ALGEBRA 1 SYLLABUS

2014-2015 Academic School-Year

1st Marking Period

Chapter 3: Solving Linear Equations (Test 2.1, 2.7, 3.1-3.4)

2.1 Use Intergers and Rational Numbers *(CC.7.NS.A.1, CC.7.NS.A.2)*

**** Focus on classifying the number sets***

2.7 Find Square Roots and Compare Real Numbers *(CC.8.NS.A.1)*

**** Focus on classifying irrational numbers***

3.1 Solve One-Step Equations *(CC.9-12.A.CED.A.1, CC.9-12.A-REI.A.1, CC.9-12.A.REI.B.3)*

3.2 Solve Two-Step Equations *(CC.9-12.A.CED.A.1, CC.9-12.A.REI.B.3)*

3.3 Solve Multi-Step Equations *(CC.9-12.A.CED.A.1, CC.9-12.REI.B.3)*

3.4 Solve Equations with Variables on Both Sides *(CC.9-12.A.CED.A.1, CC.9-12.REI.B.3, CC.9-12.A.REI.D.11)*

Chapter 3: Solving Linear Equations (Test 3.4-3.8)

3.5 Write Ratios and Proportions *(CC.9-12.A.CED.A.1, CC.9-12.A.REI.B.3)*

3.6 Solve Proportions Using Cross Products *(CC.9-12.A.CED.A.1, CC.9-12.A.REI.B.3)*

3.7 Solve Percent Problems *(CC.7.7.RP.A.3)*

***Include 3.7 Extension – Finding Percent of Change**

3.8 Rewrite Equations and Formulas *(CC9-12.N.Q.A.1, CC.9-12.A.CED.A.4, CC.9-12.A.REI.B.3)*

Chapter 6: Solving and Graphing Linear Inequalities (Test 6.1-6.6)

6.1 Solve Inequalities Using Addition and Subtraction *(CC.9-12.A.CED.A.1, CC.9-12.A.CED.A.3, cc.9-12.A.REI.B.3)*

6.2 Solve Inequalities Using Multiplication and Division *(CC.9-12.A.CED.A.1, CC.9-12.A.CED.A.3, cc.9-12.A.REI.B.3)*

6.3 Solve Multi-Step Inequalities *(CC.9-12.A.CED.A.1, CC.9-12.A.CED.A.3, CC.9-12.A.REI.B.3)*

6.4 Solve Compound Inequalities *(CC.9-12.A.CED.A.1, CC.9-12.A.CED.A.3, CC.9-12.A.REI.B.3)*

6.5 Solve Absolute Value Equations*(CC.9-12.A.CED.A.1, CC.9-12.A.CED.A.3)*

6.6 Solve Absolute Value Inequalities *(CC.9-12.A.CED.A.1, CC.9-12.A.CED.A.3)*

Chapter 4: Graphing Linear Equations and Functions (Quiz 4.1-4.3)

4.1 Plot Points in a Coordinate Plane: Include Extension – Perform Transformations *(CC.9-12.F.IF.5, CC.9-12.F.IF.7a)*

4.2 Graph Linear Equations *(CC.9-12.A.CED.2, CC.9-12.A.CED. 3, CC.9-12.A.REI.10, CC.9-12.F.IF.B.5, CC.9-12.F.IF.C.7a)*

Standard Form for a linear equation: $Ax + By = C$; where A, B and C are integers and $A > 0$

4.3 Graph Using Intercepts *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4,CC.9-12.F.IF.B.5, CC.9-12.F.IF.C.7a)*

2nd Marking Period

Chapter 4: Graphing Linear Equations and Functions (Test 4.4-4.7)

4.4 Find Slope and Rate of Change *(CC.9-12.F.IF.B.4, CC.9-12.F.IF.B.6, CC.9-12.S.ID.C.7)*

4.5 Graph Using Slope –Intercept Form *(CC.9-12.A.CED.A.2, CC.9-12. A.CED.A.3, CC.9-12.F.IF.B.5, CC.9-12.F.IF.C.7a)*

4.6 Model Direct Variation *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.6, CC.9-12.F.IF.C.7a)*

4.7 Graph Linear Functions *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.A.1, CC.9-12.F.IF.A.2, CC.9-12.F.IF.B.5, CC.9-12.F.IF.C.7a, CC.9-12.F.BF.B.3)*

Chapter 5: Writing Linear Equations (Test 5.1-5.5)

5.1 Write Linear Equations in Slope-Intercept Form *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.BF.A.1a, CC.9-12.F.LE.A.2, CC.9-12.F.LE.B.5, CC.9-12.S.ID.C.7)*

5.2 Use Linear Equations in Slope-Intercept Form *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.IF.B.6, CC.9-12.F.BF.A.1a, CC.9-12.F.LE.A.2, CC.9-12.F.LE.B.5, CC.9-12.S.ID.C.7)*

5.3 Write Equations in Point-Slope Form *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.IF.B.6, CC.9-12.F.IF.C.7a, CC.9-12.F.BF.A.1a, CC.9-12.F.LE.A.2, CC.9-12.F.LE.B.5, CC.9-12.S.ID.C.7)*

5.4 Write Equations in Standard Form *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.IF.B.5, CC.9-12.F.LE.A.2)*

5.5 Write Equations of Parallel and Perpendicular Lines *(CC.9-12.9-12.F.LE.A.2, CC.9-12.G.GPE.B.5)*

Chapter 7: Systems of Equations and Inequalities (Test 7.1-7.5)

7.1 Solve Linear Systems by Graphing *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.A.REI.C.6)*

7.2 Solve Linear Systems by Substitution *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.A.REI.C.5, CC.9-12.A.REI.C.6)*

7.3 Solve Linear Systems by Adding and Subtracting *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.A.REI.C.6)*

7.4 Solve Linear Systems by Multiplying First *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.A.REI.C.5, CC.9-12.A.REI.C.6)*

7.5 Solve Special Types of Linear Systems *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.A.REI.C.5, CC.9-12.A.REI.C.6)*

Quiz on 6.5, 6.7, 7.6

6.5 Solve Absolute Value Equations and Graph Absolute Value Functions *(CC.9-12.A.CED.A.1, CC.9-12.A.CED.A.3, CC.9-12.F.IF.C.7b)*

***Include 6.5 Extension – Graphing Absolute Value Function**

6.7 Graph Linear Inequalities in two Variables *(CC.9-12.A.CED.A.3, CC.9-12.A.REI.D.12)*

7.6 Solve Systems of Linear Inequalities *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.A.REI.D.12)*

3rd Marking Period

Chapter 8: Exponents (Test 8.1 – 8.6)

8.1 Apply Exponent Properties Involving Products *(CC.8.8.EE.A.1)*

8.2 Apply Exponent Properties Involving Quotients *(CC.8.8.EE.A.1)*

8.3 Define and Use Zero and Negative Exponents *(CC.9-12.A.SSE.B.3c, CC.9-12.N.RN.A.1)*

8.4 Use Scientific Notation *(CC.8.8.EE.A.4)*

8.5 Write and Graph Exponential Growth Functions *(CC.9-12.A.SSE.B.3c , CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4, CC.9-12. F.IF.B.5, CC.9-12.F.IF.C.7e, CC.9-12.F.IF.C.8b, CCC.9-12, F.BF.A.1a, CC.9-12.F.BF.B.3, CC.9-12.F.LE.A.1, CC.9-12.F.LE.A.2, CC.9-12.F.LE.B.5)*

8.6 Write and Graph Exponential Decay Functions *(CC.9-12.A.SSE.B.3c , CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4, CC.9-12. F.IF.B.5, CC.9-12.F.IF.C.7e, CC.9-12.F.IF.C.8b, CCC.9-12, F.BF.A.1a, CC.9-12.F.BF.B.3, CC.9-12.F.LE.A.1, CC.9-12.F.LE.A.2, CC.9-12.F.LE.B.5)*

Chapter 9: Polynomials and Factoring (Test 9.1 – 9.4)

9.1 Add and Subtract Polynomials *(CC.9.12-A.APR.A.1, CC.9-12.F.IF.C.7c)*

9.2 Multiply Polynomials *(CC.9-12.A.APR.A.1)*

9.3 Find Special Products of Polynomials *(CC.9-12.A.APR.A.1)*

9.4 Solve Polynomial Equations in Factored Form *(CC.9-12.A.CED.A.1, CC.9-12.F.IF.C.8a)*

Chapter 9: Polynomials and Factoring (Test 9.5 – 9. 8)

9.5 Factor $x^2 + bx + c$ *(CC.9-12.A.CED.A.1, CC.9-12.A.REI.B.4b, CC.9-12.F.IF.C.8a)*

9.6 Factor $ax^2 + bx + c$ *(CC.9-12.A.SSE.B.3, CCC.9-12.A.CED.A.1, CC.9-12.A.REI.B.4b, CC.9-12.F.IF.C.8a)*

9.7 Factor Special Products *(CC.9-12.A.SSE.B.3, CC.9-12.A.APR.C.4, CC.9-12.A.CED.A.1, CC9-12.A.REI.B.4b)*

9.8 Factor Polynomials Completely *(CC.9-12.A.SSE.B.3, CC.9-12.A.CED.A.1, CC.9-12.A.REI.B.4b)*

4th Marking Period

Chapter 11: Radicals and Geometry Connections (Test 11.1 – 11.5)

11.1 Graph Square Root Functions *(CC.9-12.F.IF.C.7b)*

11.2 Simplify Radical Expressions *(CC.9-12.A.REI.A.2)*

11.3 Solve Radical Equations *(CC.9-12.A.REI.A.2)*

11.4 Apply the Pythagorean Theorem *(CC.9-12.G.SRT.C.8) (Formula Provided)*

11.5 Apply the Distance and Midpoint Formulas *(CC.9-12.G.GPE.B.7) (Formula Provided)*

Chapter 10: Quadratic Equations and Functions (Test 10.1 – 10.3, 10.8)

10.1 Graph $y = ax^2 + c$ *(CC..9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.IF.B.5, CC.9-12.F.IF.C.7a, CC.9-12.F.IF.X.7c, CC.9-12.F.BF.B.3)*

10.2 Graph $y = ax^2 + bx + c$ *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.C.7a, CC.9-12.F.IF.C.7c, CC.9-12.F.BF.B.3)*

10.3 Solve Quadratic Equations by Graphing *(CC.9-12.A.CEDA..2, CC.9-12.A.CED.A.3, CC.9-12.A.REI.D.11, CC.9-12, F.IF.B.4, CC.9-12.F.IF.C.7a, CC.9-12.F.IF.C.7c, CC.9-12.F.IF.C.8a)*

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

Chapter 10: Quadratic Equations and Functions (Test 10.4 – 10.7)

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 *(CC.9-12.A.CED.A.1, CC.9-12, A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.REI.B.4b, CC.9-12.A.REI.D.11)*

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

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

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

Data Analysis Review Packet (Project: Must include standards, *CC.9-12.S.ID.A.1, CC.9-12.S.ID.A.2, CC.9-12.S.ID.A.3, CC.9-12.S.ID.B.5, CC.9-12.S.ID.B.6a, CC.9-12.S.ID.B.6b, CC.9-12.S.ID.B.6c, CC.9-12.S.ID.C.7, CC.9-12.S.ID.C.8, CC.9-12.S.ID.C.9*)

Chapter 5: Writing Linear Equations

5.6 Fit a Line to Data *(CC.9-12.CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-.12.F.IF.B.4, CC.9-12.F.IF.B.6, CC.9-12.F.BF.A.1a, CC.9-12.F.LE.A.2, CC.9-12.F.LE.B.5, CC.9-12.S.ID.B.6a, CC.9-12.S.ID.B.6c, CC.9-12, S.ID.C.7)*

5.7 Predict with Linear Models *(CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.BF.A.1a, CC.9-12.F.LE.A.2, CC.9-12.S.ID.B.6a, CC.9-12,S.ID.B.6c, CC.9-12.S.ID.C.7)*

Chapter 13: Probability and Data Analysis

13.5 Analyze Surveys and Samples *(CC.9-12.S.IC.A.1, CC.9-12.S.IC.B.3, CC.9-12.S.MD.B.6)*

13.6 Use Measures of Central Tendency and Dispersion *(CC.9-12.S.ID.A.2, CC.9-12.S.ID.A.3)*

13.7 Interpret Stem-and-Leaf Plots and Histograms *(CC.9-12.S.ID.A.1, CC.9-12.S.ID.A.2, CC.9-12.S.ID.A.3)*

13.8 Interpret Box-and-Whisker Plots *(CC.9-12.S.ID.A.1, CC.9-12.S.ID.A.2, CC.9-12.S.ID.A.3)*

Course Expectations and Skills

- Students are required to have proficiency in all prerequisite topics for Algebra 1. Those who do not demonstrate proficiency will be required to seek additional help after school to close their achievement gap in order to be successful in this course.
- Students are required to take notes in Cornell Notes format and maintain those notes in a neat and organized notebook.
- Students are required to have a scientific calculator.
- Students are required to participate in both small and large group discussions and activities, as directed.
- Students are required to complete a project each marking period, including those which require the use of technology.

Resources

Text Book:	*Algebra 1*, Holt McDougal
Supplemental Materials:	Algebra 1 Practice Workbook
	Boardworks PowerPoint Lessons
	ALEKS (intervention program for individual students)

Assessment Information

Department of Mathematics - Algebra 1 (2013-2014)

Marking Period 1	**Marking Period 2**	**Marking Period 3**	**Marking Period 4**
Major (MAJ): Summative 30%	Major (MAJ): Summative 30%	Major (MAJ): Summative 30%	Major (MAJ): Summative 30%
Benchmark (BMK): 20%	Benchmark (BMK): 20%	Benchmark (BMK): 20%	Benchmark (BMK): 20%
Project (PRJ): 10%	Project (PRJ): 10%	Project (PRJ): 10%	Project (PRJ): 10%
Minor (MIN): Formative 25%	Minor (MIN): Formative 25%	Minor (MIN): Formative 25%	Minor (MIN): Formative 25%
Class Participation (CP): 5%	Class Participation (CP): 5%	Class Participation (CP): 5%	Class Participation (CP): 5%
Homework (HW): 10%	Homework (HW): 10%	Homework (HW): 10%	Homework (HW): 10%

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Properties of Real Numbers **Grade Level(s):** 9-12	**Unit Summary**: **In this unit, students will learn about the real number system. They will classify, organize and perform calculations with real numbers. Understanding the real number system will allow students to analyze situations and determine valid solutions to real life problems.**
Essential Question(s): • **How do you classify real numbers?**	**Enduring Understanding(s):** Students will be able to: • Classify rational numbers. • Classify real numbers.

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	CCSS
1. Classifying Real Numbers ***CC.7.NS.A.1*** *- [Standard] - Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.* ***CC.7.NS.A.2*** *- [Standard] - Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.*	**1. CC.7.NS.A.1, CC.7.NS.A.2**

Inter-Disciplinary Connections:

Real-World problem solving examples:
Star temperatures (p. 65), Gguitar pitch (p. 69), Soccer (p. 115)

Inter-Disciplinary problem solving examples:
Elevation (p. 69) Star magnitude (p. 70)

Students will engage with the following text:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

Students will write:

Writing/Open Ended questions:
Describe the difference between whole numbers and positive integers (p. 67). For a negative number, is the absolute value positive or negative? Explain (p. 67). Without calculating, how can you tell whether the square root of a whole number is rational or irrational (p. 113). Simplify the square root of x^2 using the definition of square root. Then verify your answer using several values of x that are perfect squares (p. 114).

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 learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

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

Section 2.1:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (1.7): TE p. 46; Answer Transparencies Daily Homework Quiz (1.7): TE p. 48 Warm-Up: TE p. 64 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 65
Teach **Teaching Options**	Essential Question: TE p. 64 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–6: PE pp. 64–67 Extra Examples 1–6 with Key Questions: TE pp. 65–67 Interdisciplinary Application: Chapter Resource Book p. 11 Note taking Guide pp. 23–26
Checking for Understanding	Closing the Lesson: TE p. 67 Guided Practice Exercises: PE pp. 64–67
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 67–70 Exs. 1, 3, 8-13, 17-22, 53, 54, 57-59, 67-75 odd Day 2: pp67-70 Exs 2, 4, 27-39 odd, 40-51, 55, 56, 61-66 Practice Masters: Chapter Resource Book pp. 5–7 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 8-9 Tutorial Software Challenge: Chapter Resource Book p. 12
Accommodations/Modifications:	*(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 2.7:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (2.1): TE p. 71; Answer Transparencies Daily Homework Quiz (2.1): TE p. 72 Warm-Up: TE p. 110 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 111
Teach **Teaching Options**	Essential Question: TE p. 110 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–5: PE pp. 110–113 Extra Examples 1–5 with Key Questions: TE pp. 111–113 Problem Solving Workshop: Mixed Problem Solving: Chapter

	Resource Book p. 78 Note taking Guide pp. 42–44
Checking for Understanding	Closing the Lesson: TE p. 113 Guided Practice Exercises: PE pp. 110–113
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 113–116 Exs. 1, 2, 7-14, 17-23, 47-50, 56-63; Day 2: pp. 113-116 Exs. 24-32 even, 34-45, 51-54, 65-71 odd Practice Masters: Chapter Resource Book pp. 72–74 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 75–76 Tutorial Software Challenge: Chapter Resource Book p. 79
Accommodations/Modifications:	*(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, 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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.
Provide graphic organizers to use in solving problems.
Provide guided notes/handouts.
Provide visual glossaries, blank number lines for use with positive and negative numbers.
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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Display of Student Work, 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).

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<table>
<tr><td>Course/Unit Title:
Solving Linear Equations
Grade Level(s):
9-12</td><td>Unit Summary:
In this unit, students will use properties of equality to solve equations in one variable using properties of numbers and operations. They will also use properties of equality and the distributive property to solve equations with variables on both sides. Students will write ratios and solve proportions and rewrite equations in function form and solve literal equations for a given variable. Knowing how to solve a linear equation can help you solve problems involving distance, rate, and time.</td></tr>
<tr><td>Essential Question(s):
How do you solve equations in one variable?
How do you solve proportion and percent problems?
How do you rewrite equations in two or more variables?</td><td>Enduring Understanding(s):
Students will be able to:
Solve one-step equations using algebra.
Solve two-step equations.
Solve multi-step equations.
Solve equations with variables on both sides of the equation.
Find ratios and write and solve proportions.
Solve proportions using cross-products.
Solve percent problems using a proportion.
Solve percent problems using equations.
Find a percent of change and identify it as an increase or decrease.
Rewrite equations and formulas for specific variables.</td></tr>
</table>

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	CCSS
1. Solving Equations in One Variable ***CC.9-12.A-CED.A.1*** *- [Standard] - Create equations and inequalities in one variable and use them to solve problems.* ***CC.9-12.A-REI.A.1*** *- [Standard] - 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* ***CC.9-12.A-REI.B.3*** *- [Standard] - Solve linear equations and inequalities in one variable,* *including equations with coefficients represented by letters* ***CC.9-12.A-REI.D.11*** *- [Standard] - 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* **2. Solving Proportions and Percent Problems** ***CC.9-12.A-CED.1*** *- [Standard] - Create equations and inequalities in one variable and use them to solve problems.* ***CC.9-12.A-REI.3*** *- [Standard] - Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters* **3. Rewriting Equations in Two or More Variables** ***CC.9-12.N-Q.1*** *- [Standard] - Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.* ***CC.9-12.A-CED.4*** *- [Standard] - Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving* ***CC.9-12.A-REI.3*** *- [Standard] - Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters*	**1. CC.9-12.A-CED.A.1, CC.9-12.A-REI.A.1, CC.9-12.A-REI.B.3, CC.9-12.A-REI.D.11** **2. CC.9-12.A-CED.1, CC.9-12.A-REI.3** **3. CC.9-12.N-Q.1 , CC.9-12.A-CED.4, CC.9-12.A-REI.3**

Inter-Disciplinary Connections:

Real-World problem solving examples:

Finding average speed of a runner (p. 137), crafts (p. 139), scuba diving (p. 143), car sales (p. 155), shopping (p. 183)

Inter-Disciplinary problem solving examples:
Bird migration (p. 139 and p. 150) box jellyfish (p. 139), dance lessons (p. 145), advertising (p. 145), using map scales (p. 170), using surveys to answer percent problems (p. 178), temperature equations (p. 186)

Students will engage with the following text:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

Students will write:

Writing/Open Ended questions:
Explain which property of equality would be needed to solve the equation 14x = 35 (p. 137). Describe the steps you would use to solve 4x+7=15 (p. 144). Explain your reasoning in the following problem: The length of a rectangle is 3.5 inches more than its width. The perimeter is 31 inches. Find the length and the width of the rectangle (p. 151). Explain why the equation 4x+3=4x+1 has no solution (p. 157). Give an example of an equation that has no solution (p. 157). Write a ratio of two quantities in three different ways (p. 165). Is it possible to write a proportion using the numbers 3, 4, 6 and 8? Explain your reasoning (p. 166). Extended response item #54 on page 167. Explain how a scale can be used to find the actual distance between two cities on a map (p. 171). Compare two sale options on an item using proportions (p. 181). Explain how a restaurant server can rewrite the percent equation to make it easier to calculate the percent tip from each table (p. 188 #35).Teacher may also include problem 3, 4 6, 7, and 8 on page 190.

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 learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

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

Section 3.1:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (2.7): TE p. 114; Answer Transparencies Daily Homework Quiz (2.7): TE p. 116 Warm-Up: TE p. 134 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 135
Teach **Teaching Options**	Essential Question: TE p. 134 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–6: PE pp. 134–137 Extra Examples 1–6 with Key Questions: TE pp. 135–137 Interdisciplinary Application: Chapter Resource Book p. 12 Note taking Guide pp. 47–51
Checking for Understanding	Closing the Lesson: TE p. 137 Guided Practice Exercises: PE pp. 135–137
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 137–140 Exs. 1, 2, 8–14 even, 15, 16, 20–28 even, 29, 30, 32–50 even, 54–61, 64–75 even Practice Masters: Chapter Resource Book pp. 6–8 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 9–10 Tutorial Software Challenge: Chapter Resource Book p. 13
Accommodations/Modifications:	A balance scale is a concrete way to help students understand why inverse operations must be applied to both sides of an equation (scales are provided in Smart Board gallery) (Chapter 3.1) *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 3.2:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (3.1): TE p. 138; Answer Transparencies Daily Homework Quiz (3.1): TE p. 140 Warm-Up: TE p. 141 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 142
Teach **Teaching Options**	Essential Question: TE p. 141 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 16 Examples 1–4: PE pp. 141–143 Extra Examples 1–4 with Key Questions: TE pp. 142–143 Math and History Application: Chapter Resource Book p. 23

	Note taking Guide pp. 52–54
Checking for Understanding	Closing the Lesson: TE p. 143 Guided Practice Exercises: PE pp. 141–143
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 144–146 Exs. 1, 2, 6–20 even, 21–26, 30–36, 38–44, 46–60 Practice Masters: Chapter Resource Book pp. 17–19 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 20–21 Tutorial Software Challenge: Chapter Resource Book p. 24
Accommodations/Modifications:	Before writing the equation, have students identify which words represent y and which words represent x. Have students cross of the words and replace with x or y. (Chapter 3.2) *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 3.3:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (3.2): TE p. 144; Answer Transparencies Daily Homework Quiz (3.2): TE p. 146 Warm-Up: TE p. 148 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 149
Teach **Teaching Options**	Essential Question: TE p. 148 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book pp. 27–28 Examples 1–5: PE pp. 148–150 Extra Examples 1–5 with Key Questions: TE pp. 149–150 Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 35 Note taking Guide pp. 55–56
Checking for Understanding	Closing the Lesson: TE p. 150 Guided Practice Exercises: PE pp. 149–150
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 150–153 Exs. 1, 2, 4–10 even, 12–18, 27–32, 35, 45, 46; Day 2: pp. 151–153 Exs. 19–26, 33, 34, 36, 38–42, 49–55 odd Practice Masters: Chapter Resource Book pp. 29–31 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 32–33 Tutorial Software Challenge: Chapter Resource Book p. 36
Accommodations/Modifications:	Have students draw a vertical line down the equal sign every time when solving. (Chapter 3.3) Have students justify each step of solving an equation and explain to another student. (Chapter 3.3) *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 3.4:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (3.3): TE p. 151; Answer Transparencies Daily Homework Quiz (3.3): TE p. 153 Warm-Up: TE p. 154 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson:

	TE p. 155
Teach **Teaching Options**	Essential Question: TE p. 154 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 39 Examples 1–4: PE pp. 154–156 Extra Examples 1–4 with Key Questions: TE pp. 155–156 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 47 Note taking Guide pp. 57–59
Checking for Understanding	Closing the Lesson: TE p. 156 Guided Practice Exercises: PE pp. 155–156
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 157–159 Exs. 1, 2, 7–13 odd, 15–29, 31–43 odd, 44–47, 49–53, 56–64 even Practice Masters: Chapter Resource Book pp. 41–43 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 44–45 Tutorial Software Challenge: Chapter Resource Book p. 49
Accommodations/Modifications:	Have students create a poster with an example and the steps to solving to help with remembering steps. (Chapter 3.4) *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 3.5:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (3.4): TE p. 157; Answer Transparencies Daily Homework Quiz (3.4): TE p. 159 Warm-Up: TE p. 162 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 163
Teach **Teaching Options**	Essential Question: TE p. 162 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–3: PE pp. 162–164 Extra Examples 1–3 with Key Questions: TE pp. 163–164 Problem Solving Workshop: Worked Out Example: Chapter Resource Book p. 58 Note taking Guide pp. 60–62
Checking for Understanding	Closing the Lesson: TE p. 164 Guided Practice Exercises: PE pp. 162–164
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 165–167 Exs. 1, 2, 5, 6, 10–18 even, 19–22, 23–43 odd, 47–54, 56–66 even Practice Masters: Chapter Resource Book pp. 52–54 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 55–56 Tutorial Software Challenge: Chapter Resource Book p. 59
Accommodations/Modifications:	Provide a resource page that contains tables for student to fill in to help with organization, this will help make the transition from words to equations. (Chapter 3.5) *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 3.6:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (3.5): TE p. 165; Answer Transparencies Daily Homework Quiz (3.5): TE p. 167 Warm-Up: TE p. 168 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 169
Teach **Teaching Options**	Essential Question: TE p. 168 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4: PE pp. 168–170 Extra Examples 1–4 with Key Questions: TE pp. 169–170 Real-Life Application: Chapter Resource Book p. 68 Note taking Guide pp. 63–65
Checking for Understanding	Closing the Lesson: TE p. 170 Guided Practice Exercises: PE pp. 169–170
Practice and Apply **Assigning Homework**	Average: Day 1: 171–173 Exs. 1, 2, 4–14 even, 15–18, 19–29 odd, 31–42, 44–54 even Practice Masters: Chapter Resource Book pp. 62–64 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 65–66 Tutorial Software Challenge: Chapter Resource Book p. 69
Accommodations/Modifications:	Have students draw lines to connect the numbers they will multiply to find the cross products. (Chapter 3.6) *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 3.7:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (3.6): TE p. 171; Answer Transparencies Daily Homework Quiz (3.6): TE p. 173 Warm-Up: TE p. 176 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 177
Teach **Teaching Options**	Essential Question: TE p. 176 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–5: PE pp. 176–178 Extra Examples 1–5 with Key Questions: TE pp. 177–178 Interdisciplinary Application: Chapter Resource Book p. 78 Note taking Guide pp. 66–69
Checking for Understanding	Closing the Lesson: TE p. 178 Guided Practice Exercises: PE pp. 176–178
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 179–181 Exs. 1, 2, 3–13 odd, 22, 23, 26–29, 47–52; Day 2: pp. 179–181 Exs. 16, 19–21, 24, 25, 30, 31, 35–39, 41–46 Practice Masters: Chapter Resource Book pp. 72–74 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 75–76 Tutorial Software Challenge: Chapter Resource Book p. 79
Accommodations/Modifications:	Have students create an "English-Algebra dictionary" to help them with the translation. (Chapter 3.7) Have students make a reference sheet for each type of problem, using a highlighter to identify what type of problem it is. (Chapter 3.7)

	(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).

Section 3.8:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (3.7): TE p. 179; Answer Transparencies Daily Homework Quiz (3.7): TE p. 181 Warm-Up: TE p. 184 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 185
Teach **Teaching Options**	Essential Question: TE p. 184 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4: PE pp. 184–186 Extra Examples 1–4 with Key Questions: TE pp. 185–186 Problem Solving Workshop: Mixed Problem Solving: Chapter Resour Book p. 88 Note taking Guide pp. 70–71
Checking for Understanding	Closing the Lesson: TE p. 186 Guided Practice Exercises: PE pp. 184–186
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 187–189 Exs. 1, 2, 4, 6, 8–10, 12–18 even, 20–30 32–36, 38–45 Practice Masters: Chapter Resource Book pp. 82–84 (Levels A, B, or C
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 85–86 Tutorial Software Challenge: Chapter Resource Book p. 89
Accommodations/Modifications:	Have students make the connection with an example of an equation th can solve and compare to a literal equation. (Chapter 3.8) Have students create a chart showing common formulas solved for each variable. (Chapter 3.8) *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, 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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.
Provide graphic organizers to use in solving problems.
Provide guided notes/handouts.
Provide visual glossaries, blank number lines for use with positive and negative numbers.
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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Student Work, 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).

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Solving and Graphing Linear Inequalities **Grade Level(s):** 9-12	**Unit Summary**: **In this unit, students will write, graph and solve one-step and multi-step inequalities using addition, subtraction, multiplication and division. Students will solve and graph compound inequalities using *and* and *or* and will solve and graph absolute value equations and inequalities. Students will also graph linear inequalities in two variables. You can use inequalities to solve problems in sound amplification.**
Essential Question(s): • **How do you apply properties of inequality?** • **How do you use statements with and or or?** • **How do you graph inequalities?**	**Enduring Understanding(s):** Students will be able to: • Solve and graph one-step inequalities using algebra. • Solve and graph two-step inequalities. • Solve and graph multi-step inequalities. • Solve inequalities with variables on both sides of the inequality. • Solve compound inequalities. • Solve absolute value equations. • Solve and graph absolute value inequalities.

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	**CCS**
1. Applying properties of inequalities to solve and graph linear inequalities ***CC.9-12.A-CED.A.1*** *- [Standard] - Create equations and inequalities in one variable and use them to solve problems.* ***CC.9-12.A-CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* ***CC.9-12.A-REI.B.3*** *- [Standard] - Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.* **2. Using *and* and *or* to solve compound inequalities** ***CC.9-12.A-CED.A.1*** *- [Standard] - Create equations and inequalities in one variable and use them to solve problems.* ***CC.9-12.A-CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* **3. Graphing inequalities and absolute value** ***CC.9-12.A-CED.A.1*** *- [Standard] - Create equations and inequalities in one variable and use them to solve problems.* ***CC.9-12.A-CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.*	**1. CC.9-12.A-CED.A.1, CC.9-12.A-CED.A.3, CC.9-12.A-REI.B.3** **2. CC.9-12.A-CED.A.1, CC.9-12.A-CED.A.3** **3. CC.9-12.A-CED.A.1, CC.9-12.A-CED.A.3**

Inter-Disciplinary Connections:

Real-World problem solving examples:
Finding the possible weights in pound of luggage (p. 358), vehicle weights (p. 361), finding possible amounts of money to spend (p. 371), cell phone plans (p. 378)

Inter-Disciplinary problem solving examples:
Business and fundraising (p. 373),business and investing (p. 381), science and temperature (p. 386), physical education and possible air pressure values for basketballs (p. 392)

Students will engage with the following text:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

Students will write:

Writing/Open Ended questions:

Is it possible to check all solutions of an inequality? (p. 360). Wild horses and land requirements (p. 368), How do you know if an inequality has no solution? How do you know if the solution is all real numbers? (p. 372), Habitat for swans in a zoo (p. 373), problems 2, 5, 6, and 7 on page 389

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 learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

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

Section 6.1:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (5.7): TE p. 339; Answer Transparencies Daily Homework Quiz (5.7): TE p. 341 Warm-Up: TE p. 356 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 357
Teach **Teaching Options**	Essential Question: TE p. 356 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 5 Examples 1–5: PE pp. 356–358 Extra Examples 1–5 with Key Questions: TE pp. 357–358 Real-Life Application: Chapter Resource Book p. 15 Note taking Guide pp. 127–129
Checking for Understanding	Closing the Lesson: TE p. 358 Guided Practice Exercises: PE pp. 357–358
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 359–361 Exs. 1–9, 14–28, 31–38, 41, 44, 47, 50 Practice Masters: Chapter Resource Book pp. 9–11 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 12–13 Tutorial Software Challenge: Chapter Resource Book p. 16
Accommodations/Modifications:	As a class, make a list of words and phrases that indicate inequality. For each, write a sentence. Then translate the sentence to algebra. (Chapter 6.1) Have students review how to read an inequality, reading from left to right and that the inequality symbol always points to the smaller quantity. (Chapter 6.1) *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 6.2:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (6.1): TE p. 359; Answer Transparencies Daily Homework Quiz (6.1): TE p. 361 Warm-Up: TE p. 363 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 364
Teach **Teaching Options**	Essential Question: TE p. 363 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–5: PE pp. 363–365 Extra Examples 1–5 with Key Questions: TE pp. 364–365

	Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 28 Note taking Guide pp. 130–133
Checking for Understanding	Closing the Lesson: TE p. 365 Guided Practice Exercises: PE pp. 363–365
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 366–368 Exs. 1, 2, 15–34, 36–41, 44–52 even Practice Masters: Chapter Resource Book pp. 19–24 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 25–26 Tutorial Software Challenge: Chapter Resource Book p. 29
Accommodations/Modifications:	Use patterns to help students understand why the inequality symbol reverses direction when multiplying or dividing by a negative. (Chapter 6.2) Students may have problems deciding when to use < and when to use >. Explain that students can ask themselves whether the number on the "border" is an acceptable answer. (Chapter 6.2) Provide students with blank number lines to graph the inequalities. (Chapter 6.2) Some students will have difficulty translating directly from the statement of a word problem to an algebraic inequality. Have them rewrite the word problem as a simple statement of inequality. Then they can translate the statement to algebra. (Chapter 6.2) *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 6.3:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (6.2): TE p. 366; Answer Transparencies Daily Homework Quiz (6.2): TE p. 368 Warm-Up: TE p. 369 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 370
Teach **Teaching Options**	Essential Question: TE p. 369 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–5: PE pp. 369–371 Extra Examples 1–5 with Key Questions: TE pp. 370–371 Interdisciplinary Application: Chapter Resource Book p. 41 Note taking Guide pp. 134–136
Checking for Understanding	Closing the Lesson: TE p. 371 Guided Practice Exercises: PE pp. 369–371
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 372–374 Exs. 1, 2, 4–14 even, 15, 16, 21–27 odd, 29–34, 37–42, 44, 45–55 odd Practice Masters: Chapter Resource Book pp. 32–37 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 38–39 Tutorial Software Challenge: Chapter Resource Book p. 42
Accommodations/Modifications:	*(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 6.4:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (6.3): TE p. 372; Answer Transparencies Daily Homework Quiz (6.3): TE p. 374 Warm-Up: TE p. 380 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 381
Teach **Teaching Options**	Essential Question: TE p. 380 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–6: PE pp. 380–383

	Extra Examples 1–6 with Key Questions: TE pp. 381–383 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 55 Note taking Guide pp. 137–139
Checking for Understanding	Closing the Lesson: TE p. 383 Guided Practice Exercises: PE pp. 380–383
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 384–387 Exs. 1–8, 23–31, 48, 55; Day 2: pp. 384–387 Exs. 12–22, 32, 33, 39–45, 51–54 Practice Masters: Chapter Resource Book pp. 46–51 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 52–53 Tutorial Software Challenge: Chapter Resource Book p. 57
Accommodations/Modifications:	To help students having difficulty visualizing the graphs of compound Inequalities. Have students complete project in resource file. (Chapter 6.4) *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 6.5:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (6.4): TE p. 384; Answer Transparencies Daily Homework Quiz (6.4): TE p. 387 Warm-Up: TE p. 390 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 391
Teach **Teaching Options**	Essential Question: TE p. 390 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–5: PE pp. 390–392 Extra Examples 1–5 with Key Questions: TE pp. 391–392 Problem Solving Workshop: Worked Out Example: Chapter Resource Book p. 66 Note taking Guide pp. 140–142
Checking for Understanding	Closing the Lesson: TE p. 392 Guided Practice Exercises: PE pp. 390–392
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 393–395 Exs. 1, 2, 6–17, 37–40, 51–53; Day 2: pp. 393–395 Exs. 21–36, 42–49, 54–59 Practice Masters: Chapter Resource Book pp. 60–62 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 63–64 Tutorial Software Challenge: Chapter Resource Book p. 67
Accommodations/Modifications:	*(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 6.6:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (6.5): TE p. 393; Answer Transparencies Daily Homework Quiz (6.5): TE p. 395 Warm-Up: TE p. 398 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 399
Teach **Teaching Options**	Essential Question: TE p. 398 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 70 Examples 1–4: PE pp. 398–400 Extra Examples 1–4 with Key Questions: TE pp. 399–400 Real-Life Application: Chapter Resource Book p. 80 Note taking Guide pp. 143–145
Checking for Understanding	Closing the Lesson: TE p. 400 Guided Practice Exercises: PE pp. 398–400
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 401–403 Exs. 1, 2, 6–20 even, 21–24, 25–31 odd, 35–40, 45–50 Practice Masters: Chapter Resource Book pp. 71–76 (Levels A, B, or C)

Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 77–78 Tutorial Software Challenge: Chapter Resource Book p. 81
Accommodations/Modifications:	Have students memorize the phrase, less than between, greater than beyond. *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, 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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.
Provide graphic organizers to use in solving problems.
Provide guided notes/handouts.
Provide visual glossaries, blank number lines for use with positive and negative numbers.
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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Student Work, 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).

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Graphing Linear Equations and Functions **Grade Level(s):** 9-12	**Unit Summary**: **In this unit students will learn how to plot points in a coordinate plane and use tables, x- and y- intercepts, and the slope and y-intercept to graph linear equations and functions. They will interpret slope as a rate of change in real-world situations and explore how changing the slope and y-intercept changes the graph. They will use slope to identify parallel lines. They will write and graph direct variation equations and use them to solve real-world problems. They will learn how to use function notation and they will compare families of graphs. This will allow students to solve problems involving distance.**
Essential Question(s): • **How do you graph linear equations and functions?** • **How do changes in a linear equation or function affect their graph?** • **How do you use graphs of linear equations and functions to solve real-world problems?**	**Enduring Understanding(s):** Students will be able to: • Identify and plot points in a coordinate plane. • Graph linear equations in a coordinate plane. • Graph linear equations using intercepts. • Find the slope of a line and interpret slope as a rate of change. • Graph linear equations using slope-intercept form. • Write and graph direct variation equations.. • Use function notation.

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	CCSS
1. Graphing Linear Equations and Functions ***CC.9-12.A.CED.A.2*** *- [Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A.CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* ***CC.9-12.A.REI.10*** *- [Standard] - Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).* ***CC.9-12.F.IF.B.5*** *- [Standard] - Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.* ***CC.9-12.F.IF.C.7a*** *- [Standard] - Graph linear and quadratic functions and show intercepts, maxima, and minima.*	**1. CC.9-12.A-CED.A.2, CC.9-12.A-CED.A.3, CC.9-12.A-REI.10, CC.9-12.F.IF.B.5, CC.9-12.F.IF.C.7a** **2. CC.9-12.A-CED.A.2, CC.9-12.A-CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.IF.B.6** **3. CC.9-12.A-CED.A.2, CC.9-12.A-CED.A.3**
2. Recognizing Changes in Linear Equations and Functions and How it Affects their Graphs ***CC.9-12.A.CED.A.2*** *- [Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A.CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* ***CC.9-12.F.IF.B.4*** *- [Standard] - 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.* ***CC.9-12.F.IF.B.6*** *- [Standard] - Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.*	
3. Use Graphs of Linear Equations and Functions to Solve Real-World Problems ***CC.9-12.A.CED.A.2*** *- [Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A.CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.*	

Inter-Disciplinary Connections:

Real-World problem solving examples:
Comparing votes casted using a graph of a function (p 208), Find the distance a runner travels using a graph of a function(p 218), Find the domain and range of a function that represents the time it takes for a submarine to surface(p 228), Describe a student's commute to school from a graph using rate of change(p 238), Compare the costs of 2 television commercials using a graph (p 246), Represent the cost of downloading songs using a direct variation (p 256), Compare the cable company's discount to its original cost using functions (p 265)

Inter-Disciplinary problem solving examples:
Astronaut Photography (p 210), Weather Data (p 221), Recycling (p 230), Oceanography (p 241), Speed Limits (p249), Vacation Time (p 258), Movie Tickets (p 267)

Students will engage with the following text:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

Students will write:

Writing/Open Ended questions:
Determine the quadrant a point lies given criteria (p 209), Describe what an equation looks like in standard form (p 219), Describe how you determine the x and y-intercepts given 2 points; Describe and correct the error in finding the x and y-intercepts (p 229), Describe how you can tell a slope is positive or negative given two points without calculating; Describe and correct the error in calculating the slope using the formula (p 239), Explain why slope-intercept form is called that (p 247), Explain if the equation is a direct variation given a slope and a y-intercept (p 256); Describe and correct the error in identifying the constant of variation for a direct variation (p 257), Explain a family of functions (p 265)

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 learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

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

Section 4.1:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (3.8): TE p. 187; Answer Transparencies Daily Homework Quiz (3.8): TE p. 189 Warm-Up: TE p. 206 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 207
Teach **Teaching Options**	Essential Question: TE p. 206 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4: PE pp. 206–208 Extra Examples 1–4 with Key Questions: TE pp. 207–208 Interdisciplinary Application: Chapter Resource Book p. 14 Note taking Guide pp. 73–75
Checking for Understanding	Closing the Lesson: TE p. 208 Guided Practice Exercises: PE pp. 206–208
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 209–212 Exs. 1, 2, 7–13 odd, 16–22 even, 23, 24–32 even, 33–40, 43–53 odd
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 11–12 Tutorial Software Challenge: Chapter Resource Book p. 15
Accommodations/Modifications:	Provide students with a kinesthetic graphing experience to help them understand how to graph points. *(Chapter 4-1)* Have students write out the equation with the value substituted in. *(Chapter 4-1)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 4.2:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (4.1): TE p. 209; Answer Transparencies Daily Homework Quiz (4.1): TE p. 212 Warm-Up: TE p. 215 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 216
Teach **Teaching Options**	Essential Question: TE p. 215 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 18 Examples 1–6: PE pp. 215–218 Extra Examples 1–6 with Key Questions: TE pp. 216–218 Problem Solving Workshop: Worked Out Example: Chapter Resource Book p. 29 Note taking Guide pp. 76–79

Checking for Understanding	Closing the Lesson: TE p. 218 Guided Practice Exercises: PE pp. 215–218
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 219–221 Exs. 1–10, 16–25, 42–47; Day 2: pp. 219–221 Exs. 26–32 even, 33, 35–40, 48–55
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 26–27 Tutorial Software challenge: Chapter Resource Book p. 30
Accommodations/Modifications:	Have students organize their work in a table. *(Chapter 4-2)* Provide students with a list of values to use for consistency.*(Chapter 4-2)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 4.3:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (4.2): TE p. 219; Answer Transparencies Daily Homework Quiz (4.2): TE p. 221 Warm-Up: TE p. 225 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 226
Teach **Teaching Options**	Essential Question: TE p. 225 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–5: PE pp. 225–228 Extra Examples 1–5 with Key Questions: TE pp. 226–228 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 42 Note taking Guide pp. 80–82
Checking for Understanding	Closing the Lesson: TE p. 228 Guided Practice Exercises: PE pp. 225–228
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 229–232 Exs. 1–3, 10–15, 22–27, 29, 30, 34–41, 44–49,51–55 odd
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 39–40 Tutorial Software Challenge: Chapter Resource Book p. 44
Accommodations/Modifications:	Provide students with a table of values and relate the table to points on a graph.*(Chapter 4-3)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 4.4:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (4.3): TE p. 229; Answer Transparencies Daily Homework Quiz (4.3): TE p. 232 Warm-Up: TE p. 235 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 236
Teach **Teaching Options**	Essential Question: TE p. 235 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–7: PE pp. 235–238 Extra Examples 1–7 with Key Questions: TE pp. 236–238 Interdisciplinary Application: Chapter Resource Book p. 56 Note taking Guide pp. 83–86
Checking for Understanding	Closing the Lesson: TE p. 238 Guided Practice Exercises: PE pp. 235–238
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 239–242 Exs. 1–7, 11–18, 24–28, 43–55 odd; Day 2: pp. 240–242 Exs. 19–23, 31–33, 36–40, 57–62

Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 53–54 Tutorial Software Challenge: Chapter Resource Book p. 57
Accommodations/Modifications:	Encourage students to copy ordered pairs to their own paper before calculating the slope. *(Chapter 4-4)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 4.5:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (4.4): TE p. 239; Answer Transparencies Daily Homework Quiz (4.4): TE p. 242 Warm-Up: TE p. 244 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 245
Teach **Teaching Options**	Essential Question: TE p. 244 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 60–61 Examples 1–5: PE pp. 244–246 Extra Examples 1–5 with Key Questions: TE pp. 245–246 Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 73 Note taking Guide pp. 87–90
Checking for Understanding	Closing the Lesson: TE p. 246 Guided Practice Exercises: PE pp. 244–246
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 247–250 Exs. 1–5, 9, 10, 13–20, 25–31, 32–38 even, 40–44, 46–56 even
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 70–71 Tutorial Software Challenge: Chapter Resource Book p. 74
Accommodations/Modifications:	Have students create a graphic organizer or concept map to help them see the relationships between the different methods for graphing a linear equation. *(Chapter 4-5)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 4.6:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (4.5): TE p. 247; Answer Transparencies Daily Homework Quiz (4.5): TE p. 250 Warm-Up: TE p. 253 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 254
Teach **Teaching Options**	Essential Question: TE p. 253 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–5: PE pp. 253–256 Extra Examples 1–5 with Key Questions: TE pp. 254–256 Real-Life Application: Chapter Resource Book p. 86 Note taking Guide pp. 91–93
Checking for Understanding	Closing the Lesson: TE p. 256 Guided Practice Exercises: PE pp. 253–256
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 256–259 Exs. 1, 2, 6–10, 18–28, 29–35 odd, 40–46, 53–56, 60–62
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 83–84 Tutorial Software Challenge: Chapter Resource Book p. 87

Accommodations/Modifications:	Have students match the vocabulary words presented so far in the lesson with their definitions. *(Chapter 4-6)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 4.7:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (4.6): TE p. 257; Answer Transparencies Daily Homework Quiz (4.6): TE p. 259 Warm-Up: TE p. 262 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 263
Teach **Teaching Options**	Essential Question: TE p. 262 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 90 Examples 1–5: PE pp. 262–265 Extra Examples 1–5 with Key Questions: TE pp. 263–265 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 100 Note taking Guide pp. 94–97
Checking for Understanding	Closing the Lesson: TE p. 265 Guided Practice Exercises: PE pp. 262–265
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 265–268 Exs. 1, 7–13, 16–22, 39–41, 46–54; Day 2: pp. 265–268 Exs. 2, 27–37, 42–44, 55–60
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 97–98 Tutorial Software Challenge: Chapter Resource Book p. 101
Accommodations/Modifications:	Show students a function machine, this will help students understand the difference between domain and range.*(Chapter 4-7)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, 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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.
Provide graphic organizers to use in solving problems.
Provide guided notes/handouts.
Provide visual glossaries, blank number lines for use with positive and negative numbers.
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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Display of Student Work, 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).

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Writing Linear Equations **Grade Level(s):** 9-12	**Unit Summary**: **In this unit students will write equations of lines in slope-intercept form given three situations: the slope and y-intercept; the slope and a point; or two points. Also, they will write and graph equations using the slope and a point using a graph of the line, or using real-world data. They will write equations of lines in standard form, and use their equations to solve real-world problems. They will write and find equations of lines parallel or perpendicular to a given line. They will make scatter plots of data and use a line of best fit to model and interpret the data. They will perform linear regression to find the best-fitting line for data, and make predictions using the graph and the equation. This will allow students to solve problems involving a constant rate of change.**
Essential Question(s): • **How can you write linear equations in different forms?** • **How can you use linear models to solve problems?** • **How can you model data with a line of best fit?**	**Enduring Understanding(s):** Students will be able to: • Write equations of lines. • Write an equation of a line using points on the line. • Write linear equations in point-slope form. • Write linear equations in standard form. • Write equations of parallel and perpendicular lines. • Make scatter plots and write equations to model data.

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	CCS
1. Writing Linear Equations in Different Forms ***CC.9-12.A.CED.A.2*** *- [Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A.CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* ***CC.9-12.F.IF.B.4*** *- [Standard] - 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.* ***CC.9-12.F.BF.A.1a*** *- [Standard] -* Determine *an explicit expression, a recursive process, or steps for calculation from a context.* ***CC.9-12.F.LE.A.2*** *- [Standard] - Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).* ***CC.9-12.F.LE.B.5*** *- [Standard] - Interpret the parameters in a linear or exponential function in terms of a context.* ***CC.9-12.S.ID.C.7*** *- [Standard] - Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.* ***CC.9-12.G.GPE.B.5*** *- [Standard] - Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).*	**1. CC.9-12.A-CED.A.2, CC.9-12.A-CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.BF.A.1a, CC.9-12.F.LE.A.2, CC.9-12.F.LE.B.5, CC.9-12.S.ID.C.7, CC.9-12.G.GPE.B.5** **2. . CC.9-12.A-CED.A.2, CC.9-12.A-CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.BF.A.1a, CC.9-12.F.LE.A.2, CC.9-12.F.LE.B.5, CC.9-12.S.ID.B.6a, CC.9-12.S.ID.B.6c, CC.9-12.S.ID.C.7** **3. CC.9-12.A-CED.A.2, CC.9-12.A-CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.IF.B.6, CC.9-12.F.BF.A.1a, CC.9-12.F.LE.A.2, CC.9-12.F.LE.B.5, CC.9-12.S.ID.B.6a, CC.9-12.S.ID.B.6c, CC.9-12.S.ID.C .7**
2. Using Linear Models to Solve Problems ***CC.9-12.A.CED.A.2*** *- [Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A.CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* ***CC.9-12.F.IF.B.4*** *- [Standard] - 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.* ***CC.9-12.F.BF.A.1a*** *- [Standard] -* Determine *an explicit expression, a recursive process, or steps for calculation from a context.* ***CC.9-12.F.LE.A.2*** *- [Standard] - Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).* ***CC.9-12.S.ID.B.6a*** *- [Standard] -* Fit *a function to the data; use functions fitted to data to solve problems in the context of the data.*	

CC.9-12.S.ID.B.6c *- [Standard] -* Fit *a linear function for a scatter plot that suggests a linear association.* ***CC.9-12.S.ID.C.7*** *- [Standard] -* Interpret *the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.* **3. Modeling Data with a Line of Best Fit** ***CC.9-12.A.CED.A.2*** *- [Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A.CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* ***CC.9-12.F.IF.B.4*** *- [Standard] - 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.* ***CC.9-12.F.IF.B.6*** *- [Standard] – Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.* ***CC.9-12.F.BF.A.1a*** *- [Standard] - Determine an explicit expression, a recursive process, or steps for calculation from a context.* ***CC.9-12.F.LE.A.2*** *- [Standard] - Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).* ***CC.9-12.F.LE.B.5*** *- [Standard] - Interpret the parameters in a linear or exponential function in terms of a context.* ***CC.9-12.S.ID.B.6a*** *- [Standard] - Fit a function to the data; use functions fitted to data to solve problems in the context of the data.* ***CC.9-12.S.ID.B.6c*** *- [Standard] - Fit a linear function for a scatter plot that suggests a linear association.* ***CC.9-12.S.ID.C.7*** *- [Standard] - Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.*	

Inter-Disciplinary Connections:

Real-World problem solving examples:
Studio costs per hour (p.285), gym membership costs (p. 294), BMX racing costs (p. 295), cost of stickers (p. 304), transportation possibilities (p. 313), state flag design (p. 320), linear models of bird populations (p. 326)

Inter-Disciplinary problem solving examples:
Distances in sports (p. 289), total cost (p.295), sports statistics (p. 308), possible combinations of objects (p. 315), analyze growth rates (p. 322), modeling scientific data (p. 329)

Students will engage with the following text:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

Students will write:

Writing/Open Ended questions:

Explain how to use slope-intercept form to write an equation of a line (p. 286), explain why *b* is the starting value for an equation in slope-intercept form (p. 296), describe the steps you would take to write an equation in point-slope form that passes through two points (p. 305), explain how to write an equation of a line in standard form when two points are given, explain how you can tell whether two lines are perpendicular, given an equation (p. 321), Describe the correlation of data (p. 327)

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 learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

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

Section 5.1:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 283 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 284
Teach **Teaching Options**	Essential Question: TE p. 283 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Examples 1–5: PE pp. 283-285 Extra Examples 1–5 with Key Questions: TE pp. 284-285 Interdisciplinary Application: Chapter Resource Book p. 12 Note taking Guide pp. 100-102
Checking for Understanding	Closing the Lesson: TE p. 285 Guided Practice Exercises: PE pp. 283-285
Practice and Apply **Assigning Homework**	Day 1: pp. 286–289 Exs. 1, 2, 6–9, 13–17, 21–24, 26, 28, 33–35, 39–43, 46–51, 56, 57, 62, 63
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 9-10 Tutorial Software Challenge: Chapter Resource Book p. 13
Accommodations/Modifications:	Students will benefit from having a step-by-step template that shows how to write the equation of a line. (*Chapter 5.1)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 5.2:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 292 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 293
Teach **Teaching Options**	Essential Question: TE p. 292 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Examples 1–5: PE pp. 292-295 Extra Examples 1–5 with Key Questions: TE pp. 293-295 Interdisciplinary Application: Chapter Resource Book p. 22 Note taking Guide pp. 103-105
Checking for Understanding	Closing the Lesson: TE p. 295 Guided Practice Exercises: PE pp. 295-296
Practice and Apply **Assigning Homework**	Day 1: pp. 296–299 Exs. 1, 2, 6–8, 14–16, 20–22, 25–29, 55–58; Day 2: pp. 296–299 Exs. 9, 10, 31–43 odd, 48–53, 59–64
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 19-20 Tutorial Software

	Challenge: Chapter Resource Book p. 23
Accommodations/Modifications:	Using the template from Chapter 5-1, students will see the connection with the new problems (*Chapter 5.2)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 5.3:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 302 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 303
Teach **Teaching Options**	Essential Question: TE p. 302 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Examples 1–5: PE pp. 302-304 Extra Examples 1–5 with Key Questions: TE pp. 303-304 Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 36 Note taking Guide pp. 106-108
Checking for Understanding	Closing the Lesson: TE p. 305 Guided Practice Exercises: PE pp. 302-305
Practice and Apply **Assigning Homework**	Day 1: pp. 305–308 Exs. 1, 2, 6–13, 17–19, 45–53; Day 2: pp. 305–308 Exs. 20–28 even, 29–34, 37–43, 54–57
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 33-34 Tutorial Software Challenge: Chapter Resource Book p. 37
Accommodations/Modifications:	Make handouts of the word problems, so students can highlight or underline the information as they read. (*Chapter 5.3)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 5.4:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 311 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 312
Teach **Teaching Options**	Essential Question: TE p. 311 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 40 Examples 1–5: PE pp. 311-313 Extra Examples 1–5 with Key Questions: TE pp. 312-313 Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 47 Note taking Guide pp. 109-112
Checking for Understanding	Closing the Lesson: TE p. 313 Guided Practice Exercises: PE pp. 311-313
Practice and Apply **Assigning Homework**	Day 1: pp. 314–316 Exs. 1–4, 8–10, 14–22, 47–49; Day 2: pp. 314–316 Exs. 23–29 odd, 30– 36, 38–43, 45, 46
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 44-45 Tutorial Software Challenge: Chapter Resource Book p. 49
Accommodations/Modifications:	Focus on vocabulary for the word "equivalent." (*Chapter 5.4)* Make a poster for the wall that displays the name, the general equation, and an example for each form of linear equations. (*Chapter 5.4)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 5.5:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 311 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 312 Motivating the Lesson: TE p. 320
Teach **Teaching Options**	Essential Question: TE p. 319 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Examples 1–4: PE pp. 319-321 Extra Examples 1–4 with Key Questions: TE pp. 320-321 Problem Solving Workshop: Worked out Example: Chapter Resource Book p. 58 Note taking Guide pp. 113-116
Checking for Understanding	Closing the Lesson: TE p. 321 Guided Practice Exercises: PE pp. 319-321
Practice and Apply **Assigning Homework**	Day 1: 322–324 Exs. 1, 2, 7–17, 23–30, 32–37, 39, 41, 42
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 55-56 Tutorial Software Challenge: Chapter Resource Book p. 59
Accommodations/Modifications:	Create a table to organize the equation of the original line vs. the equation of the line perpendicular. (*Chapter 5.5)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 5.6:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 325 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 326
Teach **Teaching Options**	Essential Question: TE p. 325 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book Examples 1–4: PE p. 325-328 Extra Examples 1–4 with Key Questions: TE p. 326-328 Real-life Application: Chapter Resource Book p. 72 Note taking Guide pp. 117-120
Checking for Understanding	Closing the Lesson: TE p. 328 Guided Practice Exercises: PE pp. p. 325-328
Practice and Apply **Assigning Homework**	Day 1: pp. 328–331 Exs. 1, 2, 4–14, 16–20, 22–28
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 69-70 Tutorial Software Challenge: Chapter Resource Book p. 73
Accommodations/Modifications:	Make several large scatter plots for the students, and give each student a piece of linguini. Have them place the linguini on the scatter plot and move it around until they find the line of best fit to estimate the y-intercept and the slope of the equation. (*Chapter 5.6)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 5.7:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 335 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 336
Teach **Teaching Options**	Essential Question: TE p. 335 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book, pp. 76-77 Examples 1–4: PE pp. 335-338 Extra Examples 1 – 4 Key Questions: TE pp. 336-338 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 87 Note taking Guide pp. 121-124
Checking for Understanding	Closing the Lesson: TE p. 338 Guided Practice Exercises: PE pp. p. 336-338
Practice and Apply **Assigning Homework**	Day 1: pp.338-341 Exs. 1-6, 9-16, 18-22, 24-32 (with 5.6)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 84-85 Tutorial Software Challenge: Chapter Resource Book p. 88
Accommodations/Modifications:	*(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, 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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.
Provide graphic organizers to use in solving problems.
Provide guided notes/handouts.
Provide visual glossaries, blank number lines for use with positive and negative numbers.
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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Student Work, 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).

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Systems of Equations **Grade Level(s):** 9-12	**Unit Summary**: **In this unit students will use graphing, substitution, and elimination to solve systems of linear equations. When solving by the elimination method, they will either add or subtract, or they will multiply first and then add or subtract. Students will identify linear systems as having one solution, no solution, or infinitely many solutions. This will allow students to solve problems about traveling with and against a current.**
Essential Question(s): • **How do I solve a linear system using graphing?** • **How do I solve a linear system using algebra?** • **How do I determine the number of solutions to a system of linear equations?**	**Enduring Understanding(s):** Students will be able to: • Graph and solve systems of linear equations. • Solve systems of linear equations by substitution. • Solve systems of linear equations by elimination (addition). • Solve linear systems by multiplying first. • Identify the number of solutions of a linear system.

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	CCS
1. Solving Linear Systems Using Graphing ***CC.9-12.A.CED.A.2*** *- [Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A.CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* ***CC.9-12.A.REI.C.6*** *- [Standard] - Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.*	**1. CC.9-12.A-CED.A.2, CC.9-12.A-CED.A.3, CC.9-12.A.REI.C.6**
2. Solving Linear Systems Using Algebra ***CC.9-12.A.CED.A.2*** *- [Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A.CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* ***CC.9-12.A.REI.C.5 –*** *[Standard] - Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.* ***CC.9-12.A.REI.C.6*** *- [Standard] - Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.*	**2. CC.9-12.A-CED.A.2, CC.9-12.A-CED.A.3, CC.9-12.A.REI.C.5, CC.9-12.A.REI.C.6**
3. Determining the Number of Solutions to a System of Linear Equations ***CC.9-12.A.CED.A.2*** *- [Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A.CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* ***CC.9-12.A.REI.C.5 –*** *[Standard] - Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.* ***CC.9-12.A.REI.C.6*** *- [Standard] - Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.*	**3. CC.9-12.A-CED.A.2, CC.9-12.A-CED.A.3, CC.9-12.A.REI.C.5, CC.9-12.A.REI.C.6**

Inter-Disciplinary Connections:

Real-World problem solving examples:
Find the number of skates and bicycles rented (p 430), Find the amounts of solution in a mixture problem (p 438), Find the speed of a kayak and speed of the current (p 446), Find the cost of a soccer ball and a soccer ball bag (p 453), Find the cost of a painting (p 461)

Inter-Disciplinary problem solving examples:
Television Time (p 432), Fundraising (p 440), Rowing (p 449), Book Sale (p 456),Transportation (p 464)

Students will engage with the following text:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

Students will write:

Writing/Open Ended questions:
Explain why it's important to check your solution of a linear system (p 431), Explain how you can use a graph to check your solution to a linear system (p 440), Explain how to use the elimination method (p 447), Describe how you can use a system to solve a created real world problem (p 456), Describe the graph of a linear system that has no solution (p 462)

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 learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

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

Section 7.1:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (6.7): TE p. 409; Answer Transparencies Daily Homework Quiz (6.7): TE p. 412 Warm-Up: TE p. 427 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 428
Teach **Teaching Options**	Essential Question: TE p. 427 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4: PE pp. 427–430 Extra Examples 1–4 with Key Questions: TE pp. 428–430 Problem Solving Workshop: Worked Out Example: Chapter Resource Book p. 15 Note taking Guide pp. 150–152
Checking for Understanding	Closing the Lesson: TE p. 430 Guided Practice Exercises: PE pp. 428–430
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 430–433 Exs. 1–11, 18–35, 37–41 odd, 43–48
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 12–13 Tutorial Software Challenge: Chapter Resource Book p. 16
Accommodations/Modifications:	Provide graphs with the problems directly on the graph, leaving room to work.*(Chapter 7-1)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 7.2:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (7.1): TE p. 431; Answer Transparencies Daily Homework Quiz (7.1): TE p. 433 Warm-Up: TE p. 435 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 436
Teach **Teaching Options**	Essential Question: TE p. 435 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4: PE pp. 435–438 Extra Examples 1–4 with Key Questions: TE pp. 436–438 Interdisciplinary Application: Chapter Resource Book p. 25 Note taking Guide pp. 153–154
Checking for Understanding	Closing the Lesson: TE p. 438 Guided Practice Exercises: PE pp. 436–438

Practice and Apply **Assigning Homework**	Average: Day 1: pp. 439–441 Exs. 1, 2, 4–18 even, 19–29 odd; Day 2: pp. 439–441 Exs. 31–37, 39–50
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 22–23 Tutorial Software Challenge: Chapter Resource Book p. 26
Accommodations/Modifications:	Have students create a problem-solving plan, listing in order the steps they will take to solve the system. *(Chapter 7-2)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 7.3:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (7.2): TE p. 439; Answer Transparencies Daily Homework Quiz (7.2): TE p. 441 Warm-Up: TE p. 444 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 445
Teach **Teaching Options**	Essential Question: TE p. 444 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4: PE pp. 444–446 Extra Examples 1–4 with Key Questions: TE pp. 445–446 Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 36 Note taking Guide pp. 155–157
Checking for Understanding	Closing the Lesson: TE p. 446 Guided Practice Exercises: PE pp. 445–447
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 447–450 Exs. 1, 2, 6–8, 12–15, 19–24, 26–36 even, 39–44, 47–55 odd
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 33–34 Tutorial Software Challenge: Chapter Resource Book p. 37
Accommodations/Modifications:	Set up distance, rate, and time problems in a table. Provide table for students to use. *(Chapter 7-3)* Have students use tiles or paper squares to practice adding and subtracting equations. *(Chapter 7-3)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 7.4:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (7.3): TE p. 447; Answer Transparencies Daily Homework Quiz (7.3): TE p. 450 Warm-Up: TE p. 451 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 452
Teach **Teaching Options**	Essential Question: TE p. 451 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 40 Examples 1–3: PE pp. 451–453 Extra Examples 1–3 with Key Questions: TE pp. 452–453 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 47 Note taking Guide pp. 158–159
Checking for Understanding	Closing the Lesson: TE p. 453 Guided Practice Exercises: PE pp. 452–453
Practice and Apply	Average: Day 1: pp. 454–457 Exs. 1, 2, 6–8, 13–20, 21–33 odd, 34, 37–

Assigning Homework	42, 45–57 odd
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 44–45 Tutorial Software Challenge: Chapter Resource Book p. 49
Accommodations/Modifications:	Have students draft a set of guidelines for choosing the most appropriate strategy (graphing, substitution, elimination) for solving a system of linear equations. Include an example strategy. *(Chapter 7-4)* Have students make a list of multiples of the coefficients of each variable. *(Chapter 7-4)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 7.5:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (7.4): TE p. 454; Answer Transparencies Daily Homework Quiz (7.4): TE p. 457 Warm-Up: TE p. 459 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 460
Teach **Teaching Options**	Essential Question: TE p. 459 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 52 Examples 1–4: PE pp. 459–461 Extra Examples 1–4 with Key Questions: TE pp. 460–461 Real-Life Application: Chapter Resource Book p. 62 Note taking Guide pp. 160–162
Checking for Understanding	Closing the Lesson: TE p. 461 Guided Practice Exercises: PE pp. 460–461
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 462–465 Exs. 1–14, 18–25, 42–45; Day 2: pp. 462–465 Exs. 26–34, 36–40, 46–54 even, 56–61
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 59–60 Tutorial Software Challenge: Chapter Resource Book p. 63
Accommodations/Modifications:	Use a graphic organizer to help visual learners organize the information. (*Chapter 7-5)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, 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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.
Provide graphic organizers to use in solving problems.
Provide guided notes/handouts.
Provide visual glossaries, blank number lines for use with positive and negative numbers.
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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Student Work, 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).

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Graphing Absolute Value Equations and Linear Inequalities **Grade Level(s):** 9-12	**Unit Summary**: **In this unit, students will graph absolute value equations and linear inequalities. Students will graph systems of linear inequalities. You can use linear inequalities to solve problems like finding the maximum people that can ride on an elevator.**
Essential Question(s): • **How do you graph absolute value equations?** • **How do you graph linear inequalities?** • **How do you graph systems of linear inequalities?**	**Enduring Understanding(s):** Students will be able to: • Graph absolute value equations. • Graph linear inequalities. • Graph systems of linear inequalities.

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	CCS
1. Graphing absolute value equations ***CC.9-12.F.IF.C.7b*** *- [Standard] - Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.*	**1. CC.9-12.F.IF.C.7b**
2. Graphing linear inequalities ***CC.9-12.A-CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* ***CC.9-12.A.REI.D.12*** *- [Standard] - Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.*	**2. CC.9-12.A-CED.A.3, CC.9-12.A.REI.D.12**
3. Graphing systems of linear inequalities ***CC.9-12.A-CED.A.2*** *- [Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A-CED.A.3*** *- [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* ***CC.9-12.A.REI.D.12*** *- [Standard] - Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.*	**3. CC.9-12.A-CED.A.2, CC.9-12.A-CED.A.3, CC.9-12.A.REI.D.12**

Inter-Disciplinary Connections:

Real-World problem solving examples:
Graph an inequality that relates the number of passengers to the maximum weight capacity of elevators (p. 410), Determine if a bat can be used by a player (p 468)

Inter-Disciplinary problem solving examples:
Competition Scores (p 471)

Students will engage with the following text:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

Students will write:

Writing/Open Ended questions:

Describe the difference between graphing a linear inequality in two variables and graphing a linear equation in two variables (p. 409) camping trip (p. 411) Problems 1,2,4,5,6 on page 413, Describe how to graph a system of inequalities (p 469).

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 learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

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

Section 6.5:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (6.4): TE p. 384; Answer Transparencies Daily Homework Quiz (6.4): TE p. 387 Warm-Up: TE p. 390 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 391
Teach **Teaching Options**	Essential Question: TE p. 390 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator _Examples 1–5: PE pp. 390–392 _Extra Examples 1–5 with Key Questions: TE pp. 391–392 Problem Solving Workshop: Worked Out Example: Chapter Resource Book p. 66 Note taking Guide pp. 140–142
Checking for Understanding	Closing the Lesson: TE p. 392 Guided Practice Exercises: PE pp. 390–392
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 393–395 Exs. 1, 2, 6–17, 37–40, 51–53; Day 2: pp. 393–395 Exs. 21–36, 42–49, 54–59 Practice Masters: Chapter Resource Book pp. 60–62 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 63–64 Tutorial Software Challenge: Chapter Resource Book p. 67
Accommodations/Modifications:	*(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 6.7:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (6.6): TE p. 401; Answer Transparencies Daily Homework Quiz (6.6): TE p. 403 Warm-Up: TE p. 405 or Transparencies Starting the Lesson Questions: Teaching Guide _Motivating the Lesson: TE p. 406
Teach **Teaching Options**	Essential Question: TE p. 405 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book pp. 84–85 Examples 1–6: PE pp. 405–408 Extra Examples 1–6 with Key Questions: TE pp. 406–408 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 96 Note taking Guide pp. 146–148
Checking for Understanding	Closing the Lesson: TE p. 408 Guided Practice Exercises: PE pp. 405–408

Practice and Apply **Assigning Homework**	Average: Day 1: pp. 409–412 Exs. 1, 2, 8–16, 20–28, 44–46, 63–69 odd; Day 2: pp. 409–412 Exs. 29–43, 47–50, 54–59, 71–75 odd Practice Masters: Chapter Resource Book pp. 87–92 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 93–94 Tutorial Software Challenge: Chapter Resource Book p. 97
Accommodations/Modifications:	Use Kinesthetic activity in the shared directory to remember logical sequence. *(Chapter 6-7)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, by chapter and section).*

Section 7.6:

	College Prep
Focus and Motivate **Starting Options**	Homework Check (7.5): TE p. 462; Answer Transparencies Daily Homework Quiz (7.5): TE p. 465 Warm-Up: TE p. 466 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 467
Teach **Teaching Options**	Essential Question: TE p. 466 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book pp. 66–67 Examples 1–4: PE pp. 466–468 Extra Examples 1–4 with Key Questions: TE pp. 467–468 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 77 Note taking Guide pp. 163–165
Checking for Understanding	Closing the Lesson: TE p. 468 Guided Practice Exercises: PE pp. 467–468
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 469–472 Exs. 1–8, 15–23, 25–33 odd, 36–40, 42–52 even
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 74–75 Tutorial Software Challenge: Chapter Resource Book p. 78
Accommodations/Modifications:	Have students provide a verbal understanding of the solution set after showing them the graph. *(Chapter 7-6)* Have students create a list of steps in their notebook to keep organized. *(Chapter 7-6)* *(Reference materials are located in Network Applications/Math/Algebra 1 Easy Planner, 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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.
Provide graphic organizers to use in solving problems.
Provide guided notes/handouts.
Provide visual glossaries, blank number lines for use with positive and negative numbers.
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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Student Work, 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).

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Algebra 1/ Exponents and Exponential Functions	**Unit Summary**: **In this unit students learn and use properties of exponents involving products and quotients. They learn how to apply the product of powers property, the power of a power property, the quotient of powers property, and the power of a quotient property. Students also use zero and negative exponents. Students learn how to read, write, and compute with numbers in scientific notation. Students also learn how to graph and write rules for exponential functions, including exponential growth and exponential decay.**
Grade Level(s): 9-12	
Essential Question(s): • **How do I apply properties of exponents to simplify expressions?** • **How do I work with numbers in scientific notation?** • **How do I write and graph exponential functions?**	**Enduring Understanding(s):** Students will be able to: • Apply exponent properties involving products. • Apply exponent properties involving quotients. • Define and use zero and negative exponents. • Use scientific notation. • Write and graph exponential growth functions. • Write and graph exponential decay functions.

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	CCSS
1. Applying properties of exponents **CC.8.8.EE.A.1, *2*** - *[Standard] - Know and apply the properties of integer exponents to generate equivalent numerical expressions.* **CC.9-12.A.SSE.B.3c** - *[Standard] - Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. Use the properties of exponents to transform expressions for exponential functions.* **CC.9-12.N.RN.A.1** - *[Standard] - Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.*	**1. CC.8.8.EE.A.1, CC.9-12.A.SSE.B.3c, CC.9-12.N.RN.A.1**
2. Working with numbers in scientific notation **CC.8.8.EE.A.4** - *[Standard] - Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.*	**2. CC.8.8.EE.A.4**
3. Writing and graphing exponential functions **CC.8.8.EE.A.1, *2*** - *[Standard] - Know and apply the properties of integer exponents to generate equivalent numerical expressions.* ***CC.9-12.A.CED.A.2***- *[Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A.CED.A.3*** - *[Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.* **CC.9-12.F.IF.B.4** – *[Standard]* - 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. **CC.9-12. F.IF.B.5** - *[Standard] - Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.* **CC.9-12.F.IF.C.7e** - *[Standard] - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.* **CC.9-12.F.IF.C.8b** - *[Standard*] - Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. Use the properties of exponents to interpret expressions for exponential functions. **CC.9-12, F.BF.A.1a** - *[Standard*] - *Write a function that describes a relationship*	**3. CC.9-12.A.SSE.B.3c , CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4, CC.9-12. F.IF.B.5, CC.9-12.F.IF.C.7e, CC.9-12.F.IF.C.8b, CC.9-12, F.BF.A.1a, CC.9-12.F.BF.B.3, CC.9-12.F.LE.A.1.c, CC.9-12.F.LE.A.2, CC.9-12.F.LE.B.5**

between two quantities. Determine an explicit expression, a recursive process, or steps for calculation from a context. **CC.9-12.F.BF.B.3** - *[Standard] - 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.* **CC.9-12.F.LE.A.1.c**- *[Standard] - Distinguish between situations that can be modeled with linear functions and with exponential functions. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.* **CC.9-12.F.LE.A.2**- *[Standard] - Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).* **CC.9-12.F.LE.B.5** - *[Standard] - Interpret the parameters in a linear or exponential function in terms of a context*	

Inter-Disciplinary Connections:

Real-World problem solving examples:
Determine the population of an average bee colony (p491), Determine how many years it takes a space craft to reach a destination (p500), Compare masses of different plants (p507), Determine the average amount of cotton produced (p516), Write a function and use it to determine the balance in an account for an investment (p525), Write and use an exponential model for a population of bats (p537).

Inter-Disciplinary problem solving examples:
Sun luminosity (p498), Order of magnitude Moth Larva (p. 505), Blood flow (p. 514), Determine and compare the radii of the Earth and Moon (p517),

Students will engage with the following text:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

Students will write:

Writing/Open Ended questions:

Explaining when and how to use the product of powers property (p. 492) Explain when and how to use the quotients of powers property (p. 498), Explain why a zero base with a negative exponent is undefined (p. 506), explaining estimation for scientific notation (p. 515), Explain how to find the amount of a substance given its half-life (p536).

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 learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects. Suggested warm-up activities, instructional strategies/activities, and assignments:

Section 8.1:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 283 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 490
Teach **Teaching Options**	Essential Question: TE p. 489 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Examples 1–5: PE pp. 489-491 Extra Examples 1–5 with Key Questions: TE pp. 490-491 Real Life Application: Chapter Resource Book p. 12 Note taking Guide pp. 167-169
Checking for Understanding	Closing the Lesson: TE p. 491 Guided Practice Exercises: PE pp. 489-491
Practice and Apply **Assigning Homework**	Day 1: pp. 492-494 Exs. 1, 2, 4-18 even, 29-49, 53-58, 61, 64, 67, 73
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 9-10 Tutorial Software Challenge: Chapter Resource Book p. 13
Accommodations/Modifications:	Review vocabulary and concepts such as factors, the meaning of exponents, and the correct order of operations before starting this lesson. (*Chapter 8.1)* Use highlighters to identify like bases. *(Chapter 8.1)* *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*

Section 8.2:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 495 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 496
Teach **Teaching Options**	Essential Question: TE p. 495 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 16 Examples 1–5: PE pp. 495-498 Extra Examples 1–5 with Key Questions: TE pp. 496-498 Interdisciplinary Application: Chapter Resource Book p. 23 Note taking Guide pp. 170-172
Checking for Understanding	Closing the Lesson: TE p. 498 Guided Practice Exercises: PE pp. 495-498
Practice and Apply **Assigning Homework**	Day 1: pp. 498-501 Exs. 1, 2, 7-28, 38-40, 47, 48 Day 2: pp. 498-501 Exs. 32-37, 41-46, 49-66
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 20-21 Tutorial Software Challenge: Chapter Resource Book p. 24
Accommodations/Modifications:	Encourage students to expand difficult problems before they start to show all the factors. Give students the steps to a problem written on separate pieces of paper, and have them rearrange the steps into the correct order. (*Chapter 8.2)* *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*

Section 8.3:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 503 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 504
Teach **Teaching Options**	Essential Question: TE p. 503 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Examples 1–4: PE pp. 503-505 Extra Examples 1–4 with Key Questions: TE pp. 504-505 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 33 Note taking Guide pp. 173-175
Checking for Understanding	Closing the Lesson: TE p. 505 Guided Practice Exercises: PE pp. 503-505
Practice and Apply **Assigning Homework**	Day 1: pp. 506-508 Exs. 1, 2, 9-14, 21-27, 28-44 even, 45, 51-57, 60-68 even
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 30-31 Tutorial Software Challenge: Chapter Resource Book p. 35
Accommodations/Modifications:	Pair students to write similar problems and solutions with steps, and have them challenge other pairs of student to identify the properties used. (*Chapter 8.3)* *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*

Section 8.4:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 512or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 513
Teach **Teaching Options**	Essential Question: TE p. 512 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–5: PE pp. 512-514 Extra Examples 1–5 with Key Questions: TE pp. 513-514 Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 45 Note taking Guide pp. 176-178
Checking for Understanding	Closing the Lesson: TE p. 514 Guided Practice Exercises: PE pp. 512-514
Practice and Apply **Assigning Homework**	Day 1: pp. 514-518 Exs. 1, 2, 6-15, 19-28, 39-44; Day 2: pp. 514-518 Exs. 29-38, 45-49, 51-59, 62-74 even
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 42-43 Tutorial Software Challenge: Chapter Resource Book p. 46
Accommodations/Modifications:	Have students memorize this template to help them convert between a positive number written in standard form and a positive number. *(Chapter 8-4)* written in scientific notation. *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*

Section 8.5:

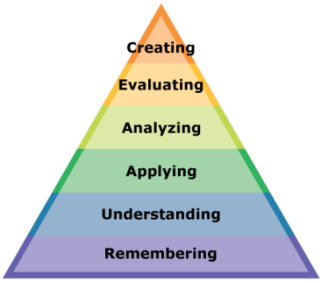
	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 520 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 521
Teach **Teaching Options**	Essential Question: TE p. 520 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator, Chapter Resource Book p. 49 Examples 1–5: PE pp. 520-523 Extra Examples 1–5 with Key Questions: TE pp. 521-523 Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 60 Note taking Guide pp. 179-182
Checking for Understanding	Closing the Lesson: TE p. 523 Guided Practice Exercises: PE pp. 520-523
Practice and Apply **Assigning Homework**	Day 1: pp. 523-527 Exs. 1, 2, 4-8, 13-21, 35-37*, 60; Day 2: pp. 523-527 Exs. 26-34, 39-51*, 54, 58
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 57-58 Tutorial Software Challenge: Chapter Resource Book p. 61
Accommodations/Modifications:	*(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*

Section 8.6:

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 531or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 532
Teach **Teaching Options**	Essential Question: TE p. 531 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator, Chapter Resource Book p. 64-65 Examples 1–5: PE pp. 531-534 Extra Examples 1–5 with Key Questions: TE pp. 532-534 Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 75 Note taking Guide pp. 183-186
Checking for Understanding	Closing the Lesson: TE p. 534 Guided Practice Exercises: PE pp. 531-534
Practice and Apply **Assigning Homework**	Day 1: pp. 535-538 Exs. 1, 4-6, 12-18, 32-37, 63-66; Day 2: pp. 535-538 Exs. 19, 24-31, 38-53*, 56, 59, 62
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 72-73 Tutorial Software Challenge: Chapter Resource Book p. 76
Accommodations/Modifications:	*(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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

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

Provide guided notes/handouts.
Provide visual glossaries, blank number lines for use with positive and negative numbers.
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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Student Work, 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).

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Algebra 1/Polynomials and Factoring	**Unit Summary**: **In this unit students identify, classify, add, subtract, and multiply polynomials. They use vertical and horizontal formats to find sums and differences of polynomials and use the distributive property, tables of products and patterns, (including the FOIL pattern, the square of a binomial pattern and the sum and difference pattern) to find products. They use polynomial equations to describe and solve real-world problems. Students will then factor polynomials and use factoring to solve equations, to find the zeros of functions, and to find the roots of equations. Finally, they factor polynomials completely using a variety of techniques.**
Grade Level(s): 9-12	
Essential Question(s): • **How do I add, subtract and multiply polynomials?** • **How do I factor polynomials?** • **How do I write and solve polynomial equations to solve problems?**	**Enduring Understanding(s):** Students will be able to: • Add and subtract polynomials. • Multiply polynomials. • Find special products of polynomials. • Solve polynomial equations in factored form. • Factor $x^2 + bx + c$. • Factor $ax^2 + bx + c$. • Factor special products. • Factor polynomials completely.

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	**CCSS**
1. Adding, Subtracting and Multiplying polynomial. **CC.9.12-A.APR.A.1**- *[Standard] - 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.*	**1. CC.9.12-A.APR.A.1, CC.9-12.F.IF.C.7c,**
2. Factoring polynomials ***CC.9-12.A.CED.A.1*** *- [Standard] - 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.* **CC.9-12.A.REI.B.4b** *- [Standard] - Solve quadratic equations in one variable. Solve*	**2. CC.9-12.A.CED.A.1, CC.9-12.A.REI.B.4b, CC.9-12.A.SSE.B.3.a, CC.9-12.A.APR.C.4,**

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. **CC.9-12.A.SSE.B.3.a–** *[Standard] - Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. Factor a quadratic expression to reveal the zeros of the function it defines.* **CC.9-12.A.APR.C.4** *- [Standard] - Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 – y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.* **CC.9-12.F.IF.C.8a** *- [Standard] - Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.*	**CC.9-12.F.IF.C.8a**
3. Writing and solving polynomial equations ***CC.9-12.A.CED.A.1*** *- [Standard] - 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.* **CC.9-12.F.IF.C.8a** *- [Standard] - Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.*	**3. CC.9-12.A.CED.A.1, CC.9-12.F.IF.C.8a**

Inter-Disciplinary Connections:

Real-World problem solving examples:

Model how many people attend Major League Baseball games in 2001 (p556), Create a polynomial to represent the area of a skateboard park (p564), Use polynomials to model genetic combinations (p571), Write a polynomial equation to represent the vertical distance of a projectile (p579), Use polynomials to find the dimensions of a geometric figure (p587), Determine the length of time for a diver to reach the water (p598).

Inter-Disciplinary problem solving examples:

Use a bar graph to model a polynomial (p568), Genetics of pea plants (p573), model projectile motion (p579)

Students will engage with the following text:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

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.

How will students uncover content and build skills.

Students will uncover and build skills through various classroom learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

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

Section 9.1: Add and Subtract Polynomials

	College Prep
Focus and Motivate **Starting Options**	Homework Check (8.6): TE p. 535; Answer Transparencies Daily Homework Quiz (8.6): TE p. 538 Warm-Up: TE p. 554 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 555
Teach **Teaching Options**	Essential Question: TE p. 554 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 5 Examples 1–5: PE pp. 555–556 Extra Examples 1–5 with Key Questions: TE pp. 555–556 Problem Solving Workshop: Worked Out Example: Chapter Resource

	Book p. 13
Checking for Understanding	Closing the Lesson: TE p. 556 Guided Practice Exercises: PE pp. 555–556
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 557–559 Exs. 1, 2, 6–10, 12–26 even, 27–34, 37–41, 44, 47, 50, 53Practice Masters: Chapter Resource Book pp. 7–9 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 10–11 Tutorial Software Challenge: Chapter Resource Book p. 14
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).*

Section 9.2: Multiply Polynomials

	College Prep
Focus and Motivate **Starting Options**	Homework Check (9.1): TE p. 557; Answer Transparencies Daily Homework Quiz (9.1): TE p. 559 Warm-Up: TE p. 562 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 563
Teach **Teaching Options**	Essential Question: TE p. 562 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–7: PE pp. 562–564 Extra Examples 1–7 with Key Questions: TE pp. 563–564 Real-Life Application: Chapter Resource Book p. 24 Note taking Guide pp. 191–194
Checking for Understanding	Closing the Lesson: TE p. 564 Guided Practice Exercises: PE pp. 562–565
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 565–568 Exs. 1, 2, 3–43 odd, 45, 46, 49–53, 56, 59, 62, 65 Practice Masters: Chapter Resource Book pp. 18–20 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 21–22 Tutorial Software Challenge: Chapter Resource Book p. 25
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: Find Special Products of Polynomials

	College Prep
Focus and Motivate **Starting Options**	Homework Check (9.2): TE p. 565; Answer Transparencies Daily Homework Quiz (9.2): TE p. 568 Warm-Up: TE p. 569 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 570
Teach **Teaching Options**	Essential Question: TE p. 569 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4: PE pp. 569–571 Extra Examples 1–4 with Key Questions: TE pp. 570–571 Interdisciplinary Application: Chapter Resource Book p. 34 Note taking Guide pp. 195–198
Checking for Understanding	Closing the Lesson: TE p. 571 Guided Practice Exercises: PE pp. 569–571
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 572–574 Exs. 1, 2, 4–22, 24–34 even, 35–37, 40–44, 48, 52, 54, 56 Practice Masters: Chapter Resource Book pp. 28–30 (Levels A, B, or C)
Assess and Reteach	Study Guide: Chapter Resource Book pp. 31–32

Differentiating Instruction	Tutorial Software Challenge: Chapter Resource Book p. 35
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: Solve Polynomial Equations in Factored Form

	College Prep
Focus and Motivate **Starting Options**	Homework Check (9.3): TE p. 572; Answer Transparencies Daily Homework Quiz (9.3): TE p. 574 Warm-Up: TE p. 575 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 576
Teach **Teaching Options**	Essential Question: TE p. 575 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book pp. 38, 39– 40 Examples 1–5: PE pp. 575–577 Extra Examples 1–5 with Key Questions: TE pp. 576–577 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 47 Note taking Guide pp. 199–202
Checking for Understanding	Closing the Lesson: TE p. 577 Guided Practice Exercises: PE pp. 575–577
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 578–580 Exs. 2, 9–16, 18–26 even, 40–45, 72–74; Day 2: pp. 578–580 Exs. 1, 31–39, 46–49, 51–58, 61–71 odd Practice Masters: Chapter Resource Book pp. 41–43 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 44–45 Tutorial Software Challenge: Chapter Resource Book p. 49
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: Factor $x^2 + bx + c$

	College Prep
Focus and Motivate **Starting Options**	Homework Check (9.4): TE p. 578; Answer Transparencies Daily Homework Quiz (9.4): TE p. 580 Warm-Up: TE p. 583 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 584
Teach **Teaching Options**	Essential Question: TE p. 583 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–5: PE pp. 583–585 Extra Examples 1–5 with Key Questions: TE pp. 584–585 Interdisciplinary Application: Chapter Resource Book p. 59 Note taking Guide pp. 203–206
Checking for Understanding	Closing the Lesson: TE p. 585 Guided Practice Exercises: PE pp. 583–585
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 586–589 Exs. 1, 2, 3–17 odd, 18, 19, 47–55, 66–72 even; Day 2: pp. 586–589 Exs. 21–29 odd, 33–46, 59–64, 74, 78 Practice Masters: Chapter Resource Book pp. 53–55 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 56–57 Tutorial Software Challenge: Chapter Resource Book p. 60
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: Factor $ax^2 + bx + c$

	College Prep
Focus and Motivate **Starting Options**	Homework Check (9.5): TE p. 586; Answer Transparencies Daily Homework Quiz (9.5): TE p. 589 Warm-Up: TE p. 593 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 594
Teach **Teaching Options**	Essential Question: TE p. 593 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–5; PE pp. 593–596 Extra Examples 1–5 with Key Questions: TE pp. 594–596 Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 70 Note taking Guide pp. 207–209
Checking for Understanding	Closing the Lesson: TE p. 596 Guided Practice Exercises: PE pp. 594–596
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 596–599 Exs. 1–3, 8–21, 52–55, 65–71 odd; Day 2: pp. 596–599 Exs. 26–38 even, 39–51, 58–62, 74, 77, 80 Practice Masters: Chapter Resource Book pp. 54–56 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 67–68 Tutorial Software Challenge: Chapter Resource Book p. 71
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: Factor Special Products

	College Prep
Focus and Motivate **Starting Options**	Homework Check (9.6): TE p. 597; Answer Transparencies Daily Homework Quiz (9.6): TE p. 599 Warm-Up: TE p. 600 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 601
Teach **Teaching Options**	Essential Question: TE p. 600 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–6: PE pp. 600–602 Extra Examples 1–6 with Key Questions: TE pp. 601–602 Real-Life Application: Chapter Resource Book p. 80 Note taking Guide pp. 210–213
Checking for Understanding	Closing the Lesson: TE p. 602 Guided Practice Exercises: PE pp. 600–602
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 603–605 Exs. 1, 2, 6–8, 12–24, 25–39 odd, 46–51, 54–76 even Practice Masters: Chapter Resource Book pp. 74–76 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 77–78 Tutorial Software Challenge: Chapter Resource Book p. 81
Accommodations/Modifications:	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).

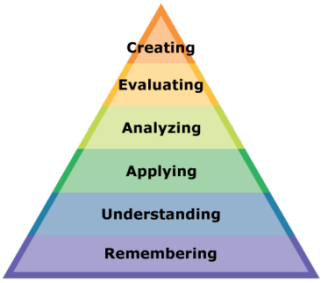
Section 9.8: Factor Polynomials Completely

	College Prep
Focus and Motivate **Starting Options**	Homework Check (9.7): TE p. 603; Answer Transparencies Daily Homework Quiz (9.7): TE p. 605 Warm-Up: TE p. 606 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 607
Teach **Teaching Options**	Essential Question: TE p. 606 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–6: PE pp. 606–609 Extra Examples 1–6 with Key Questions: TE pp. 607–609 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 90 Note taking Guide pp. 214–218
Checking for Understanding	Closing the Lesson: TE p. 609 Guided Practice Exercises: PE pp. 607–609
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 610–613 Exs. 1–12, 14–22 even, 61–66, 87–89; Day 2: pp. 610–613 Exs. 32–60, 68–73, 76, 80, 84 Practice Masters: Chapter Resource Book pp. 84–86 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 87–88 Tutorial Software Challenge: Chapter Resource Book p. 91
Accommodations/Modifications:	Have students make flowchart to organize "How to Factor" (Chapter 9-8) This lesson can be done before Chapter 9-5 and you can use it for both $x^2 + bx + c$ and a $x^2 + bx + c$. If you teach factoring by grouping all the way through. *(Chapter 9-8)* Instruct each group to create a mnemonic device to help them remember the order in which to try the factoring methods they have learned. *(Chapter 9-8)* *(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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.
Provide Graphic organizers to use in solving problems.
Provide guided notes/handouts.
Provide visual glossaries, blank number lines for use with positive and negative numbers.
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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Student Work, 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).

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Algebra 1/Radicals and Geometry Connections **Grade Level(s):** 9-12	**Unit Summary**: **In this unit students graph square root functions. They simplify radical expressions, including rationalizing denominators. They add, subtract, and multiply radicals. They solve radical equations, including equations with extraneous solutions. They apply the Pythagorean Theorem and its converse as well as the distance and midpoint formulas to solve problems.**
Essential Question(s): • **How do I graph square root functions?** • **How do I use properties of radicals in expressions and equations?** • **How do I work with radicals in geometry?**	**Enduring Understanding(s):** Students will be able to: • Graph square root functions. • Simplify radical expressions. • Solve radical equations. • Apply the Pythagorean Theorem and its converse. • Apply the distance and midpoint formula.

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	**CCSS**
1. **Graphing Square Root Functions** **CC.9.12-F.IF.C.7b**- *[Standard] - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. Graph square root, cube root, and piecewise-defined functions including step functions and absolute value functions.*	1. **CC.9-12.F.IF.C.7b,**
2. **Using properties of radicals in expressions and equations.** ***CC.9-12.A.REI.A.2*** *- [Standard] - Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.*	2. **CC.9-12.A.REI.A.2**
3. **Writing and solving polynomial equations** ***CC.9-12.G.SRT.C.8***- *[Standard] - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems..* **CC.9-12.G.GPE.B.7**- *[Standard] - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.*	3. **CC.9-12.G.SRT.C.8, CC.9-12.G.GPE.B.7**

Inter-Disciplinary Connections:

Real-World problem solving examples:
Use radical model to determine sales (p713), Find the distance to the horizon (p.725), Determine the velocity and distance traveled of a trapeze performer (p.733), examine angles in architecture (p. 739), calculate distance traveled (p. 746).

Inter-Disciplinary problem solving examples:
Use square root equation to model the orbital period of a planet (p722), Determine the length of time for an animal to jump using a radical model p(733), Determine the distance between two objects under water (p749)

Students will engage with the following text:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

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.

How will students uncover content and build skills.

Students will uncover and build skills through various classroom learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

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

Section 11.1: Graph Square Root Functions

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 710 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 711
Teach **Teaching Options**	Essential Question: TE p. 710 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator: Lesson 11.1 A, B, C Examples 1–6: PE pp. 710–713 Extra Examples 1–5 with Key Questions: TE pp. 711–713
Checking for Understanding	Closing the Lesson: TE p. 713 Guided Practice Exercises: PE pp. 711 - 713
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 713-716 Exs. 1, 2,5-22, 41 Day 2: pp 713-716 25-40, 43-47, 51-67 odd
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 10–11 Tutorial Software Challenge: Chapter Resource Book p. 14
Accommodations/Modifications:	Students should create a vocabulary page for their notebook that includes the description and an example. (Chapter 11.1) *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*

Section 11.2: Simplify Radical Expressions

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 719 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 720
Teach **Teaching Options**	Essential Question: TE p. 719 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Examples 1–7: PE pp. 719-722 Extra Examples 1–7 with Key Questions: TE pp. 720-722 Real Life Application: Chapter Resource Book p. 27 Note taking Guide pp. 251-255
Checking for Understanding	Closing the Lesson: TE p. 722 Guided Practice Exercises: PE pp. 719-722
Practice and Apply **Assigning Homework**	Day 1: pp. 723–726 Exs. 1, 2, 4–22 even, 23–32, 55–58; Day 2: pp. 723–726 Exs. 35–53 odd, 59–63, 67–71, 74, 77, 80, 82, 84, 87, 90, 93

Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 24-25 Tutorial Software Challenge: Chapter Resource Book p. 28
Accommodations/Modifications:	Have students use factor trees in order to find perfect squares.(*Chapter 11-2)* Have students practice identifying patterns. *(Chapter 11-2)* 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: Solve Radical Equations

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 729 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 730
Teach **Teaching Options**	Essential Question: TE p. 729 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 31-32 Examples 1–5: PE pp. 729-731 Extra Examples 1–5 with Key Questions: TE pp. 730-731 Interdisciplinary Application: Chapter Resource Book p. 39 Note taking Guide pp. 256-258
Checking for Understanding	Closing the Lesson: TE p. 731 Guided Practice Exercises: PE pp. 729-731
Practice and Apply **Assigning Homework**	Day 1: pp. 732–734 Exs. 1, 2, 5–21, 31, 32; Day 2: pp. 732–734 Exs. 22–30, 36–40, 42–48 even
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 36-37 Tutorial Software Challenge: Chapter Resource Book p. 41
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).*

Section11.4: Apply the Pythagorean Theorem and its Converse

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 737 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p.738
Teach **Teaching Options**	Essential Question: TE p. 737 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Examples 1–5: PE pp. 737-739 Extra Examples 1–5 with Key Questions: TE pp. 737-739 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 50 Note taking Guide pp. 259-261
Checking for Understanding	Closing the Lesson: TE p. 739 Guided Practice Exercises: PE pp. 737-739
Practice and Apply **Assigning Homework**	Day 1: pp. 740–742 Exs. 1, 2, 9–22, 26–31, 33–37, 40–50 even

Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 47-48 Tutorial Software Challenge: Chapter Resource Book p. 51
Accommodations/Modifications:	Have students use the vocabulary of right triangles ($leg^2 + leg^2 = hypotenuse^2$) and label each problem before starting. *(Chapter 11-4)* Have students practice using the Pythagorean Theorem by completing a table. *(Chapter 11- 4)* *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*

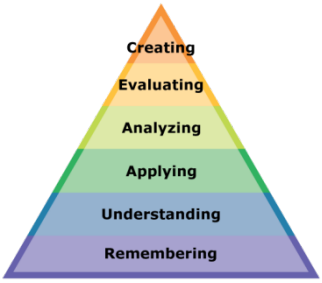
Section 11.5: Apply the Distance and Midpoint Formulas

	College Prep
Focus and Motivate **Starting Options**	Warm-Up: TE p. 744 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 745
Teach **Teaching Options**	Essential Question: TE p. 744 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4: PE pp. 744-746 Extra Examples 1–4 with Key Questions: TE pp. 745-746 Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 60 Note taking Guide pp. 262-264
Checking for Understanding	Closing the Lesson: TE p. 746 Guided Practice Exercises: PE pp. 745-747
Practice and Apply **Assigning Homework**	Day 1: pp. 747–750 Exs. 1, 2, 10–15, 19–21, 30–44, 48–51, 54–64 even
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 57-58 Tutorial Software Challenge: Chapter Resource Book p. 61
Accommodations/Modifications:	Help students organize their work to determine the midpoint into an equation that will work for all types of midpoint problems. *(Chapter 11-5)* *(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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.
Provide Graphic organizers to use in solving problems.
Provide guided notes/handouts.
Provide visual glossaries, blank number lines for use with positive and negative numbers.
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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Student Work, 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).

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

<table>
<tr><td>Course/Unit Title:
Algebra 1/Quadratic Equations and Functions</td><td rowspan="2">Unit Summary:
In this unit students graph quadratic functions and compare them to the parent graph. They find the axis of symmetry, the vertex, and minimum or maximum values. They solve quadratic equations by factoring, graphing, using square roots, completing the square, and using the quadratic formula. Students use the discriminant to determine the number of type of solutions of a quadratic equation. Finally, students determine whether a linear, exponential, or quadratic function best models a set of data.</td></tr>
<tr><td>Grade Level(s):
9-12</td></tr>
<tr><td>Essential Question(s):
How do I graph quadratic functions?
How do I solve quadratic equations?
How do I compare linear, exponential, and quadratic models?</td><td>Enduring Understanding(s):
Students will be able to:
Graph $y = ax^2 + c$.
Graph $y = ax^2 + bx + c$.
Solve quadratic equations by graphing.
Use square roots to solve quadratic equations.
Solve quadratic equations by completing the square.
Solve quadratic equations by the quadratic formula.
Interpret the discriminant.
Compare linear, exponential, and quadratic models.</td></tr>
</table>

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	CCSS
1. Graphing quadratic functions. **CC.9.12-A.CED.A.2**- *[Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* **CC.9.12-A.CED.A.3**- *[Standard] - 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.* **CC.9.12-F.IF.B.4** - *[Standard] - 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.* **CC.9.12-F.IF.B.5 -** *[Standard] - 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.* **CC.9.12-F.IF.C.7.a** - *[Standard]* - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. Graph linear and quadratic functions and show intercepts, maxima, and minima. **CC.9.12-F.IF.C.7.c** - *[Standard]* - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases*. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.* **CC.9.12-F.BF.B.3** - *[Standard] - 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.*	**1. CC.9-12.A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.IF.B.5, CC.9-12.F.IF.C.7a, CC.9-12.F.IF.C.7c, CC.9-12.F.BF.B.3'**
2. Solving quadratic equations ***CC.9-12.A.CED.A.1*** - *[Standard] - Create equations and inequalities in one variable solving and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.* ***CC.9-12.A.CED.A.2*** - *[Standard] - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.* ***CC.9-12.A.CED.A.3*** - *[Standard] - Represent constraints by equations or*	**2. CC.9-12.A.CED.A.1, CC.9-12, A.CED.A.2, CC.9-12.A.CED.A.3, CC.9-12.REI.B.4a, CC.9-12.A.REI.B.4b, CC.9-12.A.REI.D.11, CC.9-12.A.SSE.B.3, CC.9-**

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. **CC.9-12.A.REI.B.4a** - *[Standard] - Solve quadratic equations in one variable. 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.* **CC.9-12.A.REI.B.4b** - *[Standard] - Solve quadratic equations in one variable. 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.* **CC.9-12.A.REI.D.11** - *[Standard]* - 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. **CC.9-12.A.SSE.B.3.a–** *[Standard] - Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. Factor a quadratic expression to reveal the zeros of the function it defines.* **CC.9-12.F.BF.3** - *[Standard] - 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.* **CC.9-12.F.BF.4.a** - *[Standard] - Find inverse functions. Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. For example, f(x) =2 x3 or f(x) = (x+1)/(x–1) for $x \neq 1$.* **CC.9.12-F.IF.C.7.a** - *[Standard]* - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. Graph linear and quadratic functions and show intercepts, maxima, and minima. **CC.9.12-F.IF.C.7.c** - *[Standard]* - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases*. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.* **CC.9-12.F.IF.C.8a** - *[Standard] - Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.*	**12.F.BF.B.3, F.IF.B.4.a, CC.9-12.F.IF.C.7a, CC.9-12.F.IF.C.7c, CC.9-12.F.IF.C.8a**
3. Comparing linear, exponential and quadratic models ***CC.9-12.A.CED.A.2*** *- [Standard] - Create equations in two or more variables to*	**3. CC. 9-12.A.CED.A.2,**

represent relationships between quantities; graph equations on coordinate axes with labels and scales. ***CC.9-12.A.CED.A.3*** *- [Standard] - 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.* **CC.9.12-F.IF.B.4** *- [Standard] - 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.* **CC.9.12-F.IF.C.7.a** - *[Standard]* - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. Graph linear and quadratic functions and show intercepts, maxima, and minima. **CC.9.12-F.IF.C.7.c** - *[Standard]* - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases*. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.* **CC.9.12-F.IF.C.7.e** - *[Standard]* - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases*. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.* ***CC.9-12.F.BF.A.1a*** *- [Standard] - Write a function that describes a relationship between two quantities. Determine an explicit expression, a recursive process, or steps for calculation from a context.* **CC.9-12.F.LE.A.1b** *- [Standard] - Distinguish between situations that can be modeled with linear functions and with exponential functions. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.* **CC.9-12.F.LE.A.1c** *- [Standard] - Distinguish between situations that can be modeled with linear functions and with exponential functions. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.* **CC.9-12.F.LE.A.3** *- [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.* **CC.9-12.F.LE.B.5** *- [Standard] - Interpret the parameters in a linear or exponential function in terms of a context.* **CC.9-12.S.ID.B.6a** *- [Standard] - Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.*	**CC.9-12.A.CED.A.3, CC.9-12.F.IF.B.4, CC.9-12.F.IF.C.7a, CC.9-12.F.IF.C.7c, CC.9-12.F.IF.C.7e, CC.9-12.F.BF.A.1a, CC.9-12.F.LE.A.1.b, CC.9-12.F.LE.A.1.c, CC.9-12.F.LE.A.3, CC.9-12.F.LE.B.5, CC.9-12.S.ID.B.6a**

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:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

Students will write:

Writing/Open Ended questions:
Explain how you can tell if a quadratic graph opens up or down (p 632), Compare two graphs (p 639), Explain why the equation is quadratic or not (p 647), Describe two methods of solving ax^2 + c = 0 (p 655), Explain why it's a perfect square trinomial (p 666), Explain what methods you use to solve an equation (p 674), Explain how the discriminant relates to the graph (p 681), Describe how you can tell what kind of function is given (p 688).

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 learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

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

Section 10.1: Graph $y = ax^2 + c$

	College Prep
Focus and Motivate **Starting Options**	Homework Check (9.8): TE p. 610; Answer Transparencies Daily Homework Quiz (9.8): TE p. 613 Warm-Up: TE p. 628 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 629
Teach **Teaching Options**	Essential Question: TE p. 628 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 5 Examples 1–6: PE pp. 628–631 Extra Examples 1–6 with Key Questions: TE pp. 629–631 Interdisciplinary Application: Chapter Resource Book p. 15 Note taking Guide pp. 220–223
Checking for Understanding	Closing the Lesson: TE p. 631 Guided Practice Exercises: PE pp. 629–631
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 632–634 Exs. 1–5, 10–23, 52–57; Day 2: pp. 632–634 Exs. 26–36, 40–44, 46–51
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 12–13 Tutorial Software Challenge: Chapter Resource Book p. 16
Accommodations/Modifications:	Review new vocabulary words associated with a quadratic function. Make a large poster to display in class. *(Chapter 10-1)* *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*

Section 10.2: Graph $y = ax^2 + bx + c$

	College Prep
Focus and Motivate **Starting Options**	Homework Check (10.1): TE p. 632; Answer Transparencies Daily Homework Quiz (10.1): TE p. 634 Warm-Up: TE p. 635 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 636
Teach **Teaching Options**	Essential Question: TE p. 635 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book pp. 19–20 Examples 1–4: PE pp. 635–637

	Extra Examples 1–4 with Key Questions: TE pp. 636–637 Problem Solving Workshop: Worked Out Examples: Chapter Resource Book p. 30 Note taking Guide pp. 224–226
Checking for Understanding	Closing the Lesson: TE p. 637 Guided Practice Exercises: PE pp. 636–637
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 638–640 Exs. 1, 2, 6–14 even, 20–27, 31–38, 40–44, 47, 52, 56
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 27–28 Tutorial Software Challenge: Chapter Resource Book p. 31
Accommodations/Modifications:	Have students record their information in a table. *(Chapter 10-2)* *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*

Section 10.3: Solve Quadratic Equations by Graphing

	College Prep
Focus and Motivate **Starting Options**	Homework Check (10.2): TE p. 638; Answer Transparencies Daily Homework Quiz (10.2): TE p. 640 Warm-Up: TE p. 643 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 644
Teach **Teaching Options**	Essential Question: TE p. 643 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–6: PE pp. 643–646 Extra Examples 1–6 with Key Questions: TE pp. 644–646 Interdisciplinary Application: Chapter Resource Book p. 44 Note taking Guide pp. 227–229
Checking for Understanding	Closing the Lesson: TE p. 646 Guided Practice Exercises: PE pp. 644–646
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 647–649 Exs. 1, 2, 5–21, 47, 48, 59–63 odd; Day 2: pp. 647–649 Exs. 24–46, 50–54, 56–58
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 41–42 Tutorial Software Challenge: Chapter Resource Book p. 45
Accommodations/Modifications:	Provide coordinate grids that are larger than normal for students. *(Chapter 10-3)* *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*

Section 10.4: Use Square Roots to Solve Quadratic Equations

	College Prep
Focus and Motivate **Starting Options**	Homework Check (10.3): TE p. 647; Answer Transparencies Daily Homework Quiz (10.3): TE p. 649 Warm-Up: TE p. 652 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 653
Teach **Teaching Options**	Essential Question: TE p. 652 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book p. 48 Examples 1–5: PE pp. 652–654 Extra Examples 1–5 with Key Questions: TE pp. 653–654 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 55 Note taking Guide pp. 230–232
Checking for Understanding	Closing the Lesson: TE p. 654 Guided Practice Exercises: PE pp. 653–655

Practice and Apply **Assigning Homework**	Average: Day 1: pp. 655–658 Exs. 1, 2, 7–16, 21–29, 47–49; Day 2: pp. 655–658 Exs. 30–46, 50–52, 56–62, 64–72 even
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 52–53 Tutorial Software Challenge: Chapter Resource Book p. 57
Accommodations/Modifications:	*(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*

Section 10.5: Solve Quadratic Equations by Completing the Square

	College Prep
Focus and Motivate **Starting Options**	Homework Check (10.4): TE p. 655; Answer Transparencies Daily Homework Quiz (10.4): TE p. 658 Warm-Up: TE p. 663 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 664
Teach **Teaching Options**	Essential Question: TE p. 663 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4: PE pp. 663–665 Extra Examples 1–4 with Key Questions: TE pp. 664–665 Real-Life Application: Chapter Resource Book p. 67 Note taking Guide pp. 233–235
Checking for Understanding	Closing the Lesson: TE p. 665 Guided Practice Exercises: PE pp. 663–665
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 666–668 Exs. 1, 2, 5–11, 15–23, 28–33; Day 2: pp. 666–668 Exs. 24–27, 34–42, 45–50, 55–58, 62
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 64–65 Tutorial Software Challenge: Chapter Resource Book p. 68
Accommodations/Modifications:	A visual model will help students remember how to complete the square. *(Chapter 10-5)* *(Reference materials are located in District shared directory, mathematics, modifications /accommodations folder, by chapter and section).*

Section 10.6: Solve Quadratic Equations by the Quadratic Formula

	College Prep
Focus and Motivate **Starting Options**	Homework Check (10.5): TE p. 666; Answer Transparencies Daily Homework Quiz (10.5): TE p. 668 Warm-Up: TE p. 671 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 672
Teach **Teaching Options**	Essential Question: TE p. 671 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4: PE pp. 671–673 Extra Examples 1–4 with Key Questions: TE pp. 672–673 Problem Solving Workshop: Using Alternative Methods: Chapter Resource Book p. 77 Note taking Guide pp. 236–238
Checking for Understanding	Closing the Lesson: TE p. 673 Guided Practice Exercises: PE pp. 672–673
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 674–676 Exs. 1, 2, 6–12, 16–27; Day 2: pp. 674–676 Exs. 28–44, 46–50, 52–60 even
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 74–75 Tutorial Software Challenge: Chapter Resource Book p. 78

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 10.7: Interpret the Discriminant

	College Prep
Focus and Motivate **Starting Options**	Homework Check (10.6): TE p. 674; Answer Transparencies Daily Homework Quiz (10.6): TE p. 676 Warm-Up: TE p. 678 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 679
Teach **Teaching Options**	Essential Question: TE p. 678 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4: PE pp. 678–680 Extra Examples 1–4 with Key Questions: TE pp. 679–680 Math and History Application: Chapter Resource Book p. 87 Note taking Guide pp. 239–241
Checking for Understanding	Closing the Lesson: TE p. 680 Guided Practice Exercises: PE pp. 670–680
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 603–605 Exs. 1, 2, 6–8, 12–24, 25–39 odd, 46–51,
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 84–85 Tutorial Software Challenge: Chapter Resource Book p. 88
Accommodations/Modifications:	*(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*

Section 10.8: Compare Linear, Exponential, and Quadratic Models

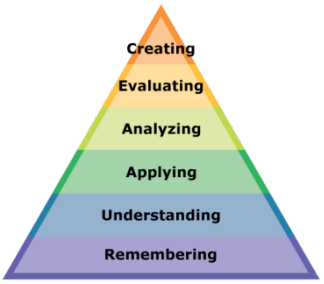
	College Prep
Focus and Motivate **Starting Options**	Homework Check (10.7): TE p. 681; Answer Transparencies Daily Homework Quiz (10.7): TE p. 683 Warm-Up: TE p. 684 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 685
Teach **Teaching Options**	Essential Question: TE p. 684 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–4 : PE pp. 684–687 Extra Examples 1–4 with Key Questions: TE pp. 685–687 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book p. 101 Note taking Guide pp. 242–244
Checking for Understanding	Closing the Lesson: TE p. 687 Guided Practice Exercises: PE pp. 685–687
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 688–691 Exs. 1–11, 35–43; Day 2: pp. 688–691 Exs. 14–21, 23–27, 29–34

Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 98–99 Tutorial Software Challenge: Chapter Resource Book p. 102
Accommodations/Modifications:	Have students organize the information about each type of a function in a table. In one column, write the information for linear functions, in the next write the corresponding information for quadratic functions, and in the third column write the information for exponential functions. *(Chapter 10-8)* *(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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.

Provide Graphic organizers to use in solving problems.

Provide guided notes/handouts.

Provide visual glossaries, blank number lines for use with positive and negative numbers.

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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Student Work, 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).

Black Horse Pike Regional School District Curriculum Template

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

Course Name: Algebra 1

PART I: UNIT RATIONALE

WHY ARE STUDENTS LEARNING THIS CONTENT AND THESE SKILLS?

Course/Unit Title: Algebra 1/Probability and Data Analysis **Grade Level(s):** 9-12	**Unit Summary**: **In this unit students will identify potentially biased samples and questions. They compare measures of central tendency and measures of dispersion, and analyze and display data.**
Essential Question(s): • **How do I analyze sets of data?** • **How do I make and interpret data displays?**	**Enduring Understanding(s):** Students will be able to: • Analyze surveys and samples. • Use measures of central tendency and dispersion. • Interpret stem-and-leaf plats and histograms. • Interpret box-and-whisker plots.

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	**CCSS**
1. **Analyzing sets of data** **CC.9.12-S.ID.A.2** - *[Standard] - Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.* **CC.9.12-S.ID.A.3** - *[Standard] - Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).* **CC.9.12-S.IC.A.1** - *[Standard] - Understand statistics as a process for making inferences about population parameters based on a random sample from that population.* **CC.9.12-S.IC.B.3** - *[Standard] - Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.* **CC.9.12-S.MD.B.6** - *[Standard] - Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).*	1. ***CC.9-12.S.ID.A.2, CC.9-12.S.ID.A.3, CC.9-12.S.IC.A.1, CC.9-12.S.IC.B.3, CC.9-12.S.MD.B.6,***

2. Making and Interpreting data displays **CC.9.12-S.ID.A.1** - *[Standard] - Represent data with plots on the real number line (dot plots, histograms, and box plots)..* **CC.9.12-S.ID.A.2** - *[Standard] - Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.* **CC.9.12-S.ID.A.3** - *[Standard] - Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).*	**2. CC.9-12.S.ID.A.1, CC.9-12.S.ID.A.2, CC.9-12.S.ID.A.3**

Inter-Disciplinary Connections:

Real-World problem solving examples:
Identify population and sample method for customer satisfaction (p 873), Decide if a soccer sampling is biased (p 872), Compare waterfall heights using measures of central tendency (p 875), Display data for the heights of members on a boys' basketball team (p 884),

Inter-Disciplinary problem solving examples:
Baseball Stadium Selection (p 874), Population Densities (p 878), Seaway sailing times (p890)

Students will engage with the following text:

Larson Algebra 1 2007 and Larson Algebra 1 2011 by Holt McDougal

Students will write:

Writing/Open Ended questions:
Explain how sample is related to a population (p 873), Explain which measure of central tendency is best for a given situation (p 877), Explain the outliers for a given stem-and-leaf plot (p 891)

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 learning activities. Investigating algebra activities, modeling examples, using real-life application, using note-taking strategies, and using Smart Board technologies will all be explored as a blend of learning strategies to promote critical thinking, problem solving and performance skills of all learners. Other learning experiences could include alternative lesson openers, math and history applications, problem-solving workshops, interdisciplinary applications and projects.

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

Section 13.5: Analyze Surveys and Samples

	College Prep
Focus and Motivate **Starting Options**	Homework Check (13.4): TE p. 864; Answer Transparencies Daily Homework Quiz (13.4): TE p. 867 Warm-Up: TE p. 871 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 872
Teach **Teaching Options**	Essential Question: TE p. 871 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–3: PE pp. 871–872 Extra Examples 1–3 with Key Questions: TE p. 872 Real-Life Application: Chapter Resource Book p. 56 Note taking Guide pp. 308–310
Checking for Understanding	Closing the Lesson: TE p. 872 Guided Practice Exercises: PE pp. 871–872
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 557–559 Exs. 1, 2, 6–10, 12–26 even, 27–34, 37–41, 44, 47, 50, 53Practice Masters: Chapter Resource Book pp. 7–9 (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 53–54 Tutorial Software Challenge: Chapter Resource Book p. 57
Accommodations/Modifications:	Make a list of vocabulary to help understand definitions. *(Chapter 13-5).* Give students a resource page that they can refer to that lists the types of sampling methods along with examples. *(Chapter 13-5). (Reference materials are located in District shared directory, mathematics, modifications/accommodations-folder, by chapter and section).*

Section 13.6: Use Measures of Central Tendency and Dispersion

	College Prep
Focus and Motivate **Starting Options**	Homework Check (13.5): TE p. 873; Answer Transparencies Daily Homework Quiz (13.5): TE p. 874 Warm-Up: TE p. 875 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 876
Teach **Teaching Options**	Essential Question: TE p. 875 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Chapter Resource Book pp. 60–61

	Examples 1–2: PE pp. 875–876 Extra Examples 1–2 with Key Questions: TE p. 876 Problem Solving Workshop: Worked Out Example: Chapter Resource Book p. 69 Note taking Guide pp. 311–313
Checking for Understanding	Closing the Lesson: TE p. 876 Guided Practice Exercises: PE pp. 875–876
Practice and Apply **Assigning Homework**	Average: Day 1: pp. 877–878 Exs. 1, 2, 4–10, 13–17, 19–22, 24
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book pp. 66–67 Tutorial Software Challenge: Chapter Resource Book p. 70
Accommodations/Modifications:	Have students visualize the concepts of median and mode with concrete examples. *(Chapter 13-6)* *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*

Section 13.7: Interpret Stem-and-Leaf Plats and Histograms

	College Prep
Focus and Motivate **Starting Options**	Homework Check 13.6): TE p. 877; Answer Transparencies Warm-Up: TE p. 881or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 882
Teach **Teaching Options**	Essential Question: TE p. 881 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator Examples 1–3: PE pp. 881-882 Extra Examples 1-3 with Key Questions: TE pp. 882-883 Interdisciplinary Application: Chapter Resource Book 70 Note taking Guide pp. 314-315
Checking for Understanding	Closing the Lesson: TE p. 883 Guided Practice Exercises: PE pp. 881-883
Practice and Apply **Assigning Homework**	Average: Day 1: pp 883-885 EXS: 1, 2, 4-9, 17, 20, 21 Day 2: pp883-885 Exs: 11-16, 18, 19, 22-27 Practice Masters: Chapter Resource Book (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book Tutorial Software Challenge: Chapter Resource Book
Accommodations/Modifications:	Have students visualize the concepts of quartiles, median and mean with concrete examples. *(Chapter 13-7)* *(Reference materials are located in District shared directory, mathematics, modifications/accommodations folder, by chapter and section).*

Section 13.8: Interpret Box-and-Whisker Plots

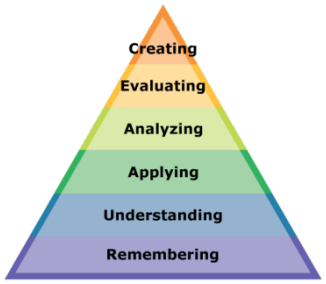
	College Prep
Focus and Motivate **Starting Options**	Homework Check (13.7): TE p. 877 Answer Transparencies Warm-Up: TE p. 887 or Transparencies Starting the Lesson Questions: Teaching Guide Motivating the Lesson: TE p. 888
Teach **Teaching Options**	Essential Question: TE p. 887 Alternative Lesson Openers: Electronic Classroom Classroom Activity: Activity Generator; Examples 1–3: PE pp. 887-889 Extra Examples 1–3 with Key Questions: TE pp. 888-889 Problem Solving Workshop: Mixed Problem Solving: Chapter Resource Book Note taking Guide
Checking for Understanding	Closing the Lesson: TE p. 889 Guided Practice Exercises: PE pp. 887-889
Practice and Apply	Average: Day 1: pp. 889-892 Exs. 1, 2, 4-7, 15, 16, 21, 22 Day 2: pp. 889-892 Exs. 8-13, 17-19, 23, 24

Assigning Homework	Practice Masters: Chapter Resource Book (Levels A, B, or C)
Assess and Reteach **Differentiating Instruction**	Study Guide: Chapter Resource Book Tutorial Software Challenge: Chapter Resource Book
Accommodations/Modifications:	Have students visualize the concepts of quartiles, median and mean with concrete examples.*(Chapter 13-7)* *(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 multiple assessment strategies such as teacher observations on student performance , assessment of students' work independently and collaboratively, questioning strategies, self and peer assessment including student record-keeping, assessments, essays, journal writing, performance tasks, diagnostic tests, homework, and projects. The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

Accommodations/Modifications:

Use manipulatives to build patterns or represent symbols.
Provide Graphic organizers to use in solving problems.
Provide guided notes/handouts.
Provide visual glossaries, blank number lines for use with positive and negative numbers.
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 Assessments, Summative Assessments, State Assessments (PARCC), PSATs, SATs, ACTs, Accuplacer Math, ASVAB- AFQT, and End of Course Benchmark
The teachers will continually interpret results to evaluate and promote student learning in order to foster the continuous development of students.

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:

Performance tasks, Projects, Student Work, 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).