CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
MATHEMATICS DEPARTMENT
MATH LAB 9-10

Math Lab 9-10 Curriculum Guide

Pacing Guide **Math Lab is a full year course that meets on a rotating basis for three (3) 55-minute blocks and one (1) 40-minute block for every five (5) day cycle.**	**Unit 1:** Expressions, Equations, and Functions. 1 week **Unit 2:** Properties of Real Numbers. 1 week **Unit 3:** Solving Linear Equations. 3 weeks **Unit 4:** Graphing Linear Equations. 3 weeks **Unit 5:** Writing Linear Equations. 3 weeks **Unit 6:** Solving and Graphing Linear Inequalities. 3 weeks **Unit 7:** Systems of Linear Equations and Inequalities. 3 weeks **Unit 8:** Exponents and Exponential Functions. 3 weeks **Unit 9:** Polynomials and Factoring. 4 weeks **Unit 10:** Quadratic Equations and Functions. 2 weeks **Unit 11:** Radicals and Geometry Connections. 3 weeks **Unit 12:** Rational Equations and Functions. 2 weeks **Unit 13:** Probability and Data Analysis. 3 weeks

21st Century Skills Standards: **9.1** Personal Finance Literacy	**9.1.12.D.3:** Summarize how investing builds wealth and assists in meeting long-and short-term financial goals. **9.1.12.D.5:** Justify the use of savings and investment options to meet targeted goals. **9.1.12.D.10:** Differentiate among various investment products and savings vehicles and how to use them most effectively.
9.2 Career Awareness	**9.2.12.C.1:** Review career goals and determine steps necessary for attainment. **9.2.12.C.4:** Analyze how economic conditions and social changes influence employment trends and future education.
Technology Standards	**8.1.12.A.4:** Construct a spreadsheet, enter data, and use mathematical or logical functions to manipulate data, generate charts and graphs, and interpret the results.
Interdisciplinary Connections	ENLGISH LANUGAGE ARTS WHST.9-12.9 Draw evidence from informational texts to support analysis, reflection, and research.

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NJSLS Mathematical Practices – These practices are demonstrated throughout the curriculum.	1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
NJSLS Career Ready Practices – These practices are demonstrated throughout the curriculum	CRP2. Apply appropriate academic and technical skills. CRP4. Communicate clearly and effectively and with reason. CRP6. Demonstrate creativity and innovation. CRP7. Employ valid and reliable research strategies. CRP8. Utilize critical thinking to make sense of problems and persevere in solving them. CRP9. Model integrity, ethical leadership and effective management. CRP11. Use technology to enhance productivity. CRP12. Work productively in teams while using cultural global competence.

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Differentiation/Accommodations/Modifications

Note: Each district should review the various strategies noted below and determine which are applicable for their population within varied grade levels and languages and make edits where needed.

Gifted and Talented	English Language Learners	Students with Disabilities	Students at Risk of School Failure
(content, process, product and learning environment) **Extension Activities:** • Conduct research and provide presentation of mathematical topics. • Design surveys to generate and analyze data to be used in discussion. • Use of higher level questioning techniques. • Provide assessments at a higher level of thinking.	**Modifications for Classroom:** **Modifications for Homework/Assignments** • Modified assignments. • Extended time for assignment completion as needed. • Use graphing calculator. • Highlight formulas.	*(appropriate accommodations, instructional adaptations, and/or modifications as determined by the IEP or 504 team)* **Modifications for Classroom:** • Ask students to restate information, directions, and assignments. • Repetition and practice. • Model skills / techniques to be mastered. • Extended time to complete class work. • Provide copy of class notes. • Preferential seating to be mutually determined by the student and teacher. • Students may request books online, on tape/CD, as available and appropriate. • Assign peer helper in the class setting. • Provide regular parent / school communication	**Modifications for Classroom:** • Ask students to restate information, directions, and assignments. • Repetition and practice. • Model skills / techniques to be mastered. • Extended time to complete class work. • Provide copy of class notes. • Preferential seating to be mutually determined by the student and teacher. • Students may request books online, on tape/CD, as available and appropriate. • Assign peer helper in the class setting. • Provide oral reminders and check student work during independent work time. • Assist student with long and short term planning of assignments • Provide regular parent / school communication.

		• Provide oral reminders and check student work during independent work time. • Assist student with long and short term planning of assignments **Modifications for Homework** • Extended time to complete assignments. • Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases. • Provide the student with clearly stated (written) expectations and grading criteria for assignments. **Modification for Assessments** • Extended time on classroom tests and quizzes. • Student may take / complete tests in an alternate setting as needed. • Restate, reread, and clarify directions/questions. • Distribute study guide for classroom tests. • Establish procedures for accommodations / modifications for assessments.	• Assign peer helper in the class setting. • Provide oral reminders and check student work during independent work time. • Assist student with long and short term planning of assignments **Modifications for Homework** • Extended time to complete assignments. • Student requires more complex assignments to be broken up and explained in smaller units, with work to be submitted in phases. • Provide the student with clearly stated (written) expectations and grading criteria for assignments. **Modification for Assessments** • Extended time on classroom tests and quizzes. • Student may take / complete tests in an alternate setting as needed. • Restate, reread, and clarify directions/questions. • Distribute study guide for classroom tests. • Establish procedures for accommodations / modifications for assessments.

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CONTENT: Unit 1

Theme: Expressions, Equations, and Functions

Essential Questions:
What is a variable?
What rules are used to simplify expressions with exponents?
How is the order of operations applied when simplifying an expression?
What inverse operations are used in order to solve a one-step or multi-step equation?
How do you interpret data on a graph?
What is a function?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.1, A.CED.2, A.CED.3 F.IF.1 N.Q.1, N.Q.2, N.Q.3 A.CED.1 A.SSE.1 A.REI.3
• Section 1.1 (Evaluate expressions) • Section 1.2 (Apply Order of Operations) • Section 1.3 (Write Expressions) • Section 1.4 (Write Equations and Inequalities) • Section 1.5 (Use a Problem Solving Plan) • Section 1.6 (Represent Functions as Rules and Tables) • Section 1.7 (Represent Functions as Graphs)	• Evaluate expressions • Apply order of operations • Write expressions • Write equations and inequalities • Use a problem solving plan • Represent functions as rules and tables • Represent functions as graphs	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	**Time Frame:** 5 days **Materials**: Worksheet, guided practice Calculators: TI-83/84 plus / TI-30XS Smart board, internet research and activities, graph papers, color pencils.

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<table>
<tr><td colspan="4">CONTENT: Unit 2</td></tr>
<tr><td colspan="4">Theme: Properties of Real Numbers</td></tr>
<tr><td colspan="4">Essential Questions:
What is an integer?
What is a rational number?
How is the distributive property applied?
How do you find the square root of a number?</td></tr>
<tr><td>Content (As a result of this learning segment, students will know…)

• Section 2.1 (Use Integers and Real Numbers)
• Section 2.2 (Add Real Numbers)
• Section 2.3 (Subtract Real Numbers)
• Section 2.4 (Multiply Real Numbers)
• Section 2.5 (Apply the Distributive Property)
• Section 2.6 (Divide Real Numbers)
• Section 2.7 (Find Square Roots and Compare Real Numbers)</td><td>Skills (As a result of this learning segment, students will be able to…)

• Add Real Numbers
• Subtract Real Numbers
• Multiply Real Numbers
• Apply the Distributive Property
• Divide Real Numbers
• Find Square Roots and Compare Real Numbers</td><td>Assessments (The above Essential Questions will be assessed with the following formative and summative measures:)

• Homework
• Warm up exercises
• Exit Tickets
• Group activities
• Section quizzes
• Unit tests
• Cumulative tests
• Projects / Presentations
• Midterm exam
• Final Exam</td><td>Standards:
NJSLS MA 9-12
A.CED.1, A.CED.2, A.CED.3
F.IF.1
N.Q.1, N.Q.2, N.Q.3
A.CED.1
A.SSE.1
A.REI.3
Time Frame:
5 days
Materials:
Worksheet, guided practice

Calculators: TI-83/84 plus / TI-30XS
Smart board, internet research and activities, graph papers, color pencils.</td></tr>
</table>

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CONTENT: Unit 3

Theme: Solving Linear Equations

Essential Questions:
What are the four inverse operations?
How are inverse operations used to solve equations?
How can you check that your solution is correct?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.1 F.IF.1 N.Q.1 A.CED.1 A.SSE.1 A.REI.3 **Time Frame:** 6 days **Materials**: Worksheet, guided practice Calculators: TI-83/84 plus / TI-30XS Smart board, internet research and activities, graph papers, color pencils.
• Section 3.1-3.4 Solving: -One-step equations -Two-step equations -Multi-step equations -With variables on both sides	• Solve one-step equations • Solve two-step equations • Solve multi-step equations • Solve equations with variables on both sides • Check their solution	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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<table>
<tr><td colspan="4">CONTENT: Unit 3</td></tr>
<tr><td colspan="4">Theme: Solving Linear Equations</td></tr>
<tr><td colspan="4">Essential Questions:
What is a ratio?
What is a proportion?
How do you solve a proportion?</td></tr>
<tr>
<td>Content (As a result of this learning segment, students will know…)

• Section 3.5
(Write Ratios and Proportions)
• Section 3.6
(Solve Proportions Using Cross Products)</td>
<td>Skills (As a result of this learning segment, students will be able to…)

• Simplify ratios
• Use the cross-product property to solve a proportion
• Analyze situations in real-life using proportions</td>
<td>Assessments (The above Essential Questions will be assessed with the following formative and summative measures:)

• Homework
• Warm up exercises
• Exit Tickets
• Group activities
• Section quizzes
• Unit tests
• Cumulative tests
• Projects / Presentations
• Midterm exam
• Final Exam</td>
<td>Standards:
NJSLS MA 9-12
A.CED.1, A.CED.2, A.CED.3
F.IF.1
N.Q.1, N.Q.2, N.Q.3
A.CED.1
A.SSE.1
A.REI.3

Time Frame:
3 days

Materials:
Worksheet, guided practice

Calculators: TI-83/84 plus / TI-30XS

Smart board, internet research and activities, graph papers, color pencils.</td>
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</table>

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CONTENT: Unit 3

Theme: Solving Linear Equations

Essential Questions:
What is the proportion used to solve percent problems?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.1, A.CED.2, A.CED.3 F.IF.1 N.Q.1, N.Q.2, N.Q.3 A.CED.1 A.SSE.1 A.REI.3
• Section 3.7 (Solve Percent Problems)	• Use the cross-product property to solve a proportion • Analyze situations in real-life using proportions and percents	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	**Time Frame:** 2 days **Materials**: Worksheet, guided practice Calculators: TI-83/84 plus / TI-30XS Smart board, internet research and activities, graph papers, color pencils.

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<table>
<tr><td colspan="4">CONTENT: Unit 3</td></tr>
<tr><td colspan="4">Theme: Solving Linear Equations</td></tr>
<tr><td colspan="4">Essential Questions:
How do you rewrite equations in terms of a variable?</td></tr>
<tr>
<td>Content (As a result of this learning segment, students will know…)

• Section 3.8
(Formulas and Functions)</td>
<td>Skills (As a result of this learning segment, students will be able to…)

• Represent situations using algebraic symbols
• Analyze situations using algebraic symbols</td>
<td>Assessments (The above Essential Questions will be assessed with the following formative and summative measures:)

• Homework
• Warm up exercises
• Exit Tickets
• Group activities
• Section quizzes
• Unit tests
• Cumulative tests
• Projects / Presentations
• Midterm exam
• Final Exam</td>
<td>Standards:
NJSLS MA 9-12
A.CED.1, A.CED.2, A.CED.3
F.IF.1
N.Q.1, N.Q.2, N.Q.3
A.CED.1
A.SSE.1
A.REI.3

Time Frame:
3 days

Materials:
Worksheet, guided practice

Calculators: TI-83/84 plus / TI-30XS

Smart board, internet research and activities, graph papers, color pencils.</td>
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CONTENT: Unit 4

Theme: Graphing Linear Equations and Functions

Essential Questions:
How do you plot points in the coordinate plane?
What do the two numbers in an ordered pair represent?
How do you read a point off of a graph?
Where are the four quadrants located?
What is a scatter plot?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.2 F.IF.6 F.IF.7 F.IF.7a **Time Frame:** 2 days **Materials**: Worksheet, guided practice Calculators: TI-83/84 plus / TI-30XS Smart board, internet research and activities, graph papers, color pencils.
• Section 4.1 (Plot Points in the Coordinate Plane)	• Plot points in the coordinate plane • Label the four quadrants • Identify the ordered pair of a point plotted on a coordinate plane • Identify what a scatter plot is and whether it has a positive or negative correlation	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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<table>
<tr><td colspan="4">CONTENT: Unit 4</td></tr>
<tr><td colspan="4">Theme: Graphing Linear Equations and Functions</td></tr>
<tr><td colspan="4">Essential Questions:
What is slope-intercept form?
How can a table of values be used to graph a linear equation?
How are horizontal and vertical lines graphed?
What are the four types of slopes?</td></tr>
<tr>
<td>Content (As a result of this learning segment, students will know…)

• Section 4.2
(Graphing Linear Equations)</td>
<td>Skills (As a result of this learning segment, students will be able to…)

• Use a table of values to graph a linear equation
• Identify what type of slope the line has after graphing
• Check whether an ordered pair is a solution to a linear equation</td>
<td>Assessments (The above Essential Questions will be assessed with the following formative and summative measures:)

• Homework
• Warm up exercises
• Exit Tickets
• Group activities
• Section quizzes
• Unit tests
• Cumulative tests
• Projects / Presentations
• Midterm exam
• Final Exam</td>
<td>Standards:
NJSLS MA 9-12
A.CED.2
F.IF.6
F.IF.7
F.IF.7a

Time Frame:
3 days

Materials:
Worksheet, guided practice

Calculators: TI-83/84 plus / TI-30XS

Smart board, internet research and activities, graph papers, color pencils.</td>
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CONTENT: Unit 4

Theme: Graphing Linear Equations and Functions

Essential Questions:
What is standard form?
How can intercepts be used to graph a linear equation?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.2 F.IF.6 F.IF.7 F.IF.7a **Time Frame:** 3 days **Materials**: Worksheet, guided practice Calculators: TI-83/84 plus / TI-30XS Smart board, internet research and activities, graph papers, color pencils.
• Section 4.3 (Graphing using intercepts)	• Use intercepts to graph a linear equation • Identify what type of slope the line has after graphing • Check whether an ordered pair is a solution to a linear equation • Identify the x-intercept and y-intercept of a graph	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 4

Theme: Graphing Linear Equations and Functions

Essential Questions:
What is slope-intercept form?
What is a y-intercept?
How is an equation rewritten in slope-intercept form?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.2 F.IF.6 F.IF.7 F.IF.7a **Time Frame:** 3 days **Materials**: Worksheet, guided practice Calculators: TI-83/84 plus / TI-30XS Smart board, internet research and activities, graph papers, color pencils.
• Section 4.7 (Graph Linear Functions)	• Rewrite an equation in slope-intercept form • Graph an equation in slope-intercept form • Identify the slope of a line based on a given graph	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 5

Theme: Writing Linear Equations

Essential Questions:
What is slope-intercept form?
Where is the y-intercept located on a graph?
How is slope determined using a graph?
How is an equation written when given slope and a point?
How is an equation written when given two points?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.2 F.LE.2 **Time Frame:** 4 days **Materials**: Worksheet, guided practice Graphing calculators: Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 5.1 (Writing equations in slope-intercept form)	• Write an equation in slope-intercept form when given: Slope and y-intercept Slope and a point A graph	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 5

Theme: Writing Linear Equations

Essential Questions:
What is slope-intercept form?
Where is the y-intercept located on a graph?
How is slope determined using a graph?
How is an equation written when given slope and a point?
How is an equation written when given two points?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.2 F.LE.2 **Time Frame:** 3 days **Materials**: Worksheet, guided practice Graphing calculators: Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 5.2 (Use Linear Equations Written in Slope-intercept Form)	• Write an equation in slope-intercept form when given: Slope and a point Two Points	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 5

Theme: Writing Linear Equations

Essential Questions:
What is point-slope form?
How do you find the slope of a line given two points?
What is slope-intercept form?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.2 F.LE.2 **Time Frame:** 2 days **Materials**: Worksheet, guided practice Graphing calculators: Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 5.3 (Write Linear Equations in Point-slope form)	• Write an equation in point-slope form when given: Slope and y-intercept Slope and a point Two points	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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<table>
<tr><td colspan="4">CONTENT: Unit 5</td></tr>
<tr><td colspan="4">Theme: Writing Linear Equations</td></tr>
<tr><td colspan="4">Essential Questions:
How do you write an equation in standard form?</td></tr>
<tr><td>Content (As a result of this learning segment, students will know…)

• Section 5.4
(Write Linear Equations in Standard form)</td><td>Skills (As a result of this learning segment, students will be able to…)

• Rewrite an equation in standard form</td><td>Assessments (The above Essential Questions will be assessed with the following formative and summative measures:)

• Homework
• Warm up exercises
• Exit Tickets
• Group activities
• Section quizzes
• Unit tests
• Cumulative tests
• Projects / Presentations
• Midterm exam
• Final Exam</td><td>Standards:
NJSLS MA 9-12
A.CED.2
F.LE.2

Time Frame:
2 days

Materials:
Worksheet, guided practice

Graphing calculators: Ti-83/84 plus.

Smart board, internet research and activities, graph papers, color pencils.</td></tr>
</table>

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CONTENT: Unit 5

Theme: Writing Linear Equations

Essential Questions:
What types of slopes do parallel lines have?
What types of slopes do perpendicular lines have?
How do you write equations of parallel and perpendicular lines?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.2 F.LE.2 **Time Frame:** 3 days **Materials**: Worksheet, guided practice Graphing calculators: Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 5.5 (Write Equations of Parallel and Perpendicular Lines)	• Identify the relationship between the slopes of parallel and perpendicular lines • Write equations of parallel and perpendicular lines	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 6

Theme: Solving and Graphing Linear Inequalities

Essential Questions:
What is a linear inequality?
How are solutions graphed on number line?
What determines an open or closed circle when graphing a solution on a number line?
What must you do when dividing or multiplying by a negative when solving a linear inequality?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.1 A.REI.3 A.REI.12 **Time Frame:** 2 days **Materials**: Worksheet, guided practice Graphing calculators: Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 6.1 (Solving linear inequalities using addition and subtraction) • Section 6.2 (Solving linear inequalities using multiplication and division)	• Solve a one-step inequality using addition, subtraction, multiplication, and division • Recall that when multiplying or dividing by a negative, the inequality sign must be switched • Decide when an open or closed are used based on the solution • Graph the solution to a linear inequality on a number line	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 6

Theme: Solving and Graphing Linear Inequalities

Essential Questions:
What is a linear inequality?
How are solutions graphed on number line?
What determines an open or closed circle when graphing a solution on a number line?
What must you do when dividing or multiplying by a negative when solving a linear inequality?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.1 A.REI.3 A.REI.12 **Time Frame:** 2 days **Materials**: Worksheet, guided practice Graphing calculators: Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 6.3 (Solve multi-step linear inequalities)	• Solve a multi-step inequality using addition, subtraction, multiplication, and division • Recall that when multiplying or dividing by a negative, the inequality sign must be switched • Decide when an open or closed are used based on the solution • Graph the solution to a linear inequality on a number line	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 6

Theme: Solving and Graphing Linear Inequalities

Essential Questions:
What is a compound inequality?
What are the two types of compound inequalities?
What do the two types of compound inequalities look like on a number line?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.1 A.REI.3 A.REI.12 **Time Frame:** 4 days **Materials**: Worksheet, guided practice Graphing calculators: Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 6.4 (Solving compound inequalities)	• Using a given graph on a number line, identify whether the compound inequality represents an "and" or "or" inequality • Solve and graph an "and" inequality • Solve and graph an "or" inequality	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
MATHEMATICS DEPARTMENT
MATH LAB 9-10

CONTENT: Unit 6

Theme: Solving and Graphing Linear Inequalities

Essential Questions:
What many solutions does an absolute value equation have?
What steps have to be taken to solve an absolute value inequality?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.1 A.REI.3 A.REI.12 **Time Frame:** 4 days **Materials**: Worksheet, guided practice Graphing calculators: Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 6.5 (Solving absolute value equations) • Section 6.6 (Solving absolute value inequalities)	• Solve an absolute value equation • Graph the solutions to an absolute value equation on a number line • Solve an absolute value inequality • Decide whether an absolute value inequality represents an "and" or "or" compound inequality • Write the final answer to an "and" absolute value inequality as a compound inequality	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
MATHEMATICS DEPARTMENT
MATH LAB 9-10

<table>
<tr><td colspan="4">CONTENT: Unit 6</td></tr>
<tr><td colspan="4">Theme: Solving and Graphing Linear Inequalities</td></tr>
<tr><td colspan="4">Essential Questions:
How is a linear inequality graphed?
What is a half plane?
How do you decide whether the linear inequality is a dotted or solid line?</td></tr>
<tr>
<td>Content (As a result of this learning segment, students will know…)

• Section 6.7
(Graph Linear Inequalities in two variables)</td>
<td>Skills (As a result of this learning segment, students will be able to…)

• Graph a linear inequality in two variables
• Decide if the line is dotted or solid
• Test an ordered pair in order to shade the appropriate half plane
• Apply linear inequalities to real-life problems</td>
<td>Assessments (The above Essential Questions will be assessed with the following formative and summative measures:)

• Homework
• Warm up exercises
• Exit Tickets
• Group activities
• Section quizzes
• Unit tests
• Cumulative tests
• Projects / Presentations
• Midterm exam
• Final Exam</td>
<td>Standards:
NJSLS MA 9-12
A.CED.1
A.REI.3
A.REI.12

Time Frame:
3 days

Materials:
Worksheet, guided practice

Graphing calculators: Ti-83/84 plus.

Smart board, internet research and activities, graph papers, color pencils.</td>
</tr>
</table>

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
MATHEMATICS DEPARTMENT
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CONTENT: Unit 7

Theme: Systems of Linear Equations and Inequalities

Essential Questions:
What are three different techniques used to solve a system of equations?
How does solving a system of equations relate to a real-world scenario?
How does a system of inequalities differ from a system of equations?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.2 A.CED.3 A.REI.6 A.REI.12 A.RE.5 **Time Frame:** 2 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 7.1 (Solve Linear Systems by Graphing)	• Solve a system of linear equations by graphing. • Model a real-life problem using a system of equations. • Check a solution to a system of equations.	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
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CONTENT: Unit 7

Theme: Systems of Linear Equations and Inequalities

Essential Questions:
What are three different techniques used to solve a system of equations?
How does solving a system of equations relate to a real-world scenario?
How does a system of inequalities differ from a system of equations?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.2 A.CED.3 A.REI.6 A.REI.12 A.RE.5 **Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 7.2 **(**Solve Linear Systems by Substitution**)**	• Solve a system of equations using substitution method. • Model a real-life problem using a system of equations.	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
MATHEMATICS DEPARTMENT
MATH LAB 9-10

CONTENT: Unit 7

Theme: Systems of Linear Equations and Inequalities

Essential Questions:
What are three different techniques used to solve a system of equations?
How does solving a system of equations relate to a real-world scenario?
How does a system of inequalities differ from a system of equations?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.2 A.CED.3 A.REI.6 A.REI.12 A.RE.5 **Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 7.3 Solving Linear Systems by Linear Combinations (Elimination Method)	• Solve a system of equations using elimination method • Model a real-life problem using a system of equations.	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
MATHEMATICS DEPARTMENT
MATH LAB 9-10

<table>
<tr><td colspan="4">CONTENT: Unit 7</td></tr>
<tr><td colspan="4">Theme: Systems of Linear Equations and Inequalities</td></tr>
<tr><td colspan="4">Essential Questions:
How do you graph a linear inequality?
How many linear inequalities exist in a system?
How is the solution identified in a system of linear inequalities?</td></tr>
<tr>
<td>Content (As a result of this learning segment, students will know…)

• Section 7.6
(Solve Systems of Linear Inequalities)</td>
<td>Skills (As a result of this learning segment, students will be able to…)

• Graph a linear inequality by recalling:
-whether the line is dotted or solid
-how to test an ordered pair and shade an appropriate half-plane
• Graph two linear inequalities on the same graph and identify their intersection</td>
<td>Assessments (The above Essential Questions will be assessed with the following formative and summative measures:)

• Homework
• Warm up exercises
• Exit Tickets
• Group activities
• Section quizzes
• Unit tests
• Cumulative tests
• Projects / Presentations
• Midterm exam
• Final Exam</td>
<td>Standards:
NJSLS MA 9-12
A.CED.2
A.CED.3
A.REI.6
A.REI.12
A.RE.5

Time Frame:
4 days

Materials:
Worksheet, guided practice

Calculators: Ti 30xs,Ti-83/84 plus.

Smart board, internet research and activities, graph papers, color pencils.</td>
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</table>

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
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CONTENT: Unit 8

Theme: Exponents and Exponential Functions

Essential Questions:
How do you use properties of exponents to simplify an exponential expression?
What real-life situations can be modeled by an exponential growth function?
What real-life situations can be modeled by an exponential decay function?
What is the difference between growth factor and decay factor?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.SSE.3c N.RN.1 **Time Frame:** 2 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 8.1 **(**Apply Exponent Properties Involving Products)	• Use properties of exponents to multiply exponential expressions	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
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CONTENT: Unit 8

Theme: Exponents and Exponential Functions

Essential Questions:
How do you use properties of exponents to simplify an exponential expression?
What real-life situations can be modeled by an exponential growth function?
What real-life situations can be modeled by an exponential decay function?
What is the difference between growth factor and decay factor?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.SSE.3c N.RN.1 **Time Frame:** 2 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 8.2 (Apply Exponent Properties Involving Quotients)	• Use properties of exponents to multiply exponential expressions	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
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CONTENT: Unit 8

Theme: Exponents and Exponential Functions

Essential Questions:
How do you use properties of exponents to simplify an exponential expression?
What real-life situations can be modeled by an exponential growth function?
What real-life situations can be modeled by an exponential decay function?
What is the difference between growth factor and decay factor?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.SSE.3c N.RN.1 **Time Frame:** 3 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 8.3 (Define and Use Zero and Negative Exponents)	• Use the division properties of exponents to evaluate powers and simplify expressions. • Evaluate zero and negative exponents	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 8

Theme: Exponents and Exponential Functions

Essential Questions:
How do you use properties of exponents to simplify an exponential expression?
What real-life situations can be modeled by an exponential growth function?
What real-life situations can be modeled by an exponential decay function?
What is the difference between growth factor and decay factor?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.SSE.3c N.RN.1 **Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 8.4 (Use Scientific Notation)	• Convert numbers in decimal form to scientific notation • Convert numbers in scientific notation to decimal form • Use rules of exponents to simplify numbers in scientific notation that are multiplied or divided • Rewrite a number in proper scientific notation	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 8

Theme: Exponents and Exponential Functions

Essential Questions:
How do you use properties of exponents to simplify an exponential expression?
What real-life situations can be modeled by an exponential growth function?
What real-life situations can be modeled by an exponential decay function?
What is the difference between growth factor and decay factor?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.2 F.IF.7e F.BF.3 F.LE.1 F.LE.2 F.LE.5
• Section 8.5 (Exponential Growth Functions) • Section 8.6 (Exponential Decay Functions)	• Write and use models for exponential growth and decay • Graph models for exponential growth using a graphing calculator • Apply exponential growth and decay models to real-life situations	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	**Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
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CONTENT: Unit 9

Theme: Polynomials and Factoring

Essential Questions:
How do you perform operations with polynomials?
What are different techniques of factoring polynomials?
How can you use factoring to solve a quadratic equation?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.APR.1 F.IF.7c **Time Frame:** 3 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 9.1 (Add and Subtract Polynomials)	• Add and subtract polynomials • Use polynomials to model real-life situations.	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 9

Theme: Polynomials and Factoring

Essential Questions:
How do you perform operations with polynomials?
What are different techniques of factoring polynomials?
How can you use factoring to solve a quadratic equation?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.APR.1 F.IF.7c **Time Frame:** 3 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 9.2 (Multiply Polynomials)	• Multiply polynomials by applying rules of exponents • Apply polynomial multiplication in real-life situations.	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 9

Theme: Polynomials and Factoring

Essential Questions:
How do you perform operations with polynomials?
What are different techniques of factoring polynomials?
How can you use factoring to solve a quadratic equation?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.SSE.2 A.APR.1 A.APR.4 **Time Frame:** 3 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 9.3 (Special Products of Polynomials)	• Use special product patterns for the product of a sum and a difference, and for the square of a binomial. • Use special products as real-life models.	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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MATH LAB 9-10

CONTENT: Unit 9

Theme: Polynomials and Factoring

Essential Questions:
How do you perform operations with polynomials?
What are different techniques of factoring polynomials?
How can you use factoring to solve a quadratic equation?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.APR.3 A.CED.1 A.REI.4b F.IF.8a **Time Frame:** 2 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 9.4 (Solve Polynomials Equations in Factored Form)	• Solve a polynomial equation in factored form. • Relate factors and x-intercepts.	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 9

Theme: Polynomials and Factoring

Essential Questions:
How do you perform operations with polynomials?
What are different techniques of factoring polynomials?
How can you use factoring to solve a quadratic equation?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.1 A.REI.4b F.IF.8a A.SSE.3a
• Section 9.5 Factoring a Quadratic Trinomial (ac method, when a = 1)	• Factor a quadratic expression of the form $x^2 + bx + c$ when a=1 using the AC method	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	**Time Frame:** 3 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
MATHEMATICS DEPARTMENT
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CONTENT: Unit 9

Theme: Polynomials and Factoring

Essential Questions:
How do you perform operations with polynomials?
What are different techniques of factoring polynomials?
How can you use factoring to solve a quadratic equation?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.CED.1 A.REI.4b F.IF.8a A.SSE.3a
• Section 9.6 Factoring a Quadratic Trinomial (ac method, when $a \neq 1$)	• Factor a quadratic expression of the form $ax^2 + bx + c$ when $a \neq 1$ using the AC method	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	**Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.

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<table>
<tr><td colspan="4">CONTENT: Unit 10</td></tr>
<tr><td colspan="4">Theme: Quadratic Equations and Functions</td></tr>
<tr><td colspan="4">Essential Questions:
How do we graph a quadratic function?
What do the roots of a quadratic function represent?
What are different ways to solve a quadratic function?
How do you determine the number of solutions a quadratic function has?</td></tr>
<tr><td>Content (As a result of this learning segment, students will know…)

• Section 10.2
(Graph $y = ax^2 + bx + c$)
• Section 10.3
(Solve Quadratic Equations by Graphing)</td><td>Skills (As a result of this learning segment, students will be able to…)

• Graph quadratic functions using a graphing calculator</td><td>Assessments (The above Essential Questions will be assessed with the following formative and summative measures:)

• Homework
• Warm up exercises
• Exit Tickets
• Group activities
• Section quizzes
• Unit tests
• Cumulative tests
• Projects / Presentations
• Midterm exam
• Final Exam</td><td>Standards:
NJSLS MA 9-12
A.REI.4b

Time Frame:
3 days

Materials:
Worksheet, guided practice

Calculators: Ti 30xs,Ti-83/84 plus.

Smart board, internet research and activities, graph papers, color pencils.</td></tr>
</table>

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
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CONTENT: Unit 10

Theme: Quadratic Equations and Functions

Essential Questions:
How do we graph a quadratic function?
What do the roots of a quadratic function represent?
What are different ways to solve a quadratic function?
How do you determine the number of solutions a quadratic function has?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.REI.4b **Time Frame:** 5 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 10.6 (Solve Quadratic Equations using the Quadratic Formula) • Section 10.7 (Interpret the Discriminant)	• Decide whether a quadratic equation is factorable • Use the quadratic formula to find the roots of a quadratic equation • Use the discriminant to determine how many roots a quadratic equation has	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
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CONTENT: Unit 11

Theme: Radicals and Geometry Connections

Essential Questions:
What is a square root function and how is it graphed?
What is a radical?
How do you simplify a radical?
How many solutions do radical equations have?
How is the Pythagorean theorem applied to find a missing side in a right triangle?
What is the converse of the Pythagorean theorem used to determine?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.REI.4b **Time Frame:** 2 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 11.1 (Graph Square Root Functions)	• Use a graphing calculator to graph a square root function	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

CARLSTADT-EAST RUTHERFORD REGIONAL HIGH SCHOOL DISTRICT
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CONTENT: Unit 11

Theme: Radicals and Geometry Connections

Essential Questions:
What is a square root function and how is it graphed?
What is a radical?
How do you simplify a radical?
What is a perfect square?
How many solutions do radical equations have?
How is the Pythagorean theorem applied to find a missing side in a right triangle?
What is the converse of the Pythagorean theorem used to determine?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.REI.4b
• Section 11.2 (Simplify Radical Expressions)	• Simplify radical expressions • Identify and evaluate perfect square roots, where applicable	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	**Time Frame:** 3 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.

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CONTENT: Unit 11

Theme: Radicals and Geometry Connections

Essential Questions:
What is a square root function and how is it graphed?
What is a radical?
How do you simplify a radical?
What is a perfect square?
How are inverses applied to solve radical equations?
How many solutions do radical equations have?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.REI.4b **Time Frame:** 3 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 11.3 (Solve Radical Equations)	• Simplify radical expressions • Identify and evaluate perfect square roots, where applicable • Solve radical equations	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 11

Theme: Radicals and Geometry Connections

Essential Questions:
What is a square root function and how is it graphed?
What is a radical?
How do you simplify a radical?
What is a perfect square?
How are inverses applied to solve radical equations?
How many solutions do radical equations have?
How is the Pythagorean theorem applied to find missing side lengths in right triangles?
What is the converse of the Pythagorean theorem used to determine?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.REI.4b **Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 11.4 (Apply the Pythagorean Theorem and its Converse)	• Simplify radical expressions • Identify and evaluate perfect square roots, where applicable • Solve radical equations when applying the Pythagorean theorem and its converse	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 11

Theme: Radicals and Geometry Connections

Essential Questions:
What is a square root function and how is it graphed?
What is a radical?
What is a perfect square?
How is the distance formula derived from the Pythagorean theorem?
What does the midpoint formula tell you about two points?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.REI.4b **Time Frame:** 3 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 11.5 (Apply the Distance and Midpoint Formula)	• Simplify radical expressions • Apply the distance formula to find the distance between two points • Apply the midpoint formula to find the midpoint of two points	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 12

Theme: Rational Equations and Functions

Essential Questions:
What is a polynomial?
How do you divide two polynomials?
What is a rational expression?
How are rational expressions simplified when multiplying and dividing?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.REI.4b **Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 12.3 (Divide Polynomials)	• Divide polynomials using synthetic division • Divide polynomials using long division	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 12

Theme: Rational Equations and Functions

Essential Questions:
What is a polynomial?
How do you divide two polynomials?
What is a rational expression?
How are rational expressions simplified when multiplying and dividing?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.REI.4b **Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 12.4 (Simplify Rational Expressions)	• Simplify rational expressions using rules of exponents	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 12

Theme: Rational Equations and Functions

Essential Questions:
What is a polynomial?
How do you divide two polynomials?
What is a rational expression?
How are rational expressions simplified when multiplying and dividing?

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 A.REI.4b **Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 12.5 (Multiply and Divide Rational Expressions)	• Multiply rational expressions using rules of exponents • Divide rational expressions using rules of exponents	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 13

Theme: Probability and Data Analysis

Essential Questions:
What is a biased sample?
What is a biased question?
How do you identify populations and sampling methods?
How to analyze central tendency?
How to analyze real-life data using Histograms, Box-and-Whisker Plots, and Stem-and-Leaf Plots

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 S.IC.1 S.IC.3 **Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.
• Section 13.1 (Find Probabilities and Odds)	• Find the probability of an event occurring • Find the odds of an event occurring • Apply probability and odds to real-life situations	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	

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CONTENT: Unit 13

Theme: Probability and Data Analysis

Essential Questions:
What is a biased sample?
What is a biased question?
How do you identify populations and sampling methods?
How to analyze central tendency?
How to analyze real-life data using Histograms, Box-and-Whisker Plots, and Stem-and-Leaf Plots

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 S.IC.1 S.IC.3
• Section 13.5 (Analyze Surveys and Samples)	• Conduct a survey to a sample population based on a topic of interest • Analyze the data collected	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	**Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.

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CONTENT: Unit 13

Theme: Probability and Data Analysis

Essential Questions:
What is a biased sample?
What is a biased question?
How do you identify populations and sampling methods?
How to analyze central tendency?
How to analyze real-life data using Histograms, Box-and-Whisker Plots, and Stem-and-Leaf Plots

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 S.IC.1 S.IC.3
• Section 13.7 (Interpret Stem-and-Leaf Plots and Histograms)	• Construct a stem-and-lead plot based on given information • Interpret data using a given stem-and-leaf plot • Construct a histogram based on given information • Interpret data and answer questions based on a given histogram	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	**Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.

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CONTENT: Unit 13

Theme: Probability and Data Analysis

Essential Questions:
What is a biased sample?
What is a biased question?
How do you identify populations and sampling methods?
How to analyze central tendency?
How to analyze real-life data using Histograms, Box-and-Whisker Plots, and Stem-and-Leaf Plots

Content *(As a result of this learning segment, students will know…)*	**Skills** *(As a result of this learning segment, students will be able to…)*	**Assessments** (The above Essential Questions will be assessed with the following formative and summative measures:)	**Standards:** NJSLS MA 9-12 S.IC.1 S.IC.3
• Section 13.8 (Interpret Box-and-Whisker Plots)	• Construct a box-and-whisker plot based on given information • Interpret data using a given box-and-whisker plot	• Homework • Warm up exercises • Exit Tickets • Group activities • Section quizzes • Unit tests • Cumulative tests • Projects / Presentations • Midterm exam • Final Exam	**Time Frame:** 4 days **Materials**: Worksheet, guided practice Calculators: Ti 30xs,Ti-83/84 plus. Smart board, internet research and activities, graph papers, color pencils.