

# **PLANNED INSTRUCTION**

**A PLANNED COURSE FOR:**

**Concepts of Algebra 1**

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**Curriculum writing committee:  
Laurie Oszczepinski**

**Grade Level: 9/10/11**

**Date of Board Approval: \_\_\_\_\_ 2020 \_\_\_\_\_**

## Concepts of Algebra Grading Policy Target Points

### Gradebook Concepts of Algebra 1

	MP 1	MP 2	MP 3	MP4	Total
Tests	200(31%)	300 (41%)	300 (41%)	200 (31%)	1000 (36%)
Quizzes	160(25%)	200 (27%)	200 (27%)	160 (25%)	720 (26%)
Classwork	250(38%)	200 (27%)	200(27%)	250 (38%)	900 (32%)
Participation	40 (6%)	40 (5%)	40 (5%)	40 (6%)	160 (6%)
Total Points	650 (100%)	740 (100%)	740 (100%)	650 (100%)	2780 (100%)

### Curriculum Map

**Time/Credit for the Course:** 2 SEMESTERS, 1 CREDIT: 180 days, meeting 1 period per day

#### Overview:

This academic course provides a strong foundation in algebra for further study in science and mathematics. The course will cover the theoretical aspects of algebra with real world applications. Topics include: Foundations for Algebra, Solving Equations & Inequalities, Systems of Equations & Inequalities, Exponents, Polynomials and Quadratic Functions, Data Analysis and Probability, Linear Functions, Polynomials and Quadratic Functions and Radical and Rational Expressions and Equations.

#### Goals:

1. Students will be able to write and solve equations or inequalities using their understanding of operations with and properties of real numbers.
2. Students will be able to simplify radicals.
3. Students will apply operations and properties skills to solve real-world problems.
4. Students will be able to describe a data set using statistical measures and/or displays.
5. Students will be able to calculate theoretical and experimental probabilities including compound events.
6. Students will be able to represent and describe linear functions in order to model real world situations.
7. Students will use the knowledge of linear functions to solve a system of linear equations algebraically or graphically as well as solve a system of linear inequalities graphically.
8. Students will be able to apply properties of exponents as they multiply and factor polynomials.
9. Students will be able to solve quadratic equations by factoring.
10. Students will be able to simplify and complete operations with radical and rational expressions. Students will be able to solve equations involving radicals.

**Big Idea # 1:**

Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.

**Big Idea #2:**

There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.

**Big Idea #3:**

Bivariate data can be modeled with mathematical functions that approximate the data well and help us make predictions based on the data.

**Big Idea #4:**

Mathematical functions are relationships that assign each member of one set (domain) to a unique member of another set (range), and the relationship is recognizable across representations.

**Big Idea #5:**

Relations and functions are mathematical relationships that can be represented and analyzed using words, tables, graphs, and equations.

**Big Idea #6:**

There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.

**Big Idea #7:**

Relations and functions are mathematical relationships that can be represented and analyzed using words, tables, graphs, and equations.

**Big Idea # 8:**

Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.

**Big Idea #9:**

There are some mathematical relationships that are always true and these relationships are used as the rules of arithmetic and algebra and are useful for writing equivalent forms of expressions and solving equations and inequalities.

**Textbook and Supplemental Resources:**

Name of Textbook: Algebra 1 Common Core

Textbook ISBN #: 978-0-13-318548-5

Textbook Publisher & Year of Publication: Pearson Education, Inc., 2012

Curriculum Textbook is utilized in (title of course): Pre-algebra, Algebra 1, Concepts of Algebra 1

## Curriculum Map

### 1. Unit One - Foundations for Algebra, Solving Equations & Inequalities Overview based on 45 days

- Simplifying numerical expressions using the order of operations
- Constructing and evaluating algebraic expressions
- Classifying, graphing, and comparing real numbers
- Identifying properties of real numbers
- Simplifying radicals and complete operations with radical expressions

### 2. Unit Two - Data Analysis and Probability, Linear Functions Overview based on 45 days:

- Solving equations and inequalities, including absolute value equations and inequalities as well as compound inequalities
- Using measures of central tendency and variability (excluding standard deviation)
- Using theoretical and experimental probabilities, including mutually exclusive and overlapping events as well as independent and dependent events
- Identifying relations and functions

### 3. Unit Three - Systems of Equations & Inequalities, Exponents, Polynomials and Quadratic Functions Overview based on 45 days:

- Exploring linear functions (graphically and algebraically)
- Solving systems of linear equations and inequalities
- Creating and solving real world applications involving linear functions and systems of linear equations and inequalities
- Using properties of exponents (integer values from -10 to 10)

### 4. Unit Four - Polynomials and Quadratic Functions Radical and Rational Expressions and Equations Overview based on 45 days:

- Classifying, adding and subtracting polynomials
- Multiplying polynomials (monomials by binomial, two binomials or a binomial by a trinomial)
- Factoring polynomials including GCF (where  $a=1$ )
- Simplifying and completing operations with rational expressions
- Solving quadratic equations by factoring

## Curriculum Plan

### UNIT 1: Foundations for Algebra, Solving Equations & Inequalities

#### Standards: Pennsylvania Core State Standards for Mathematics

#### Link to Standards in SAS:

<http://static.pdesas.org/content/documents/PA%20Core%20Standards%20Mathematics%20PreK-12%20March%202014.pdf>

**Standards Addressed:** CC.2.1. 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.2.1. HS.F.2, CC.2.1. HS.F.4;

#### Anchors Addressed:

A1.1.1.1 Represent and/or use numbers in equivalent forms (e.g., integers, fractions, decimals, percent, square roots, and exponents).

A1.1.1.2 Apply number theory concepts to show relationships between real numbers in problem solving settings

A1.1.1.3 Use exponents, roots, and/or absolute values to solve problems.

A1.1.1.4 Use estimation strategies in problem-solving situations.

#### Eligible Content:

A1.1.1.1.1 Compare and/or order any real numbers. Note: Rational and irrational may be mixed.

A1.1.1.1.2 Simplify square roots (e.g.,  $\sqrt{24} = 2\sqrt{6}$ ).

A1.1.1.2.1 Find the Greatest Common Factor (GCF) and/or the Least Common Multiple (LCM) for sets of monomials.

A1.1.1.3.1 Simplify/evaluate expressions involving properties/laws of exponents, roots, and/or absolute values to solve problems. Note: Exponents should be integers from  $-10$  to  $10$

A1.1.1.4.1 Use estimation to solve problems.

A1.1.2.1.1 Write, solve, and/or apply a linear equation (including problem situations).

A1.1.2.1.2 Use and/or identify an algebraic property to justify any step in an equation-solving process.

Note: Linear equations only.

A1.1.2.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear equations only.

#### Objectives:

1. Students will be able to construct algebraic expressions given a word phrase or by identifying a pattern. (DOK – Level Two)
2. Students will be able to evaluate expressions by applying the order of operations which includes grouping symbols and exponents. (DOK – Level Three)
3. Students will be able to classify, graph and compare real numbers which include square roots. (DOK – Level Two)

4. Students will be able to identify and apply properties of real numbers. (DOK – Level Two, DOK – Level Four)
5. Students will be able to calculate the sum, difference, product and quotient of real numbers. (DOK – Level One)
6. Students will be able to use tables, equations and graphs to describe relationships. (DOK – Level Two)
7. Students will be able to solve equations (one-step in one variable, two-step in one variable, multi-step in one variable which includes equations with variables on both sides, identities and equations with no solution, and literal equations). (DOK – Level Three)
8. Students will be able to simplify radicals involving products and quotients. (DOK – Level Two)
9. Students will be able to write, graph, and identify solutions of inequalities. (DOK – Level Two)
10. Students will be able to solve inequalities, compound inequalities, and absolute value equations and inequalities. (DOK – Level Three)
11. Students will be able to create equations and inequalities based on real world situations.

### **Core Activities and Corresponding Instructional Methods:**

1. Expose students' prior knowledge of the real number system, including operations with and properties of real numbers, as well as other pre-algebra skills (simplifying and/or evaluating algebraic expressions).
  - a. Diagnostic assessment, questioning
  - b. Cooperative learning groups
  - c. Direct instruction as needed using Smart Technology and online textbook and resources, manipulatives (such as Algebra Tiles), Venn Diagrams
  - d. Online resource materials (listed below)
2. Expose students' prior knowledge of irrational numbers as well as perfect squares and the inverse relationship between squaring and taking the square root. Introduce simplifying radicals involving products and quotients.
  - a. Diagnostic assessment, questioning
  - b. Cooperative learning groups
  - c. Direct instruction as needed using Smart Technology and online textbook and resources
  - d. Guided practice
3. Build math language/vocabulary.
  - a. Teachers will use appropriate language to identify algebraic terms and processes.
  - b. Writing activities incorporating appropriate math language
4. Develop students' skills in solving equations, inequalities (including absolute value), and compound inequalities.
  - a. Direct instruction using Smart Technology and online textbook and resources.
  - b. Guided practice
  - c. Cooperative learning groups

5. Develop students' ability to solve problems by applying algebraic processes.
  - a. Guided practice
  - b. Cooperative learning groups

**Extensions:**

Percent, Ratio, Proportion - Warm Up

SAT Practice Problems (Question of the Day)

Enrichment Worksheets (Textbook Supplement and Kuta Software)

USA Test preparation for Keystone Algebra 1 Assessment

**UNIT 2: Data Analysis and Probability, Linear Functions**

**Standards: Pennsylvania Core State Standards for Mathematics**

**Standards Addressed:** CC.2.4.HS.B.1, CC.2.4.HS.B.5, CC.2.4.HS.B.6, CC.2.4.HS.B.7, CC.2.4.HS.F.3, CC.2.4.HS.B.2, CC.2.4.HS.B.3, CC.2.2.HS.C.1, CC.2.2.HS.C.2, CC.2.2.HS.C.3, CC.2.2.HS.C.6, CC.2.2.HS.D.7, CC.2.2.HS.D.9, CC.2.2.HS.D.10, CC.2.2.HS.F.4

**Link to Standards in SAS:**

<http://static.pdesas.org/content/documents/PA%20Core%20Standards%20Mathematics%20PreK-12%20March%202014.pdf>

**Anchors Addressed:**

A1.1.2.1 Write, solve, and/or graph linear equations using various methods.

A1.1.3.1 Write, solve, and/or graph linear inequalities using various methods

A1.2.3.1 Use measures of dispersion to describe a set of data.

A1.2.3.2 Use data displays in problem solving settings and/or to make predictions.

A1.2.3.3 Apply probability to practical situations.

A1.2.1.1 Analyze and/or use patterns or relations.

A1.2.1.2 Interpret and/or use linear functions and their equations, graphs, or tables.

**Eligible Content:**

A1.1.2.1.1 Write, solve, and/or apply a linear equation (including problem situations).

A1.1.2.1.2 Use and/or identify an algebraic property to justify any step in an equation-solving process.

Note: Linear equations only

A1.1.3.1.1 Write or solve compound inequalities and/or graph their solution sets on a number line (may include absolute value inequalities).

A1.1.3.1.2 Identify or graph the solution set to a linear inequality on a number line.

A1.1.3.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear inequalities

only

A1.2.3.1.1 Calculate and/or interpret the range, quartiles, and interquartile range of data.

A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation.

A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).

A1.2.3.2.3 Make predictions using the equations or graphs of best-fit lines of scatter plots.

A1.2.3.3.1 Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal, or percent.

A1.2.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically. Summarize, represent, and interpret data on two categorical and quantitative variables.

A1.2.1.1.2 Determine whether 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.

A1.2.1.2.2 Translate from one representation of a linear function to another (i.e., graph, table, and equation).

### **Objectives:**

1. Students will be able to solve inequalities, compound inequalities, and absolute value equations and inequalities. (DOK – Level Three)
2. Students will be able to create equations and inequalities based on real world situations. (DOK - Level Three)
3. Students will be able to make and interpret frequency tables and histograms. (DOK – Level Two)
4. Students will be able to determine the mean, median, mode, and range. (DOK – Level Two)
5. Students will be able to create and interpret box-and-whisker plots as well as find quartiles and percentiles. (DOK – Level Three)
6. Students will be able to determine theoretical and experimental probabilities. (DOK – Level Three)
7. Students will be able to find the probabilities of mutually exclusive and overlapping events as well as independent and dependent events. (DOK – Level Three)
8. Students will be able to represent mathematical relationships using graphs. (DOK – Level Two)
9. Students will be able to identify and represent patterns that describe linear functions. (DOK – Level Two)
10. Students will be able to write equations that represent functions. (DOK – Level Three)
11. Students will be able to determine whether a relation is a function, find the domain and range and use function notation. (DOK – Level Two)
12. Students will be able to use real world situations to create and model functions using trend lines.

### **Core Activities and Corresponding Instructional Methods:**

1. Expose students' prior knowledge of frequency tables, histograms, and measures of central tendency (mean, median and mode) as well as the range of a data set.
  - a. Diagnostic assessment, questioning



- b. Cooperative learning groups
  - c. Direct instruction as needed using Smart Technology and online textbook and resources
  - d. Guided practice
2. Build math language/vocabulary.
- a. Teachers will use appropriate language to discuss data displays and measures of central tendency and variability.
  - b. Writing activities incorporating appropriate math language
3. Develop students' skills in creating and interpreting box-and-whisker plots.
- a. Direct instruction using Smart Technology and online textbook and resources.
  - b. Guided practice
  - c. Cooperative learning groups
4. Develop students' ability to determine theoretical and experimental probabilities, including mutually exclusive and overlapping events as well as independent and dependent events.
- a. Direct instruction using Smart Technology, manipulatives such as dice, cards or marbles, and online textbook and resources.
  - b. Guided practice
  - c. Cooperative learning groups
6. Build math language/vocabulary, specifically *relation, function, domain, range*.
- a. Teachers will use appropriate language to identify concepts as well as function notation.
  - b. Writing activities incorporating appropriate math language

**Extensions:**

Organizing Data using Keystone resources

Samples and Surveys

Direct Variation

Writing Equations of Parallel and Perpendicular Lines

Enrichment Worksheets (Textbook Supplement and Kuta Software)

USA Test Prep – preparation for Keystone Algebra 1 Assessment

Permutations and Combinations

SAT Practice Problems (Question of the Day)

### **UNIT 3: Linear Functions, Systems of Equations & Inequalities, and Exponents**

#### **Standards: Pennsylvania Core State Standards for Mathematics**

#### **Standards Addressed:**

CC.2.1.HS.F.1, CC.2.1.HS.F.2, CC.2.1.HS.F.3, CC.2.1.HS.F.4, CC.2.1.HS.F.5, CC.2.2.HS.D.1, CC.2.2.HS.D.2, CC.2.2.HS.D.3

#### **Link to Standards in SAS:**

<http://static.pdesas.org/content/documents/PA%20Core%20Standards%20Mathematics%20PreK-12%20March%202014.pdf>

#### **Anchors Addressed:**

A1.2.2.1 Describe, compute, and/or use the rate of change (slope) of a line.

A1.2.2.2 Analyze and/or interpret data on a scatter plot.

A1.1.2.1 Write, solve, and/or graph linear equations using various methods.

A1.1.3.1 Write, solve, and/or graph linear inequalities using various methods.

A1.1.2.2 Write, solve, and/or graph systems of linear equations using various methods.

A1.1.3.2 Write, solve, and/or graph systems of linear inequalities using various methods.

#### **Eligible Content:**

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, • two points on the line, or • the slope and a point on the line. Note: Linear equations 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.

A1.2.2.2.1 Draw, identify, find, and/or write an equation for a line of best fit for a scatter plot.

A1.1.2.1.1 Write, solve, and/or apply a linear equation (including problem situations).

A1.1.2.1.2 Use and/or identify an algebraic property to justify any step in an equation-solving process.

Note: Linear equations only.

A1.1.2.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear equations only.

A1.1.3.1.1 Write or solve compound inequalities and/or graph their solution sets on a number line (may include absolute value inequalities)

A1.1.3.1.2 Identify or graph the solution set to a linear inequality on a number line.

A1.1.3.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear inequalities only.

A1.1.2.2.1 Write and/or solve a system of linear equations (including problem situations) using graphing, substitution, and/or elimination. Note: Limit systems to two linear equations.

A1.1.2.2.2 Interpret solutions to problems in the context of the problem situation. Note: Limit systems to two linear equations.

A1.1.3.2.1 Write and/or solve a system of linear inequalities using graphing. Note: Limit systems to two linear inequalities.

A1.1.3.2.2 Interpret solutions to problems in the context of the problem situation. Note: Limit systems to two linear inequalities. Students will use the knowledge of linear functions to solve a system of linear equations algebraically or graphically as well as solve a system of linear inequalities graphically. Students will be able to apply properties of exponents.

### **Objectives:**

1. Students will be able to find rates of change from tables; they will be able to calculate slope. They will also compare the slopes of parallel lines. (DOK – Level Two)
2. Students will be able to write and graph linear functions in slope-intercept form, point-slope form, and standard form. (DOK – Level Two)
3. Students will be able to write an equation of a trend line/line of best fit, as well as use the trend line or line of best fit to make predictions. (DOK – Level Four)
4. Students will be able to solve a system of linear equations by graphing, using substitution, or using the elimination method. (DOK – Level Two)
5. Students will be able to apply their understanding of systems of equations to solve real world problems. (DOK – Level Four)
6. Students will be able to graph linear inequalities in two variables and use linear inequalities to model real world situations. (DOK – Level Three)
7. Students will be able to solve a system of linear inequalities by graphing and modeling real world situations using a system of linear inequalities. (DOK – Level Three)

### **Core Activities and Corresponding Instructional Methods:**

1. Develop students' skills in graphing linear functions and writing equations of lines in slope-intercept form, point-slope form, and standard form, including the line of best fit being sure to incorporate word problems
  - a. Direct instruction using Smart Technology and online textbook and resources.
  - b. Guided practice
  - c. Cooperative learning groups
2. Develop students' skills in solving a system of linear equations both graphically and algebraically as well as a system of linear inequalities (graphically).
  - a. Direct instruction using Smart Technology and online textbook and resources.
  - b. Guided practice
  - c. Cooperative learning groups
3. Develop students' ability to solve real world problems by applying their understanding of linear functions, systems of linear equations and inequalities.
  - a. Guided practice

- b. Cooperative learning groups
4. Expose students' prior knowledge of the coordinate plane and finding slope. Review finding slope of a line using a table of values, graphs and ordered pairs.
    - a. Diagnostic assessment, questioning
    - b. Cooperative learning groups
    - c. Direct instruction as needed using Smart Technology and online textbook and resources
    - d. Guided practice
  
  5. Expose students' prior knowledge of the coordinate plane and plotting points. Review graphing a line using a table of values. Identify and represent patterns that form a line.
    - e. Diagnostic assessment, questioning
    - f. Cooperative learning groups
    - g. Direct instruction as needed using Smart Technology and online textbook and resources
    - h. Guided practice
  
  6. Build math language/vocabulary, specifically *slope, intercepts, equations of lines*
    - a. Teachers will use appropriate language to identify algebraic terms.
    - b. Writing activities incorporating appropriate math language

**Extensions:**

SAT Practice Problems (Question of the Day)

Enrichment Worksheets - emphasizing word problems (Textbook Supplement and Kuta Software)

USA Test Prep – preparation for Keystone Algebra 1 Assessment

## UNIT 4: Polynomials and Quadratic Functions, Radical and Rational Expressions and Equations

### Standards: Pennsylvania Core State Standards for Mathematics

#### Standards Addressed:

CC.2.1.HS.F.1, CC.2.1.HS.F.2, CC.2.2.HS.D.6, CC.2.2.HS.D1, CC.2.2.HS.D2, CC.2.2.HS.D3, CC.2.2.HS.D4, CC.2.2.HS.D5

#### Link to Standards in SAS:

<http://static.pdesas.org/content/documents/PA%20Core%20Standards%20Mathematics%20PreK-12%20March%202014.pdf>

#### Anchors Addressed:

A1.1.1.2 Apply number theory concepts to show relationships between real numbers in problem solving settings.

A1.1.1.3 Use exponents, roots, and/or absolute values to solve problems.

A1.1.1.4 Use estimation strategies in problem-solving situations.

A1.1.1.5 Simplify expressions involving polynomials

#### Eligible Content:

A1.1.1.1.1 Compare and/or order any real numbers. Note: Rational and irrational may be mixed

A1.1.1.2.1 Find the Greatest Common Factor (GCF) and/or the Least Common Multiple (LCM) for sets of monomials.

A1.1.1.3.1 Simplify/evaluate expressions involving properties/laws of exponents, roots, and/or absolute values to solve problems. Note: Exponents should be integers from  $-10$  to  $10$ .

A1.1.1.4.1 Use estimation to solve problems.

A1.1.1.5.1 Add, subtract, and/or multiply polynomial expressions (express answers in simplest form). Note: Nothing larger than a binomial multiplied by a trinomial.

A1.1.1.5.2 Factor algebraic expressions, including difference of squares and trinomials. Note: Trinomials are limited to the form  $ax^2 + bx + c$  where  $a$  is equal to 1 after factoring out all monomial factors.

A1.1.1.5.3 Simplify/reduce a rational algebraic expression.

#### Objectives:

1. Students will be able to simplify expressions involving zero and negative exponents (integer values from  $-10$  to  $0$ ). (DOK – Level Two)
2. Students will understand and apply properties of exponents (integer values from  $-10$  to  $10$  only). (DOK – Level Three)
3. Students will be able to classify, add and subtract polynomials. (DOK – Level Two)
4. Students will be able to multiply monomials and binomials, two binomials or a binomial by a trinomial. (DOK – Level Two)
5. Students will be able to factor trinomials, including those with a GCF. (DOK – Level Two)
6. Students will be able to solve quadratic equations by factoring. (DOK – Level Four)
7. Students will be able to add, subtract, multiply and divide radical expressions. (DOK – Level Two)

8. Students will be able to solve equations involving radicals. (DOK – Level Three)
9. Students will be able to simplify rational expressions. (DOK – Level Two)

### **Core Activities and Corresponding Instructional Methods:**

1. Develop students' ability to factor polynomials, including those with a GCF. Include trinomials where "a" is GCF.
  - a. Direct instruction using Smart Technology and online textbook and resources.
  - b. Guided practice
  - c. Cooperative learning groups
2. Develop students' ability to solve quadratic equations by factoring.
  - a. Direct instruction using Smart Technology and online textbook and resources.
  - b. Guided practice
  - c. Cooperative learning groups
3. Build math language/vocabulary, specifically *monomial*, *binomial*, *trinomial* and *polynomial*.
  - a. Teachers will use appropriate language to identify algebraic terms and processes.
  - b. Writing activities incorporating appropriate math language
7. Expose students' prior knowledge of exponents, specifically in scientific notation. Introduce (or review) zero and negative exponents. Guide students to develop the properties of exponents using the definition of an exponent.
  - a. Diagnostic assessment, questioning
  - b. Cooperative learning groups
  - c. Direct instruction as needed using Smart Technology and online textbook and resources
  - d. Guided practice
8. Develop students' skills in adding and subtracting polynomials followed by multiplying polynomials (two binomials or a binomial by a trinomial).
  - a. Direct instruction using Smart Technology and online textbook and resources.
  - b. Guided practice
  - c. Cooperative learning groups
9. Develop students' ability to solve equations involving radicals.
  - a. Direct instruction using Smart Technology and online textbook and resources.
  - b. Guided practice
  - c. Cooperative learning groups

### **Extensions:**

Factoring  $ax^2 + bx + c$  when  $a > 1$

Factoring by Grouping Solving Quadratic Equations (by Taking the Square Root)

The Quadratic Formula SAT Practice Problems (Question of the Day)

Add/Subtract/Multiply/Divide rational expressions  
Solve rational equations  
Enrichment Worksheets (Textbook Supplement and Kuta Software)  
USA Test Prep – preparation for Keystone Algebra 1 Assessment

**Assessments:**

**Diagnostic:**

Prentice Hall Algebra 1 Support File  
Teacher prepared pre-test/diagnostic test  
Teacher questioning and observation  
Benchmark Assessment - CDT Exam

**Formative:**

Teacher observations, questions, discussions  
Homework  
Teacher prepared assessments (quizzes and chapter tests)

**Summative:**

Common Assessments – Chapters 1 – 12 (Public File)

**Correctives:**

Reteaching and practice worksheets available with textbook  
Practice worksheets generated through Kuta Software  
Online Resources listed below

**Materials and Resources:**

Algebra 1 Common Core by Pearson Education, Inc. (2012)  
Textbook Online Resources  
Teacher Generated Worksheets (Kuta Software)

**Online resources:**

<https://quizizz.com/admin>  
<https://edpuzzle.com/>  
[www.curriculumpathways.com/portal/mobile/algebra1/start.html](http://www.curriculumpathways.com/portal/mobile/algebra1/start.html)  
<https://braingenie.ck12.org>  
<https://www.usatestprep.com/home>  
<https://www.edulastic.com>  
<https://www.formative.com>  
<https://www.quizlet.com>

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