BLACKHORSE PIKE REGIONAL HIGH SCHOOL
HIGHLAND   TIMBER CREEK   TRITON
SPECIAL SERVICES DEPARTMENT

<u>Syllabus - Math Foundations III</u>

<u>Course Content</u>
<u>1ST Marking Period</u>
REVIEW CONCEPTS (students will be given an initial assessment to establish concepts retained and a review will be given to reinforce concepts:
Chapter 3: Solving Linear Equations
Chapter 6: Solving and Graphing Linear Inequalities
Chapter 4: Graphing Linear Equations and Functions
Chapter 5: Writing Linear Equations
Chapter 7: Systems of Equations and Inequalities
Chapter 8: Exponents

<u>2nd Marking Period</u>
Chapter 9: Polynomials and Factoring (Test 9.1 – 9.4)
    9.1 Add and Subtract Polynomials (*MA.9-12.HSA.APR.1*)
    9.2 Multiply Polynomials *(MA.9-12.HSA.APR.1)*
    9.3 Find Special Products of Polynomials *(MA.9-12.HSA.APR.1)*
    9.4 Solve Polynomial Equations in Factored Form *(MA.9-12.HSA.CED.A.1, MA.9-12.HSA.HSF.IF.C.8a)*

Chapter 9: Polynomials and Factoring (Test 9.5 – 9. 8)
    9.5 Factor x^2 + bx + c *(MA.9-12.HSA.CED.A.1, MA.9-12.HSA.REI.B.4, MA.912.HSA.HSF.IF.C.8a)*
    9.6 Factor ax^2 + bx + c *(MA.9-12.HSA.SSE.B.3a, MA.9-12.HSA.CED.A.1, MA.9-12.HSA.REI.B.4a, MA.9-12.HSA.HSF.IF.C.8a)*
    9.7 Factor Special Products *(MA.9-12.HSA.SSE.B.3a, MA.9-12.HSA.APR.A.1, MA.9-12.HSA.CED.A.1, MA.9-12.HSA.REI.B.4a)*
    9.8 Factor Polynomials Completely (*MA.9-12.HSA.SSE.B.3, MA.9-12.HSA.CED.A.1., MA.9-12.HSA.CED.A.2, MA.9-12.HSA.REI.B.4a, MA.9-12.HSA.REI.B.4b)*

Chapter 11: Radicals (Test 11.1 – 11.3)
    11.1 Simplify Radical Expressions *(MA.9-12.HSA.REI.B.4b)*
    11.2 Operations with Radical Expressions: *(MA.9-12.HSA.REI.A.1, MA.9-12.HSA.REI.B.3, MA.9-12.HSA.REI.B.4b)*
    11.3 Solve Radical Equations *(MA.9-12.HSA.REI.B.4b)*

<u>3rd Marking Period</u>
Chapter 10: Quadratic Equations and Functions (Test 10.1 – 10.3)
    10.1 Graph $y = ax^2 + c$ *(MA.9-12.HSA.CED.A.2, MA.9-12.HSA.CED.A.3, MA.9-12.HSA.HSF.IF.B.4, MA.9-12.HSA.HSF.IF.B.5, MA.9-12.HSA.HSF.IF.C.7a, MA.9-12.HSA. HSF.IF.C.7c, MA.9-12.HSA.HSF.BF.B.3)*

    10.2 Graph $y = ax^2 + bx + c$ *(MA.9-12.HSA.CED.A.2, MA.9-12.HSA.CED.A.3, MA.9-12.HSA.HSF.IF.B.4, MA.9-12.HSA.HSF.IF.B.5, MA.9-12.HSA.HSF.IF.C.7a, MA.9-12.HSA. HSF.IF.C.7c, MA.9-12.HSA.HSF.BF.B.3)*
    10.3 Solve Quadratic Equations by Graphing *(MA.9-12.HSA.CED.A.2, MAC.9-12.HSA.CED.A.3, MA.9-12.HSA.REI.D.11, HSA.9-12, HSA.HSF.IF.B.4, MA.9-12.HSA.HSF.IF.C.7a, MA.9-12.HSA.HSF.IF.C.7c, MA.9-12.HSA.HSF.IF.C.8a)*

Chapter 10: Quadratic Equations and Functions (Test 10.4 – 10.8)

Note: In Sections 10.4 – 10.6, all answers must be in simplest form of a radical.

10.4 Use Square Roots to Solve Quadratic Equations *(MA.9-12.HSA.CED.A.1, MA.9-12.HSA.CED.A.2, MA.9-12.HSA.CED.3, MA.9-12.HSA.REI.B.4b, MA.9-12.HSA.REI.D.11)*

10.5 Solve Quadratic Equations by Completing the Square *(MA.9-12.HSA.SSE.B.3a, MA.9-12.HSA.SSE.B.3b, MA.9-12.HSA.CED.A.1, MA.9-12.HSA.HSF.IF.C.8a, MA.9-12.HSA.HSF.BF.B.3, MA.9-12.HSA.REI.B.4a, MA.9-12.HSA.REI.B.4b)*

10.6 Solve Quadratic Equations by the Quadratic Formula *(MA.9-12.HSA.REI.B.4b)*

10.7 Interpret the Discriminant *(MA.9-12.A.REI.B.4)*

10.8 Compare Linear, Exponential, and Quadratic Models *(MA. 9-12.HSA.CED.A.2, MA.9-12.A.CED.A.3, MA.9-12.HSA.HSF.IF.B.4, MA.9-12.HSA.HSF.IF.C.7a, MA.9-12.HSA.HSF.IF.C.7c, MA.9-12.HSA.HSF.IF.C.7e, MA.9-12.HSA.HSF.BF.A.1b, MA.9-12.HSA.HSF.LE.A.1a, MA.9-12.HSA.HSF.LE.A.3, MA.9-12.HSA.HSF.LE.B.5, MA.9-12.HSA.HSS.ID.B.6a)*

4th Marking Period
PARCC REVIEW (Use field test items to practice)

Course Expectations and Skills
- Maintain a binder.
- Participate actively in class discussions and group work.
- Learn by doing, not just watching.
- Learn by both listening and talking. Students will learn as much from classmates' questions, answers, ideas, and mistakes as from their own.
- Work to understand the concepts and ideas in the course, not just learning skills and procedures. Memorizing the steps will not be enough to succeed.
- Expect that there will be concepts that are not grasped immediately. Learn to be persistent in thinking and problem solving.
- Ask questions during discussions, within a group setting, and after school.
- Do homework every day.
- Seek help from your teacher, classmates, or other resources.
- Students will work on ALEKS at least 2 times per week.

Resources

- Algebra I – Prentice Hall Mathematics
- ALEKS – Web-based assessment and learning system.
- Kuta Software
- Boardworks Lessons

Grading Scale

20%	Tests, projects and technology activities
50%	Homework, classwork, ALEKS, and binder
30%	Boardwork, warm-ups and class participation

Common Core Standards Reference

MA.9-12.HSA.APR.1
Perform arithmetic operations on polynomials
1. Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

MA.9-12.HSA.CED.A.1
Create equations that describe numbers or relationships
1. Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*

MA.9-12.HSA.CED.A.2
Create equations that describe numbers or relationships
2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

MA.9-12.HSA.CED.A.3
Create equations that describe numbers or relationships
3. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*

MA.9-12.HSA.REI.A.1
Understand solving equations as a process of reasoning and explain the reasoning
1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

MA.9-12.HSA.REI.B.3
Solve equations and inequalities in one variable
3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

MA.9-12.HSA.REI.B.4a
Solve equations and inequalities in one variable
4. Solve quadratic equations in one variable.

a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form.

MA.9-12.HSA.REI.B.4b
Solve equations and inequalities in one variable
b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.

MA.9-12.HSA.REI.D.11
Represent and solve equations and inequalities graphically
11. Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

MA.9-12.HSA.SSE.B.3
Write expressions in equivalent forms to solve problems
3. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression

MA.9-12.HSA.SSE.B.3a
Write expressions in equivalent forms to solve problems
a. Factor a quadratic expression to reveal the zeroes of the function it defines.

MA.9-12.HSA.SSE.B.3b
Write expressions in equivalent forms to solve problems
b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.

MA.9-12.HSA.HSF.IF.C.8a
8. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

a. Use the process of factoring and completing the square in a quadratic function to show zeroes, extreme values, and symmetry of the graph, and interpret these in terms of a context.

 MA.9-12.HSA.HSF.IF.B.4
Interpret functions that arise in applications in terms of the context
4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*

MA.9-12.HSA.HSF.IF.B.5
Interpret functions that arise in applications in terms of the context
5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*

MA.9-12.HSA.HSF.IF.C.7a
Analyze functions using different representations
7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

a. Graph linear and quadratic functions and show intercepts, maxima, and minima.

MA.9-12.HSA.HSF.IF.C.7b
Analyze functions using different representations
7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

MA.9-12.HSA.HSF.IF.C.7c
Analyze functions using different representations
7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

c. Graph polynomial functions, identifying zeroes when suitable factorizations are available, and showing end behavior.

MA.9-12.HSA.HSF.IF.C.7e
Analyze functions using different representations
7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.

MA.9-12.HSA.HSF.LE.A.1a
Construct and compare linear, quadratic, and exponential models and solve problems
1. Distinguish between situations that can be modeled with linear functions and with exponential functions.

a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.

MA.9-12.HSA.HSF.LE.A.3
Construct and compare linear, quadratic, and exponential models and solve problems
3. Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

MA.9-12.HSA.HSF.LE.B.5
Interpret expressions for functions in terms of the situation they model
5. Interpret the parameters in a linear or exponential function in terms of a context.

MA.9-12.HSA.HSF.BF.A.1b
Build a function that models a relationship between two quantities
1. Write a function that describes a relationship between two quantities

b. Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*

MA.9-12.HSA.HSF.BF.B.3
Build new functions from existing functions
3. Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*

Black Horse Pike Regional School District Curriculum

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Course Name: MATH FOUNDATIONS 3

Course Number: 113130

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title:	Unit Summary:
Algebra 1 – Polynomials and Factoring	In this unit, students will identify, classify, add, subtract, and multiply polynomials. When multiplying, students will use the distributive property, FOIL method, tables and patterns (square of a binomial, sums and difference patterns). Students will factor polynomials to solve equations, find zeros of functions and roots of equations.
Grade Level(s):	
9-12	
Essential Question(s):	**Enduring Understanding(s):**
How do you add, subtract, and multiply polynomials? **How do you factor polynomials?** **How do you write and solve polynomial equations?**	Students will be able to: • Add and subtract polynomials. • Multiply polynomials. • Find special products of polynomials. • Factor and solve polynomials in the form $x^2 + bx + c$. • Factor and solve polynomials in the form $ax^2 + bx + c$. • Factor special products.

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES

DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

Learning Target	NJCCCS or CCS
1. Add, subtract and multiply polynomials. [Standard] – *Understand that Polynomials for a system of analogous to the integers, namely, they are closed under operations of addition, subtraction, multiplication; add, subtract, multiply polynomials.*	**1. MA.9-12.HSA.APR.1, MA.9-12.HSA.F.IF.7c, MA.9-12.HSA.A.APR.1**
2. Factor polynomials completely to find roots of equations and zeros of functions. [Standard] *Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.*	**2. MA.9-12.HSA-APR.3**
3. Write and solve polynomials equations to solve problems [Standard] - *Prove polynomial identities and use them to describe numerical relationships.*	**3. MA.9-12.HSA-APR.4**

Inter-Disciplinary Connections:

> **Real-World problem solving examples:**
>
> Baseball attendance (p. 556), school enrollment (p. 559), skateboarding (p. 564), vertical motion (p. 577, 595, 604), banner dimensions (p. 585), area and volume problems (p. 609).

Students will engage with the following text:

> **Prentice Hall Mathematics Algebra 1 2007, by Pearson Education, Inc.**

Students will write:

> **Writing/Open Ended questions:**
>
> Is 6 a polynomial, explain why or why not (p. 557)? Explain how FOIL can help you multiply polynomials (p. 565). Explain how you found the possible gene combinations of a ball python (p. 573). Explain how to use the zero-product property to find solutions to an equation (p. 578). Describe and correct the error in a problem (p.591). Explain how you can use the solutions of an equation to find your answers of a velocity problem (p. 598), Finding dimensions of a terrarium (p. 609).

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

<u>**How**</u> **will students uncover content and build skills.**

Students will uncover and build skills through various classroom activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using SMARTBoard technologies will all be explored. Other learning experiences could include alternative lesson openers, math and history applications, problem solving workshops, interdisciplinary applications and extra examples of problem solving.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 9.1:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Warm-Up: Check the Skills You'll Need p. 494 Starting the Lesson Questions: Activity: Using Polynomials p. 494 Vocabulary Introduction: monomial, degree of a monomial, polynomial, standard form of a polynomial, degree of a polynomial.
Teach	Essential Question: How do you add and subtract polynomials? Alternative Lesson Openers: Classzone, Kuta Software\ I. Describing Polynomials (p. 456-457)

Teaching Options	Example 1: Degree of a Monomial; Example 2: Classifying Polynomials II. Adding and Subtracting Polynomials (p. 458) Example 3: Adding Polynomials; Example 4: Subtracting Polynomials TE: Additional Examples 1-4, pages 495-496 Guided Problem Solving p. 414 All-In-One Student Workbook
Checking for Understanding	Closing the Lesson: TE p. 496 Chapter 9 Grab & Go File: Practice 9-1, Reteaching 9-1, Enrichment 9-1
Practice and Apply **Assigning Homework**	I. Average: Day 1: Exercises #1-20; 42-51 Basic Algebra Exercises: 21-34, 39; 356-38, 40, 41 Extension: 52-55 Chapter 9E-F: Vocabulary and Study Skills p. 433-435 All-in-One Student Workbook.
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Grab and Go File Technology Activities p. 23 All-in one students workbook 9-1 Challenge: Enrichment Grab and Go Chapter 9
Accommodations/Modifications:	Students should create a vocabulary page for their notebook that includes the description and an example. (*Chapter 9-1*) Use vocabulary lesson provided in the shared directory to help students with difficult and new vocabulary. *(Chapter 9-1)* To help the auditory learner with combining like terms, have them use the auditory lesson in the shared directory.*(Chapter 9-1)* *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*Q
Section 9.2:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Homework Check (9.1): TE Warm-Up: Check the Skills You'll Need p. 500
Teach **Teaching Options**	Essential Question: How do we multiply and factor a monomial from a polynomial. Alternative Lesson Openers: Classzone, Kuta Software I. Distributing a Monomial (p. 500) Example 1: Multiplying a Monomial and a Trinomial II. Factoring a Monomial from a Polynomial (p. 501) Example 2: Finding the Greatest Common Factor; Example 3: Factoring out a Monomial. TE: Additional Examples 1-3, p. 501. Guided Problem Solving p. 416 All-In-One Student Workbook
Checking for Understanding	Closing the Lesson: TE Chapter 9 Grab & Go File: Practice 9-2, Reteaching 9-2, Enrichment 9-2
Practice and Apply **Assigning Homework**	I. Average: Day 1: Exercises #1-12, 25; 26-32, Extension: 43 II. Basic Algebra Exercises: 13-24; 33-42 Extension: 52-55
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Grab and Go File All-in one students workbook 9-2 Challenge: Enrichment Grab and Go Chapter 9
Accommodations/Modifications:	Encourage students to represent problems similar to example 6 on p. 565 using a diagram. *(Chapter 9-2)* *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*
Section 9.3:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Homework Check (9.2): TE Warm-Up: Check the Skills You'll Need p. 500 Starting the Lesson Questions: Classzone
Teach **Teaching Options**	Essential Question: How do we multiply and factor a monomial from a polynomial? Alternative Lesson Openers: Classzone, Kuta Software I. Distributing a Monomial (p. 500)

	Example 1: Multiplying a Monomial and Example 2: Finding the Greatest Common Factor; Example 3: Factoring out a Monomial. II. Multiplying a Trinomial and a Binomial (p. 507) Guided Problem Solving p. 418 All-In-One Student Workbook
Checking for Understanding	Closing the Lesson: TE Chapter 9 Grab & Go File: Practice 9-3, Reteaching 9-3, Enrichment 9-3
Practice and Apply **Assigning Homework**	I. Average: Day 1: Exercises #1-21, 30-35, 42-46, Extension: 47-51 II. Basic Algebra Exercises: 22-29, 36-41, Extension 52-58
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Grab and Go File All-in one students workbook 9-3 Challenge: Enrichment Grab and Go Chapter 9
Accommodations/Modifications:	Use algebra tiles or tables to help students understand the sum and difference patterns. *(Chapter 9-3)* *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*
Section 9.4:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Homework Check (9.3): TE Warm-Up: Check the Skills You'll Need p. 500 Starting the Lesson Questions: Activity p. 512

Teach
Teaching Options
	Essential Question: How do we find the square of a binomial?
	Alternative Lesson Openers: Classzone, Kuta Software
	I. Finding the square of a binomial (p. 512-514)
	     Example 1: Squaring a Binomial;
	     Example 2: Real-World Problem Solving
	II. Difference of Squares (p. 514-515)
	     Ex. 4 & 5 Finding the Difference of Squares
	     TE: Additional Examples 1-5, p. 514
	     Guided Problem Solving p. 420 All-In-One Student Workbook

Checking for Understanding	Closing the Lesson: TE Chapter 9 Grab & Go File: Practice 9-4, Reteaching 9-4, Enrichment 9-4
Practice and Apply **Assigning Homework**	I. Average: Day 1: Exercises #1-14, 26-27, 28-40, 42-43; Extension 53-54 II. Basic Algebra Exercises: 15-25; 41, 44-52; Extension: 55-57
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Grab and Go File All-in one students workbook 9-4 Challenge: Enrichment Grab and Go Chapter 9
Accommodations/Modifications:	Have students use Kinesthetic lesson in the shared directory that will help students practice factoring. *(Chapter 9-4)* Have each student write each term as a product of primes and then identify which factors the numbers have in common. *(Chapter 9-4)* *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*
Section 9.5:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Homework Check (9.4): TE Warm-Up: Check the Skills You'll Need p. 519 Starting the Lesson Questions: Activity p. 512

Teach
Teaching Options
	Essential Question: How do we factor trinomials?
	Alternative Lesson Openers: Classzone, Kuta Software
	I. Factoring Trinomials $x^2 + bx + c$ (p. 519-521)
	     Example 1-4: Factoring Trinomials
	     TE: Additional Examples 1-4, p. 520
	     Guided Problem Solving p. 422 All-In-One Student Workbook

Checking for Understanding	Closing the Lesson: TE Chapter 9 Grab & Go File: Practice 9-5, Reteaching 9-5, Enrichment 9-5
Practice and Apply	I. Average: Day 1: Exercises #1-42; Extension: 59-64

Assigning Homework	
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Grab and Go File All-in one students workbook 9-5 Challenge: Enrichment Grab and Go Chapter 9
Accommodations/Modifications:	Make student create a sum and product tables so they can easily identify the factors of the constant that have the appropriate sum. *(Chapter 9-5)* Use the grouping method from the very beginning of all factoring to allow consistency in the process. Students will quickly realize they do not need to group. This will make it much easier to move on to Lesson 9-6. *(Chapter 9-5)* *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*
Section 9.6:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Homework Check (9.5): TE Warm-Up: Check the Skills You'll Need p. 524 Starting the Lesson Questions: *classzone.com*
Teach **Teaching Options**	Essential Question: How do we factor trinomials? Alternative Lesson Openers: Classzone, Kuta Software I. Factoring $ax^2 + bx + c$; Ex. 1-3 TE: Additional Examples 1-3, p. 525 Guided Problem Solving p. 424 All-In-One Student Workbook
Checking for Understanding	Closing the Lesson: TE Chapter 9 Grab & Go File: Practice 9-5, Reteaching 9-6, Enrichment 9-6
Practice and Apply **Assigning Homework**	I. Average: Day 1: Exercises #1-30; 31-41; Extension: 42-47
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Grab and Go File All-in one students workbook 9-5 Challenge: Enrichment Grab and Go Chapter 9
Accommodations/Modifications:	Reduce the changes for frustration by giving students a table with rows that correspond to the number of possibilities for each problem. *(Chapter 9-6)* *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*
Section 9.7:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Homework Check (9.6): TE Warm-Up: Check the Skills You'll Need p. 528 Activity p. 528 Starting the Lesson Questions: *classzone.com*
Teach **Teaching Options**	Essential Question: How do we factor trinomials? Alternative Lesson Openers: Classzone, Kuta Software I. Perfect Square Trinomials (p. 528-529) Examples: 1-2 Factoring a Perfect-Square Trinomial = or not = to 1 II. Factoring the Difference of Squares Examples: 3-5 Factoring a difference of squares = or not = to 1; Factoring out a common factor TE Additional Examples p. 530 Guided Problem Solving p. 426 All-In-One Student Workbook TE: Additional Examples 1-3, p. 525
Checking for Understanding	Closing the Lesson: TE Chapter 9 Grab & Go File: Practice 9-7, Reteaching 9-7, Enrichment 9-7
Practice and Apply **Assigning Homework**	I. Average: Day 1: Exercises #1-12; 37, 46-54. II. Basic Algebra Exercises 13-36; 38-54, 55; Extension: 56-66
Assess and Reteach	Study Guide: Chapter Grab and Go File All-in one students workbook 9-7

	Differentiating Instruction	Challenge: Enrichment Grab and Go Chapter 9
		Make a poster to display on the wall the steps to factoring. *(Chapter 9-7)*
		(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).

PART IV: EVIDENCE OF LEARNING
IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS. IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

The effectiveness of the instructional program will be based on teacher observations, students doing quality of work together, questioning strategies, self and peer assessment, student record-keeping, quizzes, essays, Quizzes, tests, homework, class discussion, individual conferences, journal writing, performance tasks, diagnostic tests, homework, and projects

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols. Provide Graphic organizers to use in solving problems. Provide guided notes/handouts.

Break problems into smaller pieces.

Have students keep and turn in a notebook. Allow students to use calculator.

Review needed skills prior to the lesson.

Provide checklists for solving problems.

(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).

Summative Assessments:

Periodic benchmark tests, chapter tests, state assessments, PSATs, End of Course tests, and SATs

Accommodations/Modifications:

Provide checklists for solving problems.

Allow students to use calculator.

Provide students with a resource page that has number lines drawn and pre-marked for the scale.

Break problems and test sections into smaller pieces

Performance Assessments:

Projects, display of student work, and electronic portfolios

Accommodations/Modifications:

Allow students extra time to complete projects. Provide students with an example of project for reference. Make a clear rubric for students to understand exactly what is expected.

(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).

PART I: UNIT RATIONALE
<u>WHY</u> ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Algebra 1/Quadratic Equations and Functions **Grade Level(s):** 9-12	Unit Summary: **In this unit you will graph quadratic functions and solve quadratic equations. By the end of the unit, you will be able to compare linear, exponential, and quadratic models.**
Essential Question(s): **How do I graph a quadratic function?** **How do I solve a quadratic equation?** **How do I determine if the model represents a linear, exponential, or quadratic function?**	**Enduring Understanding(s):** Students will be able to: • Graph simple quadratic functions $y=ax^2 +c$ • Graph general quadratic functions $y=ax^2 +bx+c$ • Solve Quadratic equations by graphing • Solve Quadratic equations by finding square roots • Solve Quadratic equations by completing the square • Solve Quadratic equations using the quadratic formula • Compare Linear, Exponential, and Quadratic models

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES
DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

Learning Target	NJCCCS or CCS
1. Graph Quadratic Functions *[Standard] - Graph linear and quadratic functions and show intercepts, maxima, and minima.* *[Standard] - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* **2. Solve Quadratic Equations** *[Standard] -Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation.* **3. Compare Linear, Exponential, and Quadratic Models** *[Standard] - Distinguish between situations that can be modeled with linear functions and with exponential functions.* *[Standard] - Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratic ally, or (more generally) as a polynomial function.*	1. *MA.9-12.HSF-IF.7; MA.9-12.HSF-IF.7.a* 2. *MA.12.HSA-REI.4.b* 3. *MA.9-12.HSF-LE.1,3*

Inter-Disciplinary Connections:

Real-World problem solving examples:
Find the effectiveness of Solar Energy (p 631),Find the low point of a suspension bridge cable (p 637), Find how long a shot-put ball has been in air (p 646), Find the amount of time a ball is in the air being dropped from a blimp (p 654), Find the width of the border when painting (p 664), Figure out when a film was produced (p 672), Find the height of a water arc (p 680), Figure out the speed of a cyclist (p 687).

Inter-Disciplinary problem solving examples:
Astronomy (p 633), Spiders (p 639), Soccer (p 648), Internet Usage (p 657), Landscaping (p 667), Advertising (p 675), Biology (p 682), Lizards (p 689).

Students will engage with the following text:

Prentice Hall Mathematics Algebra 1 2007, by Pearson Education, Inc.

Students will write:

Writing/Open Ended questions:
Explain how you can tell if a quadratic graph opens up or down (p 551), Compare two graphs (p 552), Explain why the equation is quadratic or not (p 557), Describe two methods of solving $ax^2 + c = 0$ (p 551-552), Explain why it's a perfect square trinomial (p 580), Explain what methods you use to solve an equation (p 588), Describe how you can tell what kind of function it is (p 597.)

PART III: TRANSFER OF KNOWLEDGE AND SKILLS

DESCRIBE THE LEARNING EXPERIENCE.

How will students uncover content and build skills.

Students will uncover and build skills through various classroom activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using SMARTBoard technologies will all be explored. Other learning experiences could include alternative lesson openers, math and history applications, problem solving workshops, interdisciplinary applications and extra examples of problem solving.

Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 10.1:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Warm up: Check Skills You'll Need (p. 550) Starting the Lesson Activity: Plotting Quadratic Curves (p 550) Vocabulary Introduction: quadratic function, standard from of a quadratic function, quadratic parent function, parabola, axis of symmetry, vertex, minimum, maximum

Teach
 Teaching Options
	Essential Question: How do you graph a quadratic function?
	 Alternative Lesson Openers: Classzone, Kuta Software
	 I. Graphing $y = ax^2$ (p. 550-552)
	     Example 1: Identifying a Vertex
	     Example 2: Graphing $y = ax^2$
	     Example 3: Comparing Widths of Parabolas
	 II. Graphing $y = ax^2 + c$ (p. 552-553)
	     Example 4: Graphing $y = ax^2 + c$
	     Example: 5 Real World Problem Solving
	 TE: Additional Examples 1-5 (p. 551-552)

Checking for Understanding	Closing the Lesson: TE (p. 552) Quick Check Exercises (p 550-553) Chapter 10 Grab and Go File, Re-teaching 10-1, Enrichment 10-1
Practice and Apply **Assigning Homework**	Average: Day 1: p. 553 - Exs. 1–13; 27-20, 34-37, 40-43, 45; Extension 48 Day 2: p 554-555 - Exs. 14-20, 38; 21-26, 31-33, 39, 40; Extension 46-47, 49 All- in-One Student Workbook: Chapter 10 – Practice 10-1 (p 437); Guided Problem Solving (p. 438)
Assess and Reteach	Study Guide: Grab and Go File

Differentiating Instruction	Technology Activities: Classzone.com All-in-One Student Workbook 10-1; Vocabulary Graphic Organizer (p.453) Challenge: Enrichment – Grab and Go Chapter 10
Accommodations/Modifications:	Review new vocabulary words associated with a quadratic function. Make a large poster to display in class. *(Chapter 10-1)* All-in-One Student Workbook: Daily note taking guide (p. 175-177) *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*
Section 10.2:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Warm up: Check Skills You'll Need (p. 557) Homework Check: 10.1 TE Starting the Lesson Activity: Graphing $y = ax^2 + bx + c$ (p 557)

Teach
Teaching Options
	Essential Question: How do you graph a quadratic function?
	Alternative Lesson Openers: Classzone, Kuta Software
	   I. Graphing $y = ax^2 + bx + c$ (p. 557-559)
	       Example 1: Graphing $y = ax^2 + bx + c$
	       Example 2: Real-World Problem Solving
	   II. Graphing Quadratic Inequalities (p. 559)
	TE: Additional Examples (p. 559)
	Activity Lab: Hands-On: Collecting Quadratic Data (p. 564)

Checking for Understanding	Closing the Lesson: TE (p. 559) Quick Check Exercises (p 557-559) Chapter 10 Grab and Go File, Re-teaching 10-2, Enrichment 10-2
Practice and Apply **Assigning Homework**	Average: Day 1: Exs. – 1-16, 35; 23-34, 40-42, Extention 44: Day 2: Exs – 17-22, 36; 37-39; Extension 43,45 All- in-One Student Workbook: Chapter 10 – Practice 10-2 (p 439); Guided Problem Solving (p. 440)
Assess and Reteach **Differentiating Instruction**	Study Guide: Grab and Go File Technology Activities: Classzone.com All-in-One Student Workbook 10-2 Challenge: Enrichment – Grab and Go Chapter 10 Test prep: Exercises 46-49 Mixed Review: Exercises 50-55 TE: Lesson Quiz 10-2
Accommodations/Modifications:	Provide students with a table to help record their information. *(Chapter 10-2)* All-in-One Student Workbook: Daily note taking guide (p. 178-179) *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*
Section 10.3:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Warm-up: Check the Skills You'll Need (p. 565) Homework Check (10.2): TE Starting the Lesson: Solving Quadratic Equations by Graphing (p.565) Vocabulary Introduction: quadratic equation, standard form of a quadratic equation, roots of an equation, zeros of a function

Teach
Teaching Options
	Essential Question: How do you solve a quadratic equation?
	Alternative Lesson Openers: Classzone, Kuta Software
	I. Solve Quadratic Equations by Graphing (p. 565-566)
	     Example 1: Solving by Graphing
	     Example 2: Using Square Roots
	     Example 3: Real-World Problem Solving
	TE: Additional Examples 1-3 (p. 566)

Checking for Understanding	Closing the Lesson: TE (p. 566) Quick Check Exercises (p 566-567) Chapter 10 Grab and Go File, Re-teaching 10-3, Enrichment 10-3
Practice and Apply **Assigning Homework**	Average: Day 1: Exs. – 1-9, 36-38, 40 Day 2: Exs – 10-21, 22-35, 39, 41-42 Extension 43-45 All- in-One Student Workbook: Chapter 10 – Practice 10-3 (p 441); Guided Problem Solving (p. 442)
Assess and Reteach	Study Guide: Grab and Go File

Differentiating Instruction	Technology Activities: Classzone.com All-in-One Student Workbook 10-3 Challenge: Enrichment – Grab and Go Chapter 10 Test prep: Exercises 46-50 Mixed Review: Exercises 51-68 Checkpoint Quiz 1 TE: Lesson Quiz 10-3
Accommodations/Modifications:	Provide coordinate grids that are larger than normal for students. *(Chapter 10-3)* All-in-One Student Workbook: Daily note taking guide (p. 180-181) *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*
Section 10.4:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Warm-up: Check the Skills You'll Need (p. 572) Homework Check (10.3): TE Starting the Lesson: Activity Lab – Finding Roots (p.571) Vocabulary Introduction: zero-product property

Teach
Teaching Options
	Essential Question: How do you solve a quadratic equation by factoring?
	Alternative Lesson Openers: Classzone, Kuta Software
	I. Solve Quadratic Equations (p. 572-573)
	            Example 1: Using the Zero Product Property
	            Example 2: Solving by Factoring
	            Example 3: Solving by Factoring
	            Example 4: Real-World Problem Solving
	TE: Additional Examples 1-4 (p. 573)

Checking for Understanding	Closing the Lesson: TE (p. 573) Quick Check Exercises (p 572-573) Chapter 10 Grab and Go File, Re-teaching 10-4, Enrichment 10-4
Practice and Apply **Assigning Homework**	Average: Day 1: Exs. – 1-25; 26-43; Extension: 44-47 All- in-One Student Workbook: Chapter 10 – Practice 10-4 (p 443); Guided Problem Solving (p. 444)
Assess and Reteach **Differentiating Instruction**	Study Guide: Grab and Go File Technology Activities: Classzone.com All-in-One Student Workbook 10-4 Challenge: Enrichment – Grab and Go Chapter 10 Extension: Systems of Linear and Quadratic Equations (p. 577) Test prep: Exercises 48-53 Mixed Review: Exercises 54-61 TE: Lesson Quiz 10-4
Accommodations/Modifications:	All-in-One Student Workbook: Daily note taking guide (p. 182-183) *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*
Section 10.5:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Warm-up: Check the Skills You'll Need (p. 579) Homework Check (10.4): TE Starting the Lesson: Concept Mapping: Chapter 10 – Quadratic Relationships (p. 578) Vocabulary Introduction: completing the square

Teach
Teaching Options
	Essential Question: How do you solve a quadratic equation by completing the square?
	Alternative Lesson Openers: Classzone, Kuta Software
	I. Solve by Completing the Square (p. 579-581)
	            Example 1: Finding n to Complete the Square
	            Example 2: Solving $x^2 + bx = c$
	            Example 3: Solving $x^2 + bx + c = 0$
	            Example 4: Real-World Problem Solving
	TE: Additional Examples 1-4 (p. 580-581)

Checking for Understanding	Closing the Lesson: TE (p. 581) Quick Check Exercises (p 579-581) Chapter 10 Grab and Go File, Re-teaching 10-5, Enrichment 10-5
Practice and Apply	Average: Day 1: Exs. – 1-34, 36, 37; 35, 38-41; Extension: 42-44

Assigning Homework	All- in-One Student Workbook: Chapter 10 – Practice 10-5 (p 445); Guided Problem Solving (p. 446)
Assess and Reteach **Differentiating Instruction**	Study Guide: Grab and Go File Technology Activities: Classzone.com All-in-One Student Workbook 10-5 • Vocabulary Check (p.457) Challenge: Enrichment – Grab and Go Chapter 10 Test prep: Exercises 45-49 Mixed Review: Exercises 50-70 TE: Lesson Quiz 10-5
Accommodations/Modifications:	A visual model will help students remember how to complete the square. *(Chapter 10-5)* All-in-One Student Workbook: Daily note taking guide (p. 184-185) *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*
Section 10.6:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Warm-up: Check the Skills You'll Need (p. 585) Homework Check (10.5): TE Starting the Lesson: Classzone.com; Use internet for Quadratic Formula Songs Vocabulary Introduction: quadratic formula

Teach
Teaching Options
	Essential Question: How do you use the Quadratic Formula? What is the best method to choose when solving a Quadratic Equation?
	Alternative Lesson Openers: Classzone, Kuta Software
	I. Use the Quadratic Formula (p. 585-587)
	          Example 1: Using the Quadratic Formula
	          Example 2: Finding Approximate Solutions
	          Example 3: Real-World Problem Solving
	II. Choosing an Appropriate Method (p. 587-588)
	          Example 4: Choosing an Appropriate Method
	TE: Additional Examples 1-4 (p. 587)

Checking for Understanding	Closing the Lesson: TE (p. 587) Quick Check Exercises (p 585-587) Chapter 10 Grab and Go File, Re-teaching 10-6, Enrichment 10-6
Practice and Apply **Assigning Homework**	Average: Day 1: Exs. 1-17, 34; 33, 36-38, 40; Extension: 41 Day 2: Exs. 18-23; 24-32, 35, 39; Extension: 42 All- in-One Student Workbook: Chapter 10 – Practice 10-6 (p 447); Guided Problem Solving (p. 448)
Assess and Reteach **Differentiating Instruction**	Study Guide: Grab and Go File Technology Activities: Classzone.com All-in-One Student Workbook 10-6 • Reading/Writing Math Symbols (p.455) Challenge: Enrichment – Grab and Go Chapter 10 Test prep: Exercises 43-46 Mixed Review: Exercises 47-55 TE: Lesson Quiz 10-6 Chapter 10 Review (p.607-609) Chapter 10 Test (p. 610)
Accommodations/Modifications:	Have students make a chart that lists the different methods they have learned for solving quadratic equations (factoring, graphing, finding square roots, completing the square, quadratic formula); For each method, students should write a description and give an example problem and solution. *(Chapter 10-6)* Give students a resource page that has a table drawn for each problem with each step described and room for students to show their work. *(Chapter 10-6)* *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*
Section 10.8	
	COLLEGE PREP
FOCUS AND MOTIVATE	Warm-up: Check the Skills You'll Need (p. 597) Homework Check (10.6): TE Starting the Lesson: Recall graphs for Linear, Quadratic, Exponential Functions (p. 597)

Teach
Teaching Options
	Essential Question: How do you choose an appropriate model – Linear, Quadratic, or Exponential?
	Alternative Lesson Openers: Classzone, Kuta Software
	I. Choosing a Linear, Quadratic, or Exponential Model (p. 597-601)
	           Example 1: Choosing a Model by Graphing
	           Example 2: Modeling Data
	           Example 3: Real-World Problem Solving
	TE: Additional Examples 1-3 (p. 599-600)
	Extension: Cubic Functions (p. 605)	

Check for Understanding	Closing the Lesson: TE (p. 600) Quick Check Exercises (p 597-601) Chapter 10 Grab and Go File, Re-teaching 10-8, Enrichment 10-8	
Practice and Apply **Assigning Homework**	Average: Day 1: Exs. 1-15, 16-27; Extension: 28-29 All- in-One Student Workbook: Chapter 10 – Practice 10-8 (p 451); Guided Problem Solving (p. 452)	
Assess and Re-teach **Differentiating Instruction**	Study Guide: Grab and Go File Technology Activities: Classzone.com All-in-One Student Workbook 10-8 • Visual Vocabulary Practice (p.456) Challenge: Enrichment – Grab and Go Chapter 10 Test prep: Exercises 30-33 Mixed Review: Exercises 34-48	
Accomodations/Modifications:	Give students a resource page or graphic organizer that has examples of the three types of functions. *(Chapter 10-8)* *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*	

PART I: UNIT RATIONALE

<u>WHY</u> ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title:	**Unit Summary**:
Algebra 1/*Radicals and Geometry Connections*	**In this unit you will work with radical functions, expressions, and equations. By the end of this unit, you will be able to apply the Pythagorean theorem and midpoint and distance formulas.**
Grade Level(s): 9-12	

Essential Question(s):
How can you use properties of radicals in expressions and equations?
 	
How can you work with radicals in geometry?
	Enduring Understanding(s):
	 Students will be able to:
	    • Simplify radical expressions
	    • Solve radical equations
	    • Use the Pythagorean theorem and its converse
	    • Use the midpoint and distance formulas

PART II: INSTRUCTIONAL STRATEGIES AND RESOURCES
DESCRIBE THE LEARNING TARGETS.

After each target, identify the NJCCCS or Common Core Standards that are applicable

Learning Target	NJCCCS or CCS
1. Solve equations and inequalities in one variable *[Standard] Solve quadratic equations by inspection (e.g., for x2 = 49), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a ± bi for real numbers a and b.* **2. Understand solving equations as a process of reasoning and explain the reasoning** *[Standard] 1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.* **Solve equations and inequalities in one variable** *[Standard] 3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.* **3. Solve equations and inequalities in one variable** *[Standard] b. Solve quadratic equations by inspection (e.g., for x2 = 49), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a ± bi for real numbers a and b.*	**1.** *MA.9.12.HSA.REI.B.4b* **2.** *MA.9-12.HSA.REI.A.1, MA.9- 12.HSA.REI.B.3, MA.9-12.HSA.REI.B.4b* **3** *(MA.9-12.HSA.REI.B.4b))*

Inter-Disciplinary Connections:

Real-World problem solving examples:
  Find the distance to the horizon (p.722), use scientific formulas to study animals (p.733), examine angles
  in architecture (p. 739), calculate distance traveled (p. 746).

Inter-Disciplinary problem solving examples:
  Astronomy (p 633), Spiders (p 639), Soccer (p 648), Internet Usage (p 657), Landscaping (p 667), Advertising
  (p 675), Biology (p 682), Lizards (p 689).

Students will engage with the following text:

Students will write:

Writing/Open Ended questions:
Explain if an expression is in simplest form (p. 723), explain whether an equation is a radical equation (p. 732), explain whether three numbers represent the side lengths of a right triangle (p. 740), and explain how to find the distance between two points (p. 747

PART III: TRANSFER OF KNOWLEDGE AND SKILLS
DESCRIBE THE LEARNING EXPERIENCE.
<u>How</u> will students uncover content and build skills.

Students will uncover and build skills through various classroom activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using SMARTBoard technologies will all be explored. Other learning experiences could include alternative lesson openers, math and history applications, problem solving workshops, interdisciplinary applications and extra examples of problem solving.
Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 11.1:	
	COLLEGE PREP
FOCUS AND MOTIVATE	Warm-Up: Check the Skills You'll Need p. 616 Vocabulary Introduction: Radical expressions

Teach
Teaching Options
	Essential Question: How do you simplify radicals?
	Alternative Lesson Openers: Classzone, Kuta Software\
	   I. Simplifying Radical Expressions Involving Products (p. 616-617)
	        Example 1: Removing Perfect-Square Factors; Example 2: Removing Variable Factors; Example 3: Multiplying Two Radicals; Example 4: Real World Problem Solving.
	   II. Simplifying Radical Expressions Involving Quotients (p. 618-619)
	        Example 5: Simplifying Fractions Within Radicals; Example 6: Simplifying Radicals by Dividing; Example 7: Rationalizing a Denominator.
	        TE: Additional Examples 1-6, pages 617-618
	        Guided Problem Solving All-In-One Student Workbook

Checking for Understanding	Closing the Lesson: TE p. 618 Chapter 11 Grab & Go File: Practice 11-1, Reteaching 11-1, Enrichment 11-1
Practice and Apply **Assigning Homework**	I. Average: Day 1: Exercises #1-27; 54-58, 69-74 Basic Algebra Exercises: 28-51; 52-53, 59-68; Extension: 77-78
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Grab and Go File Technology Activities p. 23 All-in one students workbook 11-1 Challenge: Enrichment Grab and Go Chapter 11
Accommodations/Modifications:	Have students use factor trees in order to find perfect squares.(Chapter 11-1) Have students practice identifying patterns. (Chapter 11-1)

		(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).
	Section 11.2:	
		COLLEGE PREP
	FOCUS AND MOTIVATE	Warm-Up: Check the Skills You'll Need p. 622 Vocabulary Introduction: radical expression, rationalize, like radicals, conjugates
	Teach Teaching Options	Essential Question: How do you simplify sums, differences, products, and quotients with radicals? Alternative Lesson Openers: Classzone, Kuta Software I. Simplifying Sums and Differences (p. 622) Example 1: Combining Like Radicals ; Example 2: Simplifying to Combine Like Radicals II. Simplifying Products and Quotients (p.623-624) Example 3: Using the Distributive Property; Example 4: Simplifying Using FOIL; Example 5: Rationalizing a Denominator Using Conjugates; Example 6: Real-World Problem Solving TE: Additional Examples 1-6, pages 623-624
	Checking for Understanding	Closing the Lesson: TE Chapter 11 Grab & Go File: Practice 11-2, Reteaching 11-2, Enrichment 11-2
	Practice and Apply Assigning Homework	I. Average Day 1: Exercises #1-15, 48, 49-54, 62-63 II. Basic Algebra Exercises: 16-37,55, 38-47, 56-61 Extension 64-71
	Assess and Reteach Differentiating Instruction	Study Guide: Chapter Grab and Go File Online Active Math: Radical Activity using Interactive Textbook 11-2 All-in-One Student Workbook 11-2 Challenge: Enrichment Grab and Go Chapter 11
	Accommodations/Modifications:	Use the "Think aloud" technique to show students how to simplify a radical expression. (Chapter 11-2) *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*
	Section 11.3:	
		COLLEGE PREP
	FOCUS AND MOTIVATE	Homework Check (11.2): TE Warm-Up: Check the Skills You'll Need p. 629 Vocabulary Introduction: radical equations, extraneous solution
	Teach Teaching Options	Essential Question: How do you solve equations containing radicals and identify extraneous solutions? Alternative Lesson Openers: Classzone, Kuta Software I. Solving Radical Equations (p. 629-630) Example 1: Solving by Isolating the Radical; Example 2: Real-World Problem Solving; Example 3: Solving With Radical Expressions on Both Sides. II. Solving an Equation With Extaneous Solutions (p.631) Example 4: Identifying Extraneous Solutions; Example 5: No Solution TE: Additional Examples 1-5, pages 630-631
	Checking for Understanding	Closing the Lesson: TE Chapter 11 Grab & Go File: Practice 11-3, Reteaching 11-3, Enrichment 11-3
	Practice and Apply Assigning Homework	I. Average Day 1: Exercises #1-14, 29,30,44-46 II. Basic Algebra Exercises: 15-28, 31-43,47 Extension 48-54
	Assess and Reteach Differentiating Instruction	Study Guide: Chapter Grab and Go File All-in-One Student Workbook 11-3 Challenge: Enrichment Grab and Go Chapter 11

	Accommodations/Modifications:	Have students isolate the variable to help them identify the steps. (Chapter 11-3) Have students check their answers on every problem.(Chapter 11-3) *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*

PART IV: EVIDENCE OF LEARNING
IDENTIFY THE METHODS BY WHICH STUDENTS WILL DEMONSTRATE THEIR UNDERSTANDING OF CONTENT AND THEIR ABILITY TO APPLY SKILLS. IDENTIFY BLOOM'S LEVELS.

Formative Assessments:

The effectiveness of the instructional program will be based on teacher observations, students doing quality of work together, questioning strategies, self and peer assessment, student record-keeping, quizzes, essays, journal writing, performance tasks, diagnostic tests, homework, and projects

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.

Provide Graphic organizers to use in solving problems. Provide guided notes/handouts.

Break problems into smaller pieces.

Have students keep and turn in a notebook.

Allow students to use calculator.

Review needed skills prior to the lesson.

Provide checklists for solving problems.

(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).

Summative Assessments:

Periodic benchmark tests, chapter tests, state assessments, PSATs, End of Course tests, and SATs

Accommodations/Modifications:

Provide checklists for solving problems.

Allow students to use calculator.

Provide students with a resource page that has number lines drawn and pre-marked for the scale.

Break problems and test sections into smaller pieces.

Performance Assessments:

Projects, display of student work, and electronic portfolios

Accommodations/Modifications:

Allow students extra time to complete projects. Provide students with an example of project for reference. Make a clear rubric for students to understand exactly what is expected.

(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).