypole and Nametags
- Think-Write-Pair-Share activities
- Student reflection and vocabulary practice in journals
- Peer teaching
- Using alternate methods to solve problems
- Use, select, and discuss solved problems to analyze algebraic reasoning and strategies
- Movement activities such as Jigsaw, Nametags
- Quiz, Quiz, Trade Activities
- What Can I Say Writing Activity

- Directions for a Friend Activities
- Online activities and investigations
- Spiral Review

Extensions:

- (Online activities via Open Learning (McGraw Hill)): Guess the Number, Generalized One-Step Equations, Angles of a Triangle, Finding Unknowns in Identities, Solving Absolute Value Equations with Variables on Both Sides, Scale Models, Dimensional Analysis with Area and Volume

Remediation:

- (Online activities via Open Learning (McGraw Hill)): Write Algebraic Expressions, Divide Rational Numbers, Simplify Algebraic Expressions, Opposites and Absolute Value, Equivalent Ratios and Rates, Write and Solve One-Step Equations
- Study Island
- Peer or teacher tutoring
- Instructional videos

Instructional Methods:

- Explicit Instruction
- Inquiry-based
- Flipped/Hybrid
- Facilitate discussion and group work

Materials & Resources:

- Textbook (Module 2 sections 1 - 7, digital and hard copy)
- McGraw Hill Open Learning online resources
- Calculators
- Worksheets
- Computers
- Journals

Assessments:

- Homework Assignments
- Journal entries
- Projects
- Quizzes
- Tests

Curriculum Scope & Sequence

Planned Course: Algebra 1 Part A

Unit: Introduction to Linear Functions

Time frame: 9 -11 Blocks

State Standards: CC.2.2.HS.D.1, CC.2.2.HS.D.2, CC.2.2.HS.D.7, CC.2.2.HS.D.8, CC.2.2.HS.D.9, CC.2.2.HS.D.10, CC.2.2.HS.C.1, CC.2.2.HS.C.2, CC.2.2.HS.C.3, CC.2.2.HS.C.5, CC.2.2.HS.C.6

Anchor(s) or adopted anchor: A1.1.2.1, A1.2.1.1, A1.2.1.2, A1.2.2.1,

Essential content/objectives: At end of the unit, students will be able to:

- Graph linear equations by using a table
- Graph linear equations by using intercepts
- find rates of change
- determine slope of linear equations
- Write linear equations in slope-intercept form
- Graph linear functions in slope-intercept form
- Write a simple linear equation to model a situation, graph the line, and solve problems using the equation and/or graph.

Core Activities: Students will complete/participate in the following:

- Daily warm-ups and exit tickets
- Guided and independent practice
- Pair and group practice with Active Pairing such as Maypole and Nametags
- Think-Write-Pair-Share activities
- Student reflection and vocabulary practice in journals
- Peer teaching
- Using alternate methods to solve problems
- Use, select, and discuss solved problems to analyze algebraic reasoning and strategies
- Movement activities such as Jigsaw, Nametags, Human Graph
- Quiz, Quiz, Trade Activities
- What Can I Say Writing Activity
- Directions for a Friend Activities
- Online activities and investigations
- Spiral Review

Extensions:

- (Online activities via Open Learning (McGraw Hill)): Graphing Equations in Three Dimensions, Treasure Hunt with Slopes, Pencils of Lines

Remediation:

- (Online activities via Open Learning (McGraw Hill)): Proportional Relationships and Slope, Order of Integer Operations, Slope of a Line
- Study Island
- Peer or teacher tutoring
- Instructional videos

Instructional Methods:

- Explicit Instruction
- Inquiry-based
- Flipped/Hybrid
- Facilitate discussion and group work

Materials & Resources:

- Textbook (Module 4 sections 1 - 3, digital and hard copy)
- McGraw Hill Open Learning online resources
- Calculators
- Worksheets
- Computers
- Journals

Assessments:

- Homework Assignments
- Journal entries
- Projects
- Quizzes
- Tests

Curriculum Scope & Sequence

Planned Course: Algebra 1 Part A

Unit: Introduction to Writing Equations

Time frame: 9 -11 Blocks

State Standards: CC.2.2.HS.D.1, CC.2.2.HS.D.2, CC.2.2.HS.D.7, CC.2.2.HS.D.8, CC.2.2.HS.D.9, CC.2.2.HS.D.10, CC.2.2.HS.C.1, CC.2.2.HS.C.2, CC.2.2.HS.C.3, CC.2.2.HS.C.5, CC.2.2.HS.C.6

Anchor(s) or adopted anchor: A1.1.2.1, A1.2.1.1, A1.2.1.2, A1.2.2.1,

Essential content/objectives: At end of the unit, students will be able to:

- Write linear equations in slope-intercept form when given the slope and the coordinates of a point
- Write linear equations in slope-intercept form when given the coordinates of two points on the line
- Write linear equations in standard form
- Write linear equations in point-slope form

Core Activities: Students will complete/participate in the following:

- Daily warm-ups and exit tickets
- Guided and independent practice
- Pair and group practice with Active Pairing such as Maypole and Nametags
- Think-Write-Pair-Share activities
- Student reflection and vocabulary practice in journals
- Peer teaching
- Using alternate methods to solve problems
- Use, select, and discuss solved problems to analyze algebraic reasoning and strategies
- Movement activities such as Jigsaw, Nametags, Human Graph
- Quiz, Quiz, Trade Activities
- What Can I Say Writing Activity
- Directions for a Friend Activities
- Online activities and investigations
- Spiral Review

Extensions:

- (Online activities via Open Learning (McGraw Hill)): Collinearity, Parallelograms on the Coordinate Plane

Remediation:

- (Online activities via Open Learning (McGraw Hill)): Slope-Intercept Form, Greatest Common Factor
- Study Island
- Peer or teacher tutoring
- Instructional videos

Instructional Methods:

- Explicit Instruction
- Inquiry-based
- Flipped/Hybrid
- Facilitate discussion and group work

Materials & Resources:

- Textbook (Module 5 sections 1 - 2, digital and hard copy)
- McGraw Hill Open Learning online resources
- Calculators
- Worksheets
- Computers
- Journals

Assessments:

- Homework Assignments
- Journal entries
- Projects
- Quizzes
- Tests

Curriculum Scope & Sequence

Planned Course: Algebra 1 Part A

Unit: Introduction to Linear Inequalities

Time frame: 9 -11 Blocks

State Standards: CC.2.2.HS.D.7, CC.2.2.HS.D.10, CC.2.2.HS.C.1, CC.2.2.HS.C.2, CC.2.2.HS.C.3, CC.2.2.HS.C.6

Anchor(s) or adopted anchor: A1.1.1.3, A1.1.3.1, A1.2.1.2, A1.2.2.1

Essential content/objectives: At end of the unit, students will be able to:

- Graph linear inequalities
- Solve one-step linear inequalities using addition and subtraction
- Solve one-step linear inequalities using multiplication and division
- Solve multi-step linear inequalities
- Solve compound linear inequalities

Core Activities: Students will complete/participate in the following:

- Daily warm-ups and exit tickets
- Guided and independent practice
- Pair and group practice with Active Pairing such as Maypole and Nametags
- Think-Write-Pair-Share activities
- Student reflection and vocabulary practice in journals
- Peer teaching
- Using alternate methods to solve problems
- Use, select, and discuss solved problems to analyze algebraic reasoning and strategies
- Movement activities such as Jigsaw, Nametags
- Quiz, Quiz, Trade Activities
- What Can I Say Writing Activity
- Directions for a Friend Activities
- Online activities and investigations
- Spiral Review

Extensions:

- (Online activities via Open Learning (McGraw Hill)): Triangle Inequalities, Graphing Linear Equations to Solve Multi-Step Inequalities, Precision of Measurement

Remediation:

- (Online activities via Open Learning (McGraw Hill)): Write and Solve One-Step Equations, Solve Two-Step Equations: $px + q = r$, Represent Integers
- Study Island
- Peer or teacher tutoring
- Instructional videos

Instructional Methods:

- Explicit Instruction
- Inquiry-based
- Flipped/Hybrid
- Facilitate discussion and group work

Materials & Resources:

- Textbook (Module 6 sections 1 - 3, digital and hard copy)
- McGraw Hill Open Learning online resources
- Calculators
- Worksheets
- Computers
- Journals

Assessments:

- Homework Assignments
- Journal entries
- Projects
- Quizzes
- Tests

Curriculum Scope & Sequence

Planned Course: Algebra 1 Part A

Unit: Exponents and Roots

Time frame: 9 -11 Blocks

State Standards: CC.2.1.HS.F.1, CC.2.1.HS.F.2, CC.2.2.HS.D.9, CC.2.2.HS.D.10

Anchor(s) or adopted anchor: A1.1.1.1, A1.1.1.3

Essential content/objectives: At end of the unit, students will be able to:

- Use the Product of Powers Property
- Use the Power of a Power Property
- Use the Power of a Product Property
- Use the Quotient of Powers Property
- Use the Power of a Quotient Property
- Simplify expressions with zero exponents
- Simplify expressions with negative exponents
- Simplify radical expressions

Core Activities: Students will complete/participate in the following:

- Daily warm-ups and exit tickets
- Guided and independent practice
- Pair and group practice with Active Pairing such as Maypole and Nametags
- Think-Write-Pair-Share activities
- Student reflection and vocabulary practice in journals
- Peer teaching
- Using alternate methods to solve problems
- Use, select, and discuss solved problems to analyze algebraic reasoning and strategies
- Movement activities such as Jigsaw, Nametags
- Quiz, Quiz, Trade Activities
- What Can I Say Writing Activity
- Directions for a Friend Activities
- Online activities and investigations
- Spiral Review

Extensions:

- (Online activities via Open Learning (McGraw Hill)): Binary Numbers, Order of Magnitude, Patterns with Powers, The Wheel of Theodorus

Remediation:

- (Online activities via Open Learning (McGraw Hill)): Powers and Exponents, Multiply and Divide Monomials, Subtract Integers, Roots
- Study Island
- Peer or teacher tutoring
- Instructional videos

Instructional Methods:

- Explicit Instruction
- Inquiry-based
- Flipped/Hybrid
- Facilitate discussion and group work

Materials & Resources:

- Textbook (Module 8 sections 1 - 3, and 5, digital and hard copy)
- McGraw Hill Open Learning online resources
- Calculators
- Worksheets
- Computers
- Journals

Assessments:

- Homework Assignments
- Journal entries
- Projects
- Quizzes
- Tests

Curriculum Scope & Sequence

Planned Course: Algebra 1 Part A

Unit: Introduction to Polynomials

Time frame: 8 -10 Blocks

State Standards: CC.2.1.HS.F.2, CC.2.2.HS.D.1, CC.2.2.HS.D.2, CC.2.2.HS.D.3, CC.2.2.HS.D.5

Anchor(s) or adopted anchor: A1.1.1.2, A1.1.1.3, A1.1.1.5

Essential content/objectives: At end of the unit, students will be able to:

- Write polynomials in standard form
- Add and subtract polynomials
- Multiply polynomials by a monomial
- Solve equations with polynomial expressions
- Multiply binomials

Core Activities: Students will complete/participate in the following:

- Daily warm-ups and exit tickets
- Guided and independent practice
- Pair and group practice with Active Pairing such as Maypole and Nametags
- Think-Write-Pair-Share activities
- Student reflection and vocabulary practice in journals
- Peer teaching
- Using alternate methods to solve problems
- Use, select, and discuss solved problems to analyze algebraic reasoning and strategies
- Movement activities such as Jigsaw, Nametags
- Quiz, Quiz, Trade Activities
- What Can I Say Writing Activity
- Directions for a Friend Activities
- Online activities and investigations
- Spiral Review

Extensions:

- (Online activities via Open Learning (McGraw Hill)): Circular Areas and Volumes, Figurate Numbers, Pascal's Triangle

Remediation:

- (Online activities via Open Learning (McGraw Hill)): Powers and Exponents, Adding and Subtracting Polynomials, Multiplying a Polynomial by a Monomial
- Study Island
- Peer or teacher tutoring
- Instructional videos

Instructional Methods:

- Explicit Instruction
- Inquiry-based
- Flipped/Hybrid
- Facilitate discussion and group work

Materials & Resources:

- Textbook (Module 10 sections 1 - 3, digital and hard copy)
- McGraw Hill Open Learning online resources
- Calculators
- Worksheets
- Computers
- Journals

Assessments:

- Homework Assignments
- Journal entries
- Projects
- Quizzes
- Tests