West Deptford Township Schools
Algebra 1A Curriculum

Created by: J. Holloway, A. Schramm, J. Stuart

Unit – 1 Solving Linear Equations			
Pacing Guide: Review Lessons: Operation with Integers, Units of Measure 5 days Lesson 1.1 Solving Simple Equations, 2 days Lesson 1.2 Solving Multi-Step Equations, 4 days 1.1-1.2-Review and quiz, 2 days Lesson 1.3 Solving Equations with Variables on Both sides, 3 days Lesson 1.4 Solving Absolute Value Equations, 3 days 1.3-1.4 Review and quiz, 2 days Lesson 1.5 Rewriting Equations and Formulas, 4 days Chapter Review and Test, 6 days Total - 31 days			

Standards	Transfer Goals	Concepts		Critical Knowledge and Skills
		Essential Questions	**Understandings**	
HSA.CED A. Create equations that describe numbers or relationships 1. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. 4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.*	Students will be able to independently use their learning to model and analyze linear relationships that occur in real life situations.	● How can you use simple equations to solve real-life problems? ● How can you use multi-step equations to solve real-life problems? ● HOw can you solve an equation that has variables on both sides? ● How can you solve an absolute value equation? ● How can yo uuse a formula for one measurement to	● solve multistep linear equations and use them to solve real-life problems. ● Use unit analysis to model real-life problems ● solve linear equations with a variable on one side or both sides, and identify equations with no solution or infinitely many solutions. ● solve absolute	Knowledge ❏ conjecture ❏ rule ❏ theorem ❏ equation ❏ linear equation ❏ solution ❏ inverse operations ❏ equivalent equations ❏ expression ❏ mean ❏ identity ❏ absolute value equation ❏ extraneous solution ❏ literal equation ❏ formula

	CRP		write a formula for a different measurement	value equations involving one or two absolute values, and identify equations with extraneous solutions.	Skills:
HSA.REI. A. Understand solving equations as a process of reasoning and explain the reasoning 1. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. HSA.REI. B. Solve equations and inequalities in one variable 3. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. HSA.N-Q A. Reason quantitatively and use units to solve problems. 1. 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.	CRP 2 CRP 4 CRP8 CRP11 CRP12			● rewrite and use literal equation and common formulas.	❏ solve linear equations using addition and subtraction ❏ solve linear equations using multiplication and division ❏ use linear equations to solve real-life problems ❏ solve multi-step linear equations using inverse operations ❏ use multi-step linear equations to solve real-life problems ❏ use unit analysis to model real-life problems ❏ solve linear equations that have variables on both sides ❏ identify special solutions of linear equations ❏ solve absolute value equations ❏ solve equations involving two absolute values ❏ identify special solutions of absolute value equations ❏ rewrite literal equations ❏ rewrite and use formulas for area ❏ rewrite and use other common formulas

School Formative Assessment Plan (Other Evidence)	School Summative Assessment Plan (Performance Tasks)
1) Construct Viable Arguments and Critique the Reasoning of Others – allows conceptual knowledge and ability to construct a viable argument 2) Exit Ticket: students will be asked to respond to a question at the end of the lesson, activity, or learning experience. This method allows for the collection of evidence of student learning. It will also allow instruction for the next day to be gauged based upon results. 3) I Used to Think…Now I Know Activity: students will reflect on their current understanding of solving inequalities involving multiplication and division. 4) No Hands Questioning – no hands should be raised when using this questioning as a quick assessment. Students may either use a thumbs up, thumbs down, or thumbs to the side/a 1, 2, 3 finger response/popsicle sticks with student names on them for teacher to randomly select student. 5) Turn and Talk – Provide an example on the board which has been completed as a full class, change one aspect of the problem, and ask students to "turn and talk" about how the outcome will change. 6) Think-Pair-Share – this is way to reason quantitatively and use units to solve problems. 1. 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. a collaborative learning strategy in which students work together to solve a problem or answer a question about an assigned reading. This technique requires students to (1) **think** individually about a topic or answer to a question; and (2) **share** ideas with classmates. 7) Analyze the Error - provide a completed inequality with a mistake embedded. Students must find the error, explain it and correct it. 8) Teacher made quizzes/test 9) LinkIt! Assessments 10) Kahoot – online multiple choice quiz/game tool 11) Carousel Activities – students move through stations that are hung around the room to complete given problems. 12) Do Now - brief starters or warm-up activities that occur at the beginning of a lesson.	The Magic of Mathematics- Have you ever watched a magician perform a number trick? You can use algebra to explain how these magic tricks work. Use algebra to prove why answers to two algebra magic problems work. Students create their own magic problem by working backwards. See Big Ideas Assessment book, page 21/22 (also available on staff drive, Algebra I folder, Big Ideas)

District / School Primary and Supplementary Resources	
Primary Resources	Supplementary Resources
Holt Algebra 1 Textbook	Additional outside Resources: ● IXL ● Big Ideas text and supplementary materials ● Kahn Academy ● Virtual Nerd Videos ● Online Assessments – LinkIt! ● Desmos ● YouTube

Technology Integration

Tech.8.1.12.A.3 - Google Classroom, Edmodo

Tech.8.1.12.B.2 – Use of IXL. Poll Everywhere, Kahoot,

Tech.8.2.12.E1 – Use of desmos

Differentiated Instruction

Gifted Students (N.J.A.C.6A:8-3.1)
❏

English Language Learners (N.J.A.C.6A:15)
❏

Risk Students (N.J.A.C.6A:8-4.3c)
❏

Special Education Students (N.J.A.C.6A:8-3.1)
❏ Information Frame – assists students in organizing and remembering concepts. Topic is placed in middle rectangle, while related concepts are placed in the spaces around the rectangle. These will include words, numbers, Algebra, definitions, examples, non-examples, procedures, details, vocabulary, etc.
❏ Visual Card – For students having difficulty graphing inequalities – use a 3x5 card broken into 3 columns (inequality, circle, and direction). Provide a quick example of each – i.e. (x < 6/open/left).

- ❏ Think-Pair-Share – students will discuss problems and solution with a partner or in a small group, and then share with the class.
- ❏ Compare/Contrast Chart – students will be provided a chart to compare and contrast the properties associated with multiplying and dividing negative numbers in inequalities (example will be included as well.
- ❏ Kinesthetic Learning - have pairs of students work together to graph compound inequalities. Have one student use a red pencil to graph the first part of the inequality. The other student uses a different color to graph the second part on the same number line. For a compound inequality with "and," the graph is the interval where both colors overlap.
- ❏ Graphic Organizers
- ❏ Guided Notes – major headings for notes are provided along with the bare bones of the notes

Interdisciplinary Connections****

Math	Science	ELA
		W.9-10.6 – Pair and Share, Partner exploration activities, use of google classroom to formulate responses, RI.9-19.8 – compare and contrast activity, open-ended word problems, SL.9-10.1 – Pair and Share, Partner explorations, homework check in pods, class discussions, exit tickets

Fine Arts/ Performing Arts	World Language	Technology
		See above

Careers	Global Awareness	Other
CRP2 – google classroom, Edmodo, Pair-think-share, partner activities CRP4 – Pair-think-share, partner explorations, whiteboard activities		

CRP8 – error analysis, pod HW checking CRP11 – google classroom, IXL, Kahn Academy, YouTube CRP12 – partner explorations, Pod homework checking, Pair-think-share activities		

Learning Plan

Pre-requisite lesson
Day 1-2
- Start Thinking/Warm-up
  - What does a negative number represent? Define the word "Integer."

- Create index cards of rules for operations with integers for a resource for students to use throughout the school year.
- Review Concepts of adding and subtracting integers utilizing Kuta math software, worksheets, and IXL practice.

Day 3-4
- Start Thinking/Warm-up
  - Kahoot review of adding and subtracting integers.
- Review concepts of multiplying and dividing integers utilizing Kuta math software, worksheets, and IXL practice.

Day 5
- Start Thinking/Warm-up
  - Discuss differences of using area vs. perimeter. Have students develop specific examples of when to use each.

- Review with students formulas for finding perimeter and area. Also discuss specific unit of measure for each, for instance cm/cm2.
- Complete "monitoring progress" problems. See Big Ideas p. 2.

Lesson 1.1 Solving Simple Equations
Day 1-2
- Start Thinking/Warm-up
  - Review Core Concept of addition, subtraction, multiplication, and division properties of equality. Big Ideas- Student journal p. 4-5

- Review 4-step approach to problem solving.

Exploration 1

- Using talk-turn technique, students will be presented with 5 example problems and turn to a classmate to discuss possible solutions. Teacher will review each of the five problems presented.

Exploration 2
- Students will utilize IXL to independently practice solving simple equations.

<mark>Lesson 1.2 Solving Multi-step Equations</mark>

4 days

Day 1- Solving two-step equations
- Warm-up- Watch short Khan Academy video on solving two-step equations.
- Students will work in small group to solve two step equations using "Equations to Perfect 10" see STAFF drive.

Day 2- Combining like terms to solve an equation
- Warm-up- review with students the rules for combining like terms.
- Students will utilize IXL to independently practice combining like terms.

Day 3- Using distributive property to solve multi-step equations
- Warm-up- Students will review distribution using Kahoot.
- Students will make a study index card with examples of distribution.
- Review Kuta math software solving multi-step equations utilizing distribution.

Day 4
- Practice using real-life problems see Big Ideas textbook, p. 14-15 and p. 10, 11 in student journal.

<mark>Review/quiz lesson 1.1 and 1.2</mark>

Day 1
- Teacher will use Flow Chart (smart notebook file in staff drive) to review steps for solving multi-step equations.
- Students will complete a picture walk of example problems. Upon completion, answers checked and reviewed with teacher.
- Assign review homework.

Day 2
- Review homework.
- Complete quiz.

<mark>Lesson 1.3 Solving equations with variable on both sides</mark>

3 days

Day 1
- Warm-up- review quiz
- Exploration 1- Big Ideas T.19. What balances a cylinder? Using a balance and different sized shapes, teacher and students explore how to balance an equation with variables on both sides. Using "modeling with mathematics" Holt textbook p. 22, students will explore solving real life problems that requires variables on both sides.
- Students will complete teacher made worksheet with variables on both sides with a partner. See staff drive.

Day 2
- Warm-up- add to the Flow Chart(referenced above) the additional steps required to solve equations with variables on both sides.
- Students will complete notetaking vocabulary page 15-16 in Student Journal

Day 3
- Students will have a choice of completing Kuta software worksheet or IXL to independently practice solving equations with variables on both sides.

3 days

Day 1

- Warm up- What is the definition of absolute value? If students do not have prior knowledge, they will utilize laptops to research a definition.
- Exploration (p. 17 of Student Journal) Students will explore equations that have more than one answer. For example,(x + 4= 4 + x) as well as the absolute value of 5 and -5 have the same solution. Students will consider that there is more than one value for an absolute value equation.
- Students will be assigned several practice problems to complete with a partner.

Day 2

- Warm up-plotting points on a number line. Student Journal p. 27, 1-4.
- Exploration- students will solve absolute value equations graphically using a number line to explore possible answers to equations.

Day 3

- Warm-up- Students complete problem on board and explain how they solved.
- Textbook p. 32 "Monitoring Progress and Modeling with Mathematics" example/practice problems.

Lesson 1.3-1.4 Review and Quiz

2 days

Day 1

- Students complete a practice quiz of lesson 1.3 and 1.4 as a review. Review answers to make corrections.

Day 2

- Warm-up- students complete sample problems.
- Quiz

Lesson 1.5 Rewriting equations and formulas

4 days

Day 1

- Warm-up- review quiz
- Exploration 1- After reviewing area formula, students will explore finding the base of a parallelogram with a given area and height.
- Students will be provided with various shapes and measures and have to manipulate the area formula to solve for area, base, or height.

Day 2

- Warm-up- Students will be provided with a triangle, with area and base to solve for the height.
- Exploration- students will be introduced to solving literal equations for a given variable.
- Students will complete Student Journal p. 25, 1-12.

Day 3

- Warm-up- 1.5 Resources by Chapter- "Warm-up and Cumulative Review" p. 24.
- Students will rewrite and use common formulas to model real life math problems. See textbook- 40-42
- Students will complete 1.5 puzzle time worksheet p. 28 in Big Ideas Resources by Chapter.

Day 4

- Students complete IXL independent practice.

Review/Test

6 days

Day 1-2
- Students complete practice test and independent review.

Day 3-4
- Based on practice test results, students will complete teacher made reviews working both in small groups and large groups.

Day 5-6
- Students will complete Unit 1 assessment.

Unit – 2 Solving Linear Inequalities

Pacing Guide:

Lesson 1: 4 days

Lesson 2 – 4 days

Lesson 3/4 – 4 days

Review/Quiz – 2 day

Lesson 5 – 4 days

Lesson 6 – 4 days (Performance Task as well)

Chapter Review – 4 days

Unit Test – 2 day

Total Days – 28 days

Pre-requisite Knowledge

- Solving one and multi-step equations

- Graphing on a number line

- Absolute Value

- Positive and Negative Integers

Standards	Transfer Goals	Concepts		Critical Knowledge and Skills
		Essential Questions	Understandings	
HSA-CED.A.1

HSA-CED.A.3

HSA-REI.B.3 | 1) Make sense of never-before-seen problems and persevere in solving them.

2) To independently apply learning to successfully recognize and solve more complex Algebra problems involving, equations, inequalities, and functions to real life situations. | 1) How can you use an inequality to describe a real-life situation? (2.1)

2) How can you use addition or subtraction to solve an inequality? (2.2)

3) How can you use division to solve an inequality? (2.3)

4) How can you solve a multi-step inequality? (2.4)

5) How can you use inequalities to describe intervals on the real number line? (2.5)

6) How can you solve an absolute value inequality? (2.6) | 1) Numbers not shaded in an inequality are NOT solutions. Numbers that are shaded, ARE solutions.

2) Problems can be read and translated into symbols in mathematics.

3) Not every equation or inequality has a solution | Knowledge

❏ Inequality (2.1)

❏ Solution of an inequality (2.1)

❏ Solution set (2.1)

❏ Graph of an inequality (2.1)

❏ Equivalent inequalities (2.2, 2.3)

❏ Compound inequality (2.5)

❏ Absolute value inequality (2.6)

❏ Absolute deviation (2.6)

Skills:

❏ write and graph linear inequalities (2.1)

❏ write linear inequalities from graphs (2.1)

❏ solve inequalities using basic operations, including multiplying or dividing by negative numbers (2.3)

❏ Solve multi-step, compound, and absolute value inequalities. (2.6)

❏ use inequalities to solve real-life problems (all)

❏ solve inequalities using addition (2.2)

❏ solve inequalities using subtraction (2.2)

❏ solve inequalities by multiplying or dividing by positive numbers (2.3) |
| | CRP

*** | | | |
| | CRP2

CRP4

CRP8

CRP11

CRP12 | | | |

					- solve inequalities by multiplying or dividing negative numbers (2.3) - solve multi-step inequalities (2.4) - write and graph compound inequalities (2.5) - Solve compound inequalities (2.5) - solve absolute value inequalities (2.6)

School Formative Assessment Plan (Other Evidence)	School Summative Assessment Plan (Performance Tasks)
1) Construct Viable Arguments and Critique the Reasoning of Others – allows conceptual knowledge and ability to construct a viable argument 2) Exit Ticket: students will be asked to respond to a question at the end of the lesson, activity, or learning experience. This method allows for the collection of evidence of student learning. It will also allow instruction for the next day to be gauged based upon results. 3) I Used to Think…Now I Know Activity: students will reflect on their current understanding of solving inequalities involving multiplication and division. 4) No Hands Questioning – no hands should be raised when using this questioning as a quick assessment. Students may either use a thumbs up, thumbs down, or thumbs to the side/a 1, 2, 3 finger response/popsicle sticks with student names on them for teacher to randomly select student. 5) Turn and Talk – Provide an example on the board which has been completed as a full class, change one aspect of the problem, and ask students to "turn and talk" about how the outcome will change. 6) Think-Pair-Share – this is s a collaborative learning strategy in which students work together to solve a problem or answer a question about an assigned reading. This technique requires students to (1) **think** individually about a topic or answer to a question; and (2) **share** ideas with classmates. 7) Analyze the Error - provide a completed inequality with a mistake embedded. Students must find the error, explain it and correct it.	Grading Calculations You are not doing as well as you had hoped in one of your classes. You want to figure out the minimum grade you will need on the final exam to receive the grade for the course that you want. Is it still possible to get an A? How would you explain your calculations to a classmate?

8) <mark>Teacher made quizzes/test</mark>

9) <mark>LinkIt! Assessments</mark>

10) <mark>Kahoot</mark> – online multiple choice quiz/game tool

11) <mark>Carousel Activities</mark> – students move through stations that are hung around the room to complete given problems.

12) <mark>Do Now</mark> - brief starters or warm-up activities that occur at the beginning of a lesson.

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Technology Integration

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Tech.8.1.12.B.2 – Use of IXL. Poll Everywhere, Kahoot,

Tech.8.2.12.E1 – Use of desmos

Differentiated Instruction

Gifted Students (N.J.A.C.6A:8-3.1)

❑

English Language Learners (N.J.A.C.6A:15)

❑

At Risk Students (N.J.A.C.6A:8-4.3c)

❑

Special Education Students (N.J.A.C.6A:8-3.1)

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❑ Visual Card – For students having difficulty graphing inequalities – use a 3x5 card broken into 3 columns (inequality, circle, and direction). Provide a quick example of each – i.e. (x < 6/open/left).

❑ Think-Pair-Share – students will discuss problems and solution with a partner or in a small group, and then share with the class.

❑ Compare/Contrast Chart – students will be provided a chart to compare and contrast the properties associated with multiplying and dividing negative numbers in inequalities (example will be included as well.

❑ Kinesthetic Learning - have pairs of students work together to graph compound inequalities. Have one student use a red pencil to graph the first part of

the inequality. The other student uses a different color to graph the second part on the same number line. For a compound inequality with "and," the graph is the interval where both colors overlap.

❑ Graphic Organizers

❑ Guided Notes – major headings for notes are provided along with the bare bones of the notes

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Fine Arts/ Performing Arts	World Language	Technology
		See above
Careers	Global Awareness	Other
CRP2 – google classroom, Edmodo, Pair-think-share, partner activities CRP4 – Pair-think-share, partner explorations,		

whiteboard activities

CRP8 – error analysis, pod HW checking

CRP11 – google classroom, IXL, Kahn Academy, YouTube

CRP12 – partner explorations, Pod homework checking, Pair-think-share activities

Learning Plan

Lesson 2.1 – Writing and Sketching Linear Inequalities (2 days)

Day 1-2

- Start Thinking/Warm-up
  - When constructing an equation to solve a real-life problem, it is important to remember that equations are solved for one particular solution. However, some situations require the possibility of more than one solution. Describe a real-life situation where more than one solution makes sense.
- Exploration Part A
  - Write 8 inequalities on index cards. Draw the matching graphs on 8 strips of paper large enough to be seen from across the room. Tape the 8 graphs in different locations around the room.
  - Select 8 students at random and hand each an index card. Ask students to find their graphs and stand next to them.
  - Ask each to explain why they have made their selection. What features of the graph did they look for? Collect cards.
  - Choose 8 new students. Have them go to one of the graphs and say aloud the inequality that is shown by the graph.
- Exploration Part B
  - Big Ideas Student Journal (2.1 – pages 28 – 29, available in online staff folder/Algebra I/Unit 2)
  - Students will work with their partner to complete the exploration, we will then review in a full class discussion, students must correct/take notes as we go

Day 3-4

- Warm – Up
  - How many of you have been to an amusement park? Are there height requirements? Find the height requirement for your favorite ride, and write an inequality to match.
- Guided Notes with Reading Strategies (Holt/McDougal 3-1 Connecting Words and Symbols, Algebra I folder/staff drive) – completed as a full class
- Independent Practice – Big Ideas online textbook – page 58 – 59, #1-20, 25 – modeling with math, 27 – error analysis

- Homework – Holt McDougal – 3-1 Practice A worksheet (Algebra I folder/Unit 2/staff drive)

<mark>Lesson 2.2 – Solving Inequalities Using Addition/Subtraction</mark>

Day 5-6

- HW Review
  - Students will turn desks to form a pod (of 4 students). Each pod will be provided an answer key to check their work. If a student has an incorrect answer, one student with the answer correct will explain the process used to arrive at the correct answer. Teacher is free to listen, observe, and intervene wherever needed.
- Exploration – Quarterback Passing Efficiency
  - Students will determine whether given inequalities must be true, and must include reasoning for their answer.
  - Students will work with their partner to discuss and reason through the given scenarios.
  - Big Ideas – 2.2 Exploration from Student Journal (Algebra I folder/Unit 2/ staff drive)
- Compare and Contrast – full class discussion
  - Two students will go to the board. One will solve the inequality $x + 5 = 10$, another will solve $x + 5 > 10$. Students will communicate via discussion how and why the solutions are different.
- Guided notes with graphic organize/sample problems (teacher made – 2.2, Algebra I folder, staff drive)
- Student Resource – Virtual Nerd - http://virtualnerd.com/algebra-1/linear-equations-solve/one-step/one-step-solutions/addition-example
- HW – IXL (Algebra I, K.4, 50 points)

Day 7 –8

- Warm-up - Think-Pair-Share – with partner –
  - Solve and graph ($x + 3.8 \leq -9$ and $2/5 > x – ¾$)
- IXL Practice (Algebra I, K.6 and K.7, reach 80 points in each)

<mark>Lesson 2.3/2.4 – Multiplying or Dividing by Positive/Negative Numbers</mark>

Day 9 –10

- Warm-up/Motivation-
  - Ask: What integers are solutions of $x > 4$? What integers are solutions of $–x > 4$? (meaning what numbers have an opposite that is greater than 4?) What integers are solutions of $x < -4$?
- Exploration – 2.3 Writing a rule
  - Big Ideas Algebra I, Algebra 1 folder/Unit 2/staff drive
  - Students will complete the exploration in a pod (student will turn their desks to face one another, groups of 3 or 4).
  - After 15 minutes, groups will describe (communicate answers) to all groups. Students will correct work as they go.
- Guided Notes – 3.3 Multiplying/Dividing Positive and Negative Inequalities
  - Teacher made – Algebra I Folder/Unit 2/staff drive
- HW – Holt blackline master – 3.3/3.4 Practice A (Mult/dividing inequalities)
  - Algebra I folder/Unit 2/staff drive

Day 11 –12

- Review HW in pod
  - Answer key is given to group, if a student has an incorrect answer, those students who got it correct will explain the process and steps to getting the correct answer. Teacher is available for groups who all got a particular problem incorrect, to listen to the dialogue between group members, observe cooperative group dynamics.
- Independent Practice –
  - Big Ideas – online text pages 71-72, #1-18, #19 – modeling mathematics, #27 – error analysis
  - Exit Ticket 2.3/2.4 –
    - Solve the inequality. Graph the Solution.
    - Teacher made – Algebra I folder/Unit 2/staff drive
  - HW – 2.4 Spiral Review
    - Includes concepts from 2.1 – 2.4, reviews comparing percentages and decimals
    - Teacher made – Algebra I folder/Unit 2/staff drive

<mark>Review/Quiz</mark>

Day 13 –14

- Review homework as a whole class.
- Quick Review using Kahoot: https://kahoot.com/
- Quiz 2.1 – 2.4
  - Big Ideas – Chapter 2 Quiz
    - Big Ideas Assessment book – page 26

<mark>Lesson 2/5 – Writing and Graphing Compound Inequalities</mark>

Day 15 –16

- Motivation: Every state has a law on the books that says something along the lines of: "A person shall not drive a motor vehicle at such a slow speed so as to impede or block the normal and reasonable forward movement of traffic." Some state specify a minimum speed for highway driving. In Florida, that minimum is 40 mph with at least 4 lanes. The maximum speed is 65 mph. Can you graph the legal speed on a four-lane highway in Florida?
  - Students, with their partner, will use the graphing side of whiteboards to attempt to graph this.
  - Explain that this is called a compound inequality.
- Discussion: Have students discuss the difference between your boss saying, "you can take a 15-minute break or leave 15 minutes early today," and "you can take a 15-minute break and leave 15 minutes early today," The words "and" and "or" have a meaning in mathematics.
- Exploration – Describe Intervals on the Real Number Line
  - Students will work with their partner to complete this activity
  - Each pair will Pair and Share with the partner in their pod.
- Intro to Compound Inequalities Smartboard/Whiteboard Practice
  - Teacher made – Algebra I folder/Unit 2/staff drive
- HW – perfect 10 – (students choose a series of problems that add up to 10 points from a given variety of problems)

      o   2.5 Perfect 10 – Algebra I folder/Unit 2/staff drive

Day 17 –18

- HW Review – full class, students will come to the Smartboard to show and explain their answers.
- Independent Practice
  - o Online text – Big Ideas – pages 85-86, # 13 – 20 (provide graph paper), #21 – error analysis, #23 – math modeling, #32 – writing in mathematics

<mark>Lesson 2.6 – Solving Absolute Values Inequalities</mark>

Day 19-20

- Motivation- Human Graph – Have nine volunteers, each with a number from -4 to 4, form a number line at the front of the room facing their classmates. When you sho an inequality, the volunteers holding a solution are to take a step forward. The others should remain in line. For instance, if you show $|x| \leq 2$, numbers -2, -1, 0, 1, 2 should all step forward.
  - o Ask: The less than inequalities remind you of what type of compound inequality? (and) The greater than inequalities remind you of what type of inequality? (or)
- Exploration – Big Ideas Solving Absolute Value Inequalities (Algebra I folder/Unit 2/staff drive)
  - o Students will complete with their partner
  - o Each pair will be given an answer key as they complete the activity to check their understanding.
  - o Time will be allotted for pairs to ask for clarification from their pod
- Communicating Answers –
  - o After the exploration is checked, each pair will answer the following questions (in a shared google doc), and then Pair and Share with their pod
  - o How can you solve an absolute value inequality?
  - o What do you like or dislike about the algebraic, graphical, and numerical methods for solving an absolute value inequality? Give reasons for your answer.
- HW – 2.6 Tic tac toe
  - o Students will complete three problems in a row given 9 problems
  - o 2.6 Tic Tac Toe Algebra I folder/Unit 2/staff drive

Day 20 - 21

- HW review in pods
  - o Answer key is given to group, if a student has an incorrect answer, those students who got it correct will explain the process and steps to getting the correct answer. Teacher is available for groups who all got a particular problem incorrect, to listen to the dialogue between group members, observe cooperative group dynamics.
- Independent Practice – IXL
  - o Algebra I, L.3 and L.4 (80 points each)
- HW – Performance Task –Chapter 2 - Grading Calculations
  - o Big Ideas Chapter 2 Performance Task, Assessment Book, Algebra I folder/Unit 2/staff drive

Day 22 – Math Carousel Walk

- 15 stations with a variety of inequalities will be hung around the room. Students will be given a clipboard and a record sheet for their answers. Students are to work independently, but may ask the teacher, or a peer at the same station for guidance if needed.
  - Answers will be posted in google classroom at the end of the day, so that students may check their work and ask for clarification at the beginning of tomorrow's class if needed.

Day 23-24 – Independent Review/Practice test

- Unit 2 Practice Test, LinkIt! (online testing site that WD subscribes to)
  - Students will receive instant feedback, as will teacher. Students will be granted the ability to review that practice test immediately with correct answers available.
  - based upon where students struggled, the teacher will create a quick review for tomorrow.

Day 25 –26

- Based upon LinkIt! practice test, teacher will use a teacher made review (Smartboard review with whiteboards) (to be made)

Unit 2 Test –

Unit 2 Test – Solving Linear Inequalities

- Part 1 - (LinkIt! Test)
- Part 2 – open ended responses (including error analysis) on paper. (Algebra I folder/Unit 2/staff drive)

Unit – 3 Graphing Linear Functions
Pacing Guide: Prerequisite Lesson: Graphing points on the coordinate plane and describing the location of the point. Lesson 3.1 Functions- 2 days Lesson 3.2 Linear Functions-3 days Lesson 3.3 Function Notation- 2 days Review and Quiz 3.1-3.3- 2 days Lesson 3.4 Graphing Linear Equations in Standard Form- 2 days Lesson 3.5 Graphing Linear Equations in Slope-Intercept Form- 2 days Review and Quiz 3.4-3.5- 2 days Lesson 3.6 Transformations of Graphs of Linear Functions- 4 days Lesson 3.7 Graphing Absolute Value Functions- 4 days Chapter Review/ Chapter Test- 4 days Total 28 days

Standards	Transfer Goals	Concepts		Critical Knowledge and Skills
		Essential Questions	Understandings	
HSA.REI D. Represent and solve equations and inequalities graphically 10. 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). **HSA.CED.** A. Create equations that describe numbers or relationships 2. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **HSA.IF** A.Understand the concept of a function and use a function notation. 1.Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.	Students will be able to independently use their learning to model and analyze linear relationships that occur in real life situations. CRP *** CRP 2 CRP 4 CRP 8 CRP 11 CRP12	• What is a function? • How can you determine whether a function is linear or nonlinear? • How can you use function notation to represent a function? • How can you describe the graph of the equation Ax + By=C • How can you describe the graph of the equation y=mx+b? • How does the graph of the linear function $f(x)=x$ compare to the graphs of $g(x) = f(x) +c$ and $h(x) = f(cx)$? • How do the values of a,h, and k affect the graph of the absolute value function $g(x) = a[x-h] + k$?	• Identify linear functions, using graphs, tables, and equations. • Use function notation to evaluate, interpret, and graph functions. • Find the slope of a line and use it to write a linear equation in slope-intercept form. • solve real-life problems using function	Knowledge • relation • function • domain • range • independent variable • dependent variable • linear equation in two variables • linear function • nonlinear function • solution of a linear equation in two variables • discrete domain • continuous domain • function notation • standard form • x-intercept • y-intercept • slope • rise • run • slope-intercept form • constant function • family of functions • parent function • transformation • translation • reflection • horizontal shrink • horizontal stretch • vertical stretch • vertical shrink • absolute value function • vertex

2. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. B. Interpret functions that arise in applications in terms of the context. 4. For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.* ★ 5. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*★ C. Analyze functions using different representations 7. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases			notation, linear equations, slopes and y-intercepts. • Translate, reflect, stretch, and shrink graphs of linear and absolute functions, and combine transformations of graphs of linear and absolute functions.	• vertex form Skills: • Determine whether relations are functions. • Find the domain and range of a function. • Identify the independent and dependent variable of functions. • Identify linear functions using graphs, tables, and equations. • Graph linear functions using discrete and continuous data. • Write real-life problems to fit data. • Use function notation to evaluate and interpret functions. • Use function notation to solve and graph functions. • Solve real-life problems using function notation. • Graph equations of horizontal and vertical lines. • Graph linear equations in standard form using intercepts. • Use linear equations in standard form to solve real-life problems. • Find the slope of a line. • Use the slope-intercept form of a linear equation. • Use slopes and y-intercepts to solve real-life problems. • Translate and reflect graphs of linear functions. • Stretch and shrink graphs of linear functions. • Combine transformations of graphs of linear functions.

and using technology for more complicated cases.★

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

9. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*

HSA.F-LE. Linear and Exponential Models

A. Construct and compare linear and exponential models and solve problems
1. Distinguish between situations that can be modeled with linear functions and with exponential functions.

b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.

- Translate graphs of absolute value functions.
- Stretch, shrink, and reflect graphs of absolute value functions.
- Combine transformations of graphs of absolute value functions.

School Formative Assessment Plan (Other Evidence)	School Summative Assessment Plan (Performance Tasks)
1) Construct Viable Arguments and Critique the Reasoning of Others – allows conceptual knowledge and ability to construct a viable argument 2) Exit Ticket: students will be asked to respond to a question at the end of the lesson, activity, or learning experience. This method allows for the collection of evidence of student learning. It will also allow instruction for the next day to be gauged based upon results.	The Cost of a T-shirt Students compare different representations to make a choice on bids for t-shirts for a fundraiser. Information will be provided to students in different formats. The number of t-shirts needed is open-ended. When the four functions are created, the students will determine that different companies should be selected based on the number of t-shirts needed. The intervals for the best

3) I Used to Think…Now I Know Activity: students will reflect on their current understanding of solving inequalities involving multiplication and division.

4) No Hands Questioning – no hands should be raised when using this questioning as a quick assessment. Students may either use a thumbs up, thumbs down, or thumbs to the side/a 1, 2, 3 finger response/popsicle sticks with student names on them for teacher to randomly select student.

5) Turn and Talk – Provide an example on the board which has been completed as a full class, change one aspect of the problem, and ask students to "turn and talk" about how the outcome will change.

6) Think-Pair-Share – this is s a collaborative learning strategy in which students work together to solve a problem or answer a question about an assigned reading. This technique requires students to
(1) **think** individually about a topic or answer to a question; and
(2) **share** ideas with classmates.

7) Analyze the Error - provide a completed inequality with a mistake embedded. Students must find the error, explain it and correct it.

8) Teacher made quizzes/test

9) LinkIt! Assessments

10) Kahoot – online multiple choice quiz/game tool

11) Carousel Activities – students move through stations that are hung around the room to complete given problems.

12) Do Now - brief starters or warm-up activities that occur at the beginning of a lesson.

choice will be same for all students, and the conclusion will be open as the students will use the information to make their own conclusions.

See Big Ideas Assessment Book p. 43

District / School Primary and Supplementary Resources	
Primary Resources	Supplementary Resources
Holt Algebra 1 Textbook	Additional outside Resources: • IXL • Big Ideas text and supplementary materials • Kahn Academy • Virtual Nerd Videos • Online Assessments – LinkIt! • Desmos • YouTube

Technology Integration

Tech.8.1.12.A.3 - Google Classroom, Edmodo

Tech.8.1.12.B.2 – Use of IXL. Poll Everywhere, Kahoot,

Tech.8.2.12.E1 – Use of desmos

Differentiated Instruction

Gifted Students (N.J.A.C.6A:8-3.1)

English Language Learners (N.J.A.C.6A:15)

Risk Students (N.J.A.C.6A:8-4.3c)

Special Education Students (N.J.A.C.6A:8-3.1)
- Information Frame – assists students in organizing and remembering concepts. Topic is placed in middle rectangle, while related concepts are placed in the spaces around the rectangle. These will include words, numbers, Algebra, definitions, examples, non-examples, procedures, details, vocabulary, etc.
- Visual Card – For students having difficulty graphing inequalities – use a 3x5 card broken into 3 columns (inequality, circle, and direction). Provide a quick example of each – i.e. (x < 6/open/left).
- Think-Pair-Share – students will discuss problems and solution with a partner or in a small group, and then share with the class.
- Compare/Contrast Chart – students will be provided a chart to compare and contrast the properties associated with multiplying and dividing negative numbers in inequalities (example will be included as well.
- Kinesthetic Learning - have pairs of students work together to graph compound inequalities. Have one student use a red pencil to graph the first part of the inequality. The other student uses a different color to graph the second part on the same number line. For a compound inequality with "and," the graph is the interval where both colors overlap.
- Graphic Organizers
- Guided Notes – major headings for notes are provided along with the bare bones of the notes

Interdisciplinary Connections****		
Math	Science	ELA
		W.9-10.6 – Pair and Share, Partner exploration activities, use of google classroom to formulate responses, RI.9-19.8 – compare and contrast activity, open-ended word problems, SL.9-10.1 – Pair and Share, Partner explorations, homework check in pods, class discussions, exit tickets
Fine Arts/ Performing Arts	World Language	Technology
Careers	Global Awareness	Other
CRP2 – google classroom, Edmodo, Pair-think-share, partner activities CRP4 – Pair-think-share, partner explorations, whiteboard activities CRP8 – error analysis, pod HW checking CRP11 – google classroom, IXL, Kahn Academy, YouTube CRP12 – partner explorations, Pod homework checking, Pair-think-share activities		

Learning Plan

Day 1
- Students will review graphing points on a coordinate plane and describing the location of the point.
- Students will utilize IXL to review these skills.

Lesson 3.1 Functions

2 days
Day 1
- Warm-up- with a chart for sizing displayed on the smartboard, a student will be asked to measure his head size. Based on his head size, students will use a chart to determine his hat size. Discuss with students input and output in a relation.
- Exploration 1- "Cola Machine."(See staff drive) Students will study input and output relationships in a soda machine and the importance of the outcome being consistent and predictable for an equation to be a function.

Day 2
- Warm-up- "exploration 5.1 of Holt" on staff drive. Identify linear functions using a dvd rental chart.
- Exploration 2- students will identify functions using tables, charts, and vertical line test. Students will complete Big Ideas Student Journal p. 59-60 and 62.

Lesson 3.2 Linear Functions

3 days
Day 1
- Warm-up- students will complete lesson 1 and 2 graphing linear functions frayer model (staff drive).
- Exploration- Students will be introduced to the concept of a linear function which has a constant rate of change. Students will identify linear functions using graphs. They will also identify identify linear functions using patterns found in tables. Students will also be introduced to vocabulary words domain and range.

Day 2
- Warm-up- students will be provided with two graphs and two tables to determine if they are a function.
- Exploration- graphing linear functions. Students will understand that identifying linear functions using equations requires the use of (y=mx+b). Students will identify given equations as linear or nonlinear based on if they fit into y= mx+ b form.

Day 3
- Warm-up- students will complete IXL lesson on identifying functions using tables.
- Students will complete 3.1 puzzle time p. 82 Big Ideas resource book.

Lesson 3.3 Function Notation

2 days
Day 1
- Warm-up- Students will complete Big Ideas Resources p. 83 cumulative review.

- Exploration- Students will match given functions with given graphs in partners. Teacher will review answer for clarification and correctness. Students will work with a partner and evaluate a given function locating points on a graph. Students will explore the difference between standard notation and function notation. p. 69-70 Big Ideas Student Journal

Day 2
- Warm-up- Students will use function notation to evaluate and interpret a function.
- They will complete teacher made document on the staff drive entitled unit 2 graphing linear equations lesson 4 exploration "function machines."

2 days
Day 1
- Review using p. 128 in textbook Big Ideas quiz as a practice.
- Answers will be reviewed.

Day 2
- Warm-up- students will complete 4 practice questions to prepare for quiz.
- quiz

Lesson 3.4 Graphing Linear Equations in Standard Forms

2 days
- Warm-up- students will discuss how given slopes are different.
- Introduce students to the effect that m and b have on the equation y= mx + b
- Students will complete practice worksheet practice 5-6 and 5.7 on staff drive that requires them to graph given equations in slope-intercept form.
- IXL practice

Lesson 3.4-3.5 Review and quiz

2 Days
Day 1
- Students will take a practice quiz and review problems with teacher.

Day 2
- Students will complete tic-tac-toe style quiz (staff drive)

Lesson 3.6 Transformations of Graphs of Linear Functions

4 days
Day 1
- Warm-up review vocabulary transformation, translation, and reflection
- Exploration 1- Compare graphs of functions using examples. Given 4 graphs- students will sketch the graphs and explore conclusions about them.

Day 2
- Exploration 2 Students will sketch graphs of given functions on the same set of coordinate axis and draw conclusions.

Day 3
- Exploration 3- students will match given functions with provided graphs. Students will Think-Aloud about what strategies they used to match the functions.

Day 4
- Students will complete Big Ideas Resources p. 102 Puzzle time

Lesson 3.7 Graphing Absolute Value Functions

4 days
Day 1
- Warm-up- Review concept of absolute value.
- Exploration 1- Students will be provided with three graphs that form upwarded V's and three graphs that form downward V's.
- Students will explore the effect of a negative sign on the outside of an absolute value function notation.

Day 2
- Students will practice Big Ideas p. 156. Example 1, 2, and 3

Day 3
- Students will complete Big Ideas Modeling with Mathematics problems.

Day 4
- Students will complete a selection of problems on Big Ideas Resources p. 104-105 practice A and B, as well as 3.7 puzzle time.

<mark>Review/Test</mark>
6 days
Day 1-2
- Students complete practice test and independent review.

Day 3-4
- Based on practice test results, students will complete teacher made reviews working both in small groups and large groups.

Day 5-6
- Students will complete Unit 3 assessment.

Unit – 4 Writing Linear Functions

Pacing Guide -

Lesson 4.1 Writing Equations in Slope-Intercept From, 2 days
Lesson 4.2 Writing Equations in Point-Slope Form, 2 days
Lesson 4.3 Writing Equations of Parallel and Perpendicular Lines, 2 days
4.1-4.3 Review and Quiz, 2 days
Lesson 4.4 Scatter Plots and Lines of Fit, 2 days
Lesson 4.5 Analyzing Lines of Fit, 4 days
4.4 -4.5 Review and Quiz 2 days
Lesson 4.6 Arithmetic Sequences, 4 days
Lesson 4.7 Piecewise Functions, 4 days
Chapter Review and Test, 4 days
Total - 28 days

Standards	Transfer Goals	Concepts		Critical Knowledge and Skills
		Essential Questions	Understandings	
HSA-CED A.2 Create equations in two variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. HSA-CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. HSF-BF.A.1a Determine an explicit expression or steps for calculation from a context. HSF-BF.A.2 Write arithmetic sequences with an explicit formula, use them to model solutions, and translate between the two forms. HSF-LEA.1b Recognize situation in which one quantity changes at a constant rate of per unit interval relative to another.	Recognize and solve practical theoretical problems involving mathematics including those for which the solution approach is not obvious by using mathematical reasoning and strategic thinking. **CRP** CRP 2 CRP 4 CRP 8 CRP 11 CRP12	Given the graph of a linear function, how can you write an equation of the line? How can you write an equation of a line when you are given the slope and a point on the line? Can you recognize lines that are parallel or perpendicular? How can you use a scatter plot and a line of fit to make conclusions about data? How can you analytically find a line of best fit for a scatter plot? How can you use arithmetic sequence to describe a pattern? How can you describe a function that is represented by more than one equation?	Identify, write and use linear equations in slope-intercept form Identify, write and use equations for parallel and perpendicular lines. Interpret scatter plots, determine how well lines of fit model data, and distinguish between correlations and causations. Extend and graph arithmetic sequences, and write them as functions. Evaluate, graph, and write piecewise function, including step and absolute value functions.	Knowledge - Identify points in the coordinate plane - Rewriting equations - Slope intercept form - Function - Rate - Point-Slope Form - Parallel Lines - Perpendicular Lines - Reciprocal - Scatter Plot - Coorelation - Line of Fit - Residual - Linear Regression - Line of Best Fit - Correlation coefficient - Interpolation - Extrapolation - Causation - Arithmetic sequence - Terms - Common difference - Piecewise function - Step function Skills: - Write equations in slope-intercept form - Use linear equations to solve real-life problems - Write an equation of a line give its slope and a point on the line

HSF-LE.A.2 Construct linear functions given a graph, a description of a relationship, or two input-output pairs (including reading these from a table.) HSF-LE.B.5 Interpret the parameters in a linear function in terms of a context. HSS-ID.B.6a 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 models. HSS-ID.B.6b Informally assess the fit of a function by plotting and analyzing the residuals. HSS-ID.B.6c Fit a linear fuction for a scatter plot that suggests a linear association. HSS-ID.C.7 Interpret the slope (rate of change) and the intercept (constant term) of a				• Write an equation of a line given two points on the line • Use linear equations to solve real-life problems. • Identify and write equations of parallel line • Identify and write equations of perpendicular lines. • Use parallel and perpendicular lines in real-life problems • Interpret scatter plots • Identify correlations between data sets • Use lines of fit to model data • Use residuals to determine how well lines of fit model data • Use technology to fund lines of best fit • Distinguish between correlation and causations • Write the terms of arithmetic sequences • Graph arithmetic sequences • Write arithmetic sequences as functions • Evaluate piecewise functions • Graph and write piecewise functions • Write absolute value functions

| linear model in the context of the data.

HSS.ID.C.8 Compute (using technology) and interpret the correlation coefficient of a linear fit.

HSS.ID.C.9 Distinguish between correlation and causation.

HSF-IF.A.3 Recognize that sequences are functions, whose domain is a subset of the integers.

HSA-REI.D.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane.

HSF-IF.C.7b Graph piecewise-defined functions, including step functions and absolute value functions.				

School Formative Assessment Plan (Other Evidence)	School Summative Assessment Plan (Performance Tasks)
1) Construct Viable Arguments and Critique the Reasoning of Others – allows conceptual knowledge and ability to construct a viable argument 2) Exit Ticket: students will be asked to respond to a question at the end of the lesson, activity, or learning experience. This method allows for the collection of evidence of student learning. It will also allow instruction for the next day to be gauged based upon results.	Any Beginnings There are so many ways to represent a linear relationship, but where do you start? Student will use their knowledge to move between equations, graphs, tables and contexts to complete a matrix to fill in different information about the same equation. Assessment book p. 59 -63

3) <mark>I Used to Think…Now I Know Activity:</mark> students will reflect on their current understanding of solving inequalities involving multiplication and division.

4) <mark>No Hands Questioning</mark> – no hands should be raised when using this questioning as a quick assessment. Students may either use a thumbs up, thumbs down, or thumbs to the side/a 1, 2, 3 finger response/popsicle sticks with student names on them for teacher to randomly select student.

5) <mark>Turn and Talk</mark> – Provide an example on the board which has been completed as a full class, change one aspect of the problem, and ask students to "turn and talk" about how the outcome will change.

6) <mark>Think-Pair-Share</mark> – this is s a collaborative learning strategy in which students work together to solve a problem or answer a question about an assigned reading. This technique requires students to (1) **think** individually about a topic or answer to a question; and (2) **share** ideas with classmates.

7) <mark>Analyze the Error</mark> - provide a completed inequality with a mistake embedded. Students must find the error, explain it and correct it.

8) <mark>Teacher made quizzes/test</mark>

9) <mark>LinkIt! Assessments</mark>

10) <mark>Kahoot</mark> – online multiple choice quiz/game tool

11) <mark>Carousel Activities</mark> – students move through stations that are hung around the room to complete given problems.

12) <mark>Do Now</mark> - brief starters or warm-up activities that occur at the beginning of a lesson.

District / School Primary and Supplementary Resources	
Primary Resources	Supplementary Resources
Holt Algebra 1 Textbook	Additional outside Resources: • IXL • Big Ideas text and supplementary materials • Kahn Academy • Virtual Nerd Videos • Online Assessments – LinkIt! • Desmos • YouTube

Technology Integration

Tech.8.1.12.A.3 - Google Classroom, Edmodo

Tech.8.1.12.B.2 – Use of IXL. Poll Everywhere, Kahoot,

Tech.8.2.12.E1 – Use of desmos

Differentiated Instruction

Gifted Students (N.J.A.C.6A:8-3.1)

English Language Learners (N.J.A.C.6A:15)

Risk Students (N.J.A.C.6A:8-4.3c)

Special Education Students (N.J.A.C.6A:8-3.1)
- Information Frame – assists students in organizing and remembering concepts. Topic is placed in middle rectangle, while related concepts are placed in the spaces around the rectangle. These will include words, numbers, Algebra, definitions, examples, non-examples, procedures, details, vocabulary, etc.
- Visual Card – For students having difficulty graphing inequalities – use a 3x5 card broken into 3 columns (inequality, circle, and direction). Provide a quick example of each – i.e. (x < 6/open/left).
- Think-Pair-Share – students will discuss problems and solution with a partner or in a small group, and then share with the class.
- Compare/Contrast Chart – students will be provided a chart to compare and contrast the properties associated with multiplying and dividing negative numbers in inequalities (example will be included as well.
- Kinesthetic Learning - have pairs of students work together to graph compound inequalities. Have one student use a red pencil to graph the first part of the inequality. The other student uses a different color to graph the second part on the same number line. For a compound inequality with "and," the graph is the interval where both colors overlap.
- Graphic Organizers
- Guided Notes – major headings for notes are provided along with the bare bones of the notes

Interdisciplinary Connections****		
Math	Science	ELA
		W.9-10.6 – Pair and Share, Partner exploration activities, use of google classroom to formulate responses, RI.9-19.8 – compare and contrast activity, open-ended word problems, SL.9-10.1 – Pair and Share, Partner explorations, homework check in pods, class discussions, exit tickets
Fine Arts/ Performing Arts	World Language	Technology
Careers	Global Awareness	Other
CRP2 – google classroom, Edmodo, Pair-think-share, partner activities CRP4 – Pair-think-share, partner explorations, whiteboard activities CRP8 – error analysis, pod HW checking CRP11 – google classroom, IXL, Kahn Academy, YouTube CRP12 – partner explorations, Pod homework checking, Pair-think-share activities		

Learning Plan

28 days
<mark>Lesson 4.1- Writing Equations in Slope-Intercept Form</mark>
2 days
Warm-up Think Aloud Problem
Exploration 1
Exploration 2
Kuta Software Practice Worksheet

<mark>Lesson 4.2- Writing Equations in Point-Slope Form</mark>
2 days
Warm-up- Motivation Questions "Do you know how long my ribbon was when I first started?" Big Ideas t-101
Exploration 1
Exploration 2
Exploration 3
IXL review

<mark>4.3- Writing Equations of Parallel and Perpendicular Lines-</mark>
2 days
Warm-up Review definitions of parallel and perpendicular
Geometer Sketchpad Exploration (staff drive) of writing equations for parallel and perpendicular lines
4.3 Puzzle Time Big Ideas resources p. 129

<mark>4.1-4.3</mark>
Review and quiz
2 days

<mark>4.4- Scatter Plots and Lines of Fit</mark>
2 days
Warm-up- motivate "do you think there's a relationship between grams of fat and number of calories in a sandwich?" Big Ideas t-195
Exploration 1
Exploration 2
Big Ideas resources p. 131, practice A and B

<mark>4.5- Analyzing Lines of Fit</mark>

4 days
Teaching page -201 Exploration Motivate
Exploration 1
Big Ideas Resources p. 139 Puzzle Time
Student text p. 206-208 Modeling with Mathematics problems
IXL practice

Review and Quiz
2 Days

4.6 Arithmetic Sequences
4 days
Warm-up- "What does arithmetic mean?"
Teaching p. 209 Motivate Exploring Arthmetic Sequences
Exploration 1
Big Ideas Resources p. 142 practice B
Modeling with Mathematics problems
Mini-project Design your own arithmetic sequences

4.7 Piecewise Functions
4 days
Warm-up- review linear inequalities and the vertical line test
Exploration 1
Exploration 2
Big Ideas Resources p. 149 Puzzle Time
IXL practice

Review/Test
6 days
Day 1-2
- Students complete practice test and independent review.
Day 3-4
- Based on practice test results, students will complete teacher made reviews working both in small groups and large groups.
Day 5-6
- Students will complete Unit 4 assessment.

Unit – 5 Solving Systems of Linear Equations				

Pacing Guide:

Lesson 5.1 - Solving Systems of Linear Equations by Graphing, 2 days
Lesson 5.2 - Solving Systems of linear Equations by Substitution, 2 days
Lesson 5.3 - Solving Systems of linear Equations by Elimination, 4 days
Lesson 5.4 - Solving Special Systems of Linear Equations, 2 days
5.1-5.4 Review and Quiz, 2 days
Lesson 5.5 - Solving Equations by Graphing, 4 days
Lesson 5.6 - Graphing Linear Inequalities in Two Variables, 4 days
Lesson 5.7 - Systems of Linear Inequalities, 4 days
Chapter Review and Test - 4 days
Total - 28 days

Standards	Transfer Goals	Concepts		Critical Knowledge and Skills
		Essential Questions	Understandings	
HSA-CED.A.3 Represent constraints by systems of equations and interpret solutions as viable or nonviable options in a modeling context. HSA-REI.C.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. HSF-IF.C.7a Graph linear functions and show intercepts	Students will be able to independently apply their learning to successfully recognize and solve more complex Algebra problems involving, equations, inequalities, and functions to real life situations. Students will be able to independently use their learning	• How can you solve a system of linear equations? • How can you use substitution to solve a system of linear equations? • How can you use elimination to solve a system of linear equations? • Can a system of linear equations have no solution or infinitely many solutions? • How can you use a system of linear equations to solve an equation with variables on both sides?	solve systems of linear equations by graphing, by substitution, and by elimination solve absolute value equations by graphing graph and write systems of linear inequalities. Use systems of linear equations and linear inequalities to solve real-life problems	Knowledge • system of linear equations • solution of linear equations • coefficient • parallel • absolute value equation • linear inequality in two variables • solution of linear inequality in two variables • graph of linear inequality • half-planes • ordered pair • system of linear inequalities • solution of system of inequalities

7.EE.B.4B Solve inequalities of the form px + q > r, or px + q < r, where p, q, and r are specific rational numbers. Graph the solution set of the inequality. HSA-REI.B.3 Solve linear equations and inequalities in one variable HSA-REI.C.5 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. HSA-REI.D.11 Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the the solutions of the equations f(x) - g(x); find the solutions approximately, e.g. using technology to graph the functions, include cases where f(x) and/or g(x) are linear,... absolute value...functions	to model and analyze linear relationships that occur in real life situations. **CRP** CRP 2 CRP 4 CRP 8 CRP 11 CRP12	• How can you graph a linear inequality in two variables? • How can you graph a system of linear inequalities?		• graph of a system of linear inequalities Skills: • check solutions of systems of linear equations • solve systems of linear equation of graphing • use systems of linear equations to solve real-life problems • solve systems of linear equations by substitution • solve systems of linear equations by elimination • determine the number of solutions of linear systems • use linear systems to solve real-life problems • solve linear equations by graphing • solve absolute value equations by graphing • use linear equations to solve real-life problems • check solutions of linear inequalities • graph linear inequalities in two variables • use linear inequalities to solve real-life problems • check solution of systems of linear inequalities • graph systems of linear inequalities • write systems of linear inequalities • use systems of linear inequalities to solve real-life problems

HSA-REI.D.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality)...				

School Formative Assessment Plan (Other Evidence)	School Summative Assessment Plan (Performance Tasks)
1) Construct Viable Arguments and Critique the Reasoning of Others – allows conceptual knowledge and ability to construct a viable argument 2) Exit Ticket: students will be asked to respond to a question at the end of the lesson, activity, or learning experience. This method allows for the collection of evidence of student learning. It will also allow instruction for the next day to be gauged based upon results. 3) I Used to Think…Now I Know Activity: students will reflect on their current understanding of solving inequalities involving multiplication and division. 4) No Hands Questioning – no hands should be raised when using this questioning as a quick assessment. Students may either use a thumbs up, thumbs down, or thumbs to the side/a 1, 2, 3 finger response/popsicle sticks with student names on them for teacher to randomly select student. 5) Turn and Talk – Provide an example on the board which has been completed as a full class, change one aspect of the problem, and ask students to "turn and talk" about how the outcome will change. 6) Think-Pair-Share – this is s a collaborative learning strategy in which students work together to solve a problem or answer a question about an assigned reading. This technique requires students to (1) **think** individually about a topic or answer to a question; and (2) **share** ideas with classmates. 7) Analyze the Error - provide a completed inequality with a mistake embedded. Students must find the error, explain it and correct it. 8) Teacher made quizzes/test 9) LinkIt! Assessments 10) Kahoot – online multiple choice quiz/game tool 11) Carousel Activities – students move through stations that are hung around the room to complete given problems. 12) Do Now - brief starters or warm-up activities that occur at the beginning of a lesson.	**Prize Patrol** You have been selected to drive a prize patrol cart and place prizes on the competing teams' predetermined paths. You know the teams' routes and you can only make onepass. Where will you place the prizes so that each tea will have a chance to find a prize on their route? see Big Ideas Assessment Book pages 71 - 73 for accompanying worksheets, guide and rubric (also available on staff drive, Algebra I folder/Big Ideas).

District / School Primary and Supplementary Resources	
Primary Resources	Supplementary Resources
Holt Algebra 1 Textbook	Additional outside Resources: • IXL • Big Ideas text and supplementary materials • Kahn Academy • Virtual Nerd Videos • Online Assessments – LinkIt! • Desmos • YouTube

Technology Integration

Tech.8.1.12.A.3 - Google Classroom, Edmodo

Tech.8.1.12.B.2 – Use of IXL. Poll Everywhere, Kahoot,

Tech.8.2.12.E1 – Use of desmos

Differentiated Instruction

Gifted Students (N.J.A.C.6A:8-3.1)

English Language Learners (N.J.A.C.6A:15)

Risk Students (N.J.A.C.6A:8-4.3c)

Special Education Students (N.J.A.C.6A:8-3.1)

- Information Frame – assists students in organizing and remembering concepts. Topic is placed in middle rectangle, while related concepts are placed in the spaces around the rectangle. These will include words, numbers, Algebra, definitions, examples, non-examples, procedures, details, vocabulary, etc.
- Visual Card – For students having difficulty graphing inequalities – use a 3x5 card broken into 3 columns (inequality, circle, and direction). Provide a quick example of each – i.e. (x < 6/open/left).
- Think-Pair-Share – students will discuss problems and solution with a partner or in a small group, and then share with the class.
- Compare/Contrast Chart – students will be provided a chart to compare and contrast the properties associated with multiplying and dividing negative numbers in inequalities (example will be included as well.
- Kinesthetic Learning - have pairs of students work together to graph compound inequalities. Have one student use a red pencil to graph the first part of the inequality. The other student uses a different color to graph the second part on the same number line. For a compound inequality with "and," the graph is the interval where both colors overlap.
- Graphic Organizers
- Guided Notes – major headings for notes are provided along with the bare bones of the notes

Interdisciplinary Connections****

Math	Science	ELA
		W.9-10.6 – Pair and Share, Partner exploration activities, use of google classroom to formulate responses, RI.9-19.8 – compare and contrast activity, open-ended word problems, SL.9-10.1 – Pair and Share, Partner explorations, homework check in pods, class discussions, exit tickets
Fine Arts/ Performing Arts	**World Language**	**Technology**

Careers	Global Awareness	Other
CRP2 – google classroom, Edmodo, Pair-think-share, partner activities CRP4 – Pair-think-share, partner explorations, whiteboard activities CRP8 – error analysis, pod HW checking CRP11 – google classroom, IXL, Kahn Academy, YouTube CRP12 – partner explorations, Pod homework checking, Pair-think-share activities		

Learning Plan

Lesson 5.1-Solving Systems of Linear Equations by Graphing
2 days
Warm-up Motivate with "shared story." t-235
Exploration 1
Exploration 2
Puzzle time - Big Ideas resources p. 161
Lesson 5.2 Solving Systems of Linear equations by substitution
2 days
Big Ideas Game- Zip-Zap- Zoop
Exploration 1
Exploration 2
IXL practice
Lesson 5.3 Solving Systems of Linear equations by Elimination
4 days
Warm-up Big Ideas T-247 Motivate using a balance scale.
Exploration 1
Exploration 2
Exploration 3

Modeling with Mathematics practice problems

Lesson 5.4 Solving Special Systems of Linear Equations

2 days

Warm-up- review slope-intercept form as an equation

Exploration 1

Exploration 2

Practice 5.3 practice A and B.

5.1-5.4 Review and Quiz

2 days

Lesson 5.5- Solving equations by graphing

4 days

Warm-up- Rental car discussion T. p. 261

Exploration 1

IXL practice

Exploration 2

Big Ideas Resource page 176 Puzzle Time

Lesson 5.6 Graphing Linear inequalities in Two Variables

4 days

Warm-up- T. p 267 Motivate using rope, yarn and tape to discuss boundary lines and half planes

Exploration 1

Exploration 2

Exploration 3

Practice pages in staff drive

Lesson 5.7 Systems of Linear Inequalities

4 days

Warm-up- Motivate activity asking students to write the equations of lines forming the sides of a square.

Exploration 1

Exploration 2

Big Ideas Resource p. 191 Puzzle Time

Review/Test

6 days

Day 1-2

- Students complete practice test and independent review.

Day 3-4

- Based on practice test results, students will complete teacher made reviews working both in small groups and large groups.

Day 5-6

- Students will complete Unit 5 assessment.