Summit Public Schools
Summit, New Jersey
Grade Level: 7/ Content Area: Pre-Algebra

Overview: Pre-Algebra 7 is designed for highly motivated students who possess excellent quantitative skills. This one-year course has been designed to equip students with the skills needed for Foundations of Algebra. Students study traditional topics in numeration and computation using an algebraic approach. Students will solidify their computation skills with rational numbers and integers, applying both number sets to algebraic and real-world problems. Students will be expected to write and solve one- and two-step equations with rational coefficients, solve and graph one- and two-step inequalities with integer and rational coefficients, and evaluate algebraic expressions with integers and rational numbers. In addition, students at this level will extend their understanding of algebraic expressions through the integration of exponent rules, including simplifying expressions with Scientific Notation. Order of operations will be extended to simplifying expressions with exponents. Ratios, proportions, and percents will be represented using tables, graphs and equations in real-world contexts.

Students will extend their work in two-dimensional geometry by finding areas of compound figures, or finding missing dimensions given the area and remaining dimension(s). The three-dimensional geometry unit will include recognizing the two-dimensional shapes formed by slicing solids in different ways, knowing properties of solids and identifying their parts, and finding surface area and volume. The statistics and probability units will include comparative analysis of similar data sets, theoretical and experimental probability, random sampling, tree diagrams showing possible outcomes, and graphs. Throughout the course, technology, interdisciplinary activities, media literacy and global perspectives will be integrated.

Major topics include:

- Ratio and Proportional Relationships - Analyze proportional relationships and use them to solve real-world and mathematical problems. Use proportional relationships to solve percent equations and problems involving scale drawings/similar figures
- The Number System - Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

- Expressions and Equations - Use properties of operations to generate equivalent expressions, solve real-life and mathematical problems using numerical and algebraic expressions and equations, understand the connections between proportional relationships, lines, and linear equations, and analyze and solve linear equations.
- Geometry - Draw, construct and describe geometrical figures and describe the relationships between them. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.
- Probability and Statistics- Calculate theoretical and experimental probabilities and use the counting principle to determine the number of outcomes of a particular event. Use random sampling to draw inferences about a population. Draw informal comparative inferences about two populations.

Scope & Sequence for Pre-Algebra 7

- ❖ Skills Inventory Assessment - Week 2 (approx. 2 days)
- ❖ Q1, Q2, Q3 - approximately 1 week after the close of each marking period (approx. 3 days for each - review & assessment)
- ❖ Placement Test - Approx end of March

Section	Unit 1: Integers and Rational Numbers	Days
Chapter 1	MRL Grade 7: Adding Subtracting Rational Numbers	
1.1	Rational Numbers: Comparing, ordering & absolute value	1
1.2	Adding Integers	1
1.3	Adding Rational Numbers (fractions & decimals)	1
	Review & Quiz	2
1.4	Subtracting Integers	1
1.5	Subtracting Rational Numbers (fractions & decimals)	1
	Review & Test	2
	Total Number of Days:	*9*
Chapter 2	MRL Grade 7: Multiplying Dividing Rational Numbers	
2.1-2.2	Multiplying & Dividing Integers	1
2.3	Converting Fractions & Decimals	1
2.4	Multiplying Rational Numbers	1
2.5	Dividing Rational Numbers	1
	Order of operations with integers	2
	Review & Test	2
	Total Number of Days:	*8*

	Unit 2: Expressions	
Chapter 3	MRL Grade 7: Expressions	
3.1	Algebraic Expressions (parts of an expression, evaluating expressions, combining like terms, write and simplify expressions)	2
3.2	Adding and Subtracting Expressions	2
	Review & Quiz	2
3.3	Distributive Property	1
3.4	Find GCF Monomials & Factoring Expressions	2
	Review & Test	2
	Total Number of Days:	*11*
	Unit 3: Equations and Inequalities	
Chapter 4	MRL Grade 7: Equations and Inequalities	
4.1	Solving One- Step Equations by Adding & Subtracting (including rational numbers)	2-3
	Quiz	1
4.2	Solving Equations Multiplying & Dividing (including rational numbers & word problems)	1
4.3	Solving Two Step Equations	1
	Review & Quest	2
4.4	Writing & Graphing Inequalities	1
4.5	Solving Inequalities by Adding & Subtracting	1
4.6	Solving Inequalities by Multiplying & Dividing (include rational numbers & word problems)	1
4.7	Solving Two-Step Inequalities	2
	Review & Quest	2
	Total Number of Days	14-15
	CALCULATOR ALLOWED GOING FORWARD	
	Unit 4: Ratios & Proportions	
Chapter 5	MRL Grade 7: Ratios & Proportions	
5.1	Ratios & Ratio Tables	1
5.2	Rates & Unit Rate	1
	Review & Quiz	2
5.3	Identifying Proportional Relationships	1

5.4	Writing & Solving Proportions (with word problems & cross products)	2
5.5	Graphs of Proportional Relationships (Find Constant of Proportionality from a table, graph & equation)	3
5.6	Similar Figures & Scale Drawings	2
	Review & Test	2
	Total Number of Days	13
Chapter 6	MRL Grade 7: Percents	
6.1	Convert Fractions Decimals & Percents	1
6.2	Percent Proportion	1
6.3	Percent Equation & word problems	1
	Review & Quiz	2
6.4	Percent Change	1
6.5	Markup & Discount	2
Outsides resources	Tax & Tip	1
6.6	Simple Interest & Commission	2
	Review & Test	3
	Total Number of Days	14
	Unit 5:Probability & Statistics	
Chapter 10	Red CC: Probability	
10.1	Outcome & Likelihood of Events	1
10.2	Simple Probability	1
10.3	Experimental & Theoretical Probability	1
10.4	Compound Probability (tree diagrams, fundamental counting principle)	1
10.5	Independent & Dependent Events	1
	Review & Quiz	2
	Total Number of Days	7
Chapter 8	MRL Grade 7: Statistics	
Outside sources	Review Mean, Median, Mode, Range (calculating & analyzing)	1
Outside sources	Review Mean Absolute Deviation (calculating)	1
Outside sources	Analyzing Mean Absolute Deviation	1
	Review & Quiz	2
8.1	Samples & Populations	1
8.2	Random Samples & Populations	1
8.3	Compare populations & Finding IQR (using box-whisker plots & dot plots)	2

	Review & Test- Probability & Statistics	2
	Total Number of Days	11
	Unit 6: Geometric Shapes & Angles	
Chapter 9	Geometric Shapes & Angles	
9.1	Circles & Circumference	1
9.2	Area of a Circle	1
9.3	Perimeters & Areas of Compound Figures	3
	Review & Quiz	2
9.4	Classifying triangles, Interior angles of triangles & Constructing Polygons	3
9.5	Finding Unknown Angle Measures (complementary, supplementary, vertical, adjacent)	2
	Review & Test	2
	Total Number of Days	14
	Unit 7: Surface Area & Volume	
Chapter 10	Surface Area & Volume	
10.1	Surface Area- Prisms	1
10.2	Surface Area- Cylinders	1
10.3	Surface Area- Pyramids	1
	Review & Quiz	2
10.4	Volume -Prisms	1
10.5	Volume- Pyramids & Cylinders	2
10.6	Cross Sections of 3D Figures	1
	Review & Test	3
	Total Number of Days	12
	Supplemental Unit (If Time Permits)	
	Unit 8: Exponent Rules	
	MRL Advanced Grade 7 CC: Exponents	
8.1	Exponent basics (negative in or out parentheses) & Product Rule (basic)	1
8.2	Exponents & Multiplication (product, power & power of product rule)	2
8.3	Exponents and Division (quotient & power of quotient rule)	1
8.4	Zero & Negative Exponents (include multi-step problems)	1
	Review & Quiz	2
	Total Number of Days	8

<table>
<tr><th colspan="2">Unit 1: Integers & Rational Numbers</th></tr>
<tr><td colspan="2">Big Ideas: Course Objectives/Content Statement(s)

● Understand absolute values and ordering of rational numbers.
● Finding the sums & differences of integers and rational numbers.
● Finding the products & quotients of integers and rational numbers.
● Convert between different forms of rational numbers.
● Solve problems using order of operations</td></tr>
<tr><th>Essential Questions
What provocative questions will foster inquiry, understanding, and transfer of learning?</th><th>Enduring Understandings
What will students understand about the big ideas?</th></tr>
<tr><td>● How do you solve problems involving fractions and decimals?
● How do you evaluate the effectiveness of different representations to communicate ideas?
● How do you add/subtract, multiple and divide integers and rational expressions?
● How do you identify and apply mathematics to everyday experiences, to activities in and outside school, with other disciplines and with other mathematical topics?</td>
<td>Students will understand that:
● They can represent rational numbers on a number line and describe absolute values & opposites.
● They can explain the rules for adding, subtracting, multiplying & dividing integers.
● They can solve problems involving addition subtraction, multiplication & division of rational numbers.</td></tr>
<tr><th>Areas of Focus: Proficiencies
(New Jersey Student Learning Standards)</th><th>Lessons</th></tr>
<tr><td>Students will:

7.NS.A.1
a) Describe situations in which opposite quantities combine to make 0.
b) Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
c) Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value</td>
<td>Lessons : (Chapter 1 & 2- Big Ideas MRL 7)
● 1.1 Comparing & ordering integers, absolute value (1 day)
● 1.2 Adding Integers (1 day)
● 1.3 Adding Rational Numbers (fractions & decimals) (1 day)
● Review & Quiz (2 Days)
● 1.4 Subtracting Integers (1 day)
● 1.5 Subtracting Rational Numbers (fractions & decimals) (1 day)
● Review & Test- Chapter 1 (2 Days)
● 2.1 Multiplying Integers & 2.2 Dividing Integers (1 day)
● 2.3 Converting Fractions & Decimals (1 day)
● 2.4 Multiplying Rational Numbers (1 day)</td></tr>
</table>

of their difference, and apply this principle in real-world contexts. d) Apply properties of operations as strategies to add and subtract rational numbers. 7.NS.A.2 a) Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b) Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts. c) Apply properties of operations as strategies to multiply and divide rational numbers. d) Convert a rational number to decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats. 7.NS.A.3- Solve real-world and mathematical problems involving the four operations with rational numbers **Career-Ready Practices** **CRP1**: Act as a responsible and contributing citizen and employee. **CRP2**: Apply appropriate academic and technical skills. **CRP3**: Attend to personal health and financial well-being. **CRP4**: Communicate clearly and effectively and with reason. **CRP5**: Consider the environmental, social and economic impacts of decisions. **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.	• 2.5 Dividing Rational Numbers (1 day) • Order of operations with integers (2 days) • Review & Test- Chapter 2 (2 days)

CRP10: Plan education and career paths aligned to personal goals. **CRP11**: Use technology to enhance productivity. **CRP12**: Work productively in teams while using cultural global competence.	
Differentiation	**Assessments**
Interdisciplinary Connections ● STEAM activities referenced in Big Ideas textbook. The tasks reference boiling and freezing temperatures of various objects as well as precise measurements using integers and rational numbers. **Technology Integration** ● Desmos, Quizizz, EdPuzzle instructional videos **Media Literacy Integration** **Global Perspectives** ● Performance Tasks referenced in Big Ideas textbook. Use information to spark students' interest and promote thinking about real-life problems. ● Ask, "How is the freezing point of a substance related to its melting point? ● What is meant when someone says it is below freezing outside? Explain." ● After completing the chapter, students will have gained the knowledge needed to complete "Melting Matters."	**Formative Assessments:** ● Quizizz assignments, homework assignments, Do Nows & EdPuzzle results ● Quiz - Comparing & ordering, Absolute Value, Adding Rational Numbers **Summative Assessments, Projects, and Celebrations:** ● Test- Add & Subtract Rational Numbers ● Test- Multiply/Divide Rational Numbers & Order of operations

Supports for English Language Learners

Sensory Supports	**Graphic Supports**	**Interactive Supports**
Real-life objects	Charts	In pairs or partners
Manipulatives	Graphic Organizers	In triands or small groups
Pictures	Tables	In a whole group

Illustrations, diagrams & drawings	Graphs	Using cooperative group
Magazines & Newspapers	Timelines	Structures
Physical activities	Number lines	Internet / Software support
Videos & Film		In the home language
Broadcasts		With mentors
Models & Figures		

Intervention Strategies		
Accommodations	**Interventions**	**Modifications**
Allow for verbal responses	Multi-sensory techniques	Modified tasks/expectations
Repeat/confirm directions	Increase task structure (e.g. directions, checks for understanding, feedback	Differentiated materials
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding	Individualized assessment tools based on student need
Audio Books	Utilize pre-reading strategies and activities previews, anticipatory guides, and semantic mapping	Modified assessment grading

Recommended Texts to Support Unit:

- Big Ideas Math (Modeling in Real Life CC Grade 7) © 2019

Unit 2: Expressions

Big Ideas: *Course Objectives/Content Statement(s)*

- Identify parts of an algebraic expression.
- Write and simplify algebraic expressions.
- Find sums and differences of linear expressions.
- Apply the Distributive Property to generate equivalent expressions.
- Factor Algebraic Expressions.

Essential Questions *What provocative questions will foster inquiry, understanding, and transfer of learning?*	**Enduring Understandings** *What will students understand about the big ideas?*
• Why do we simplify expressions? • What properties do I have to follow to simplify expressions? • How does writing expressions interpret real-life problems?	**Students will understand that:** • Identify parts of an algebraic expression. • Write algebraic expressions. • Solve problems using algebraic expressions. • Interpret algebraic expressions in real-life problems.
Areas of Focus: Proficiencies (New Jersey Student Learning Standards)	**Lessons**
Students will: 7.EE.A Use properties of operations to generate equivalent expressions. 1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. 2. Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05." 7.EE.B. Solve real-life and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	**Lessons: (Chapter 3 - Big Ideas MRL 7)** 1. 3.1: Algebraic Expressions - Combining Like Terms (helpful: rewrite as addition) (2 days) 2. 3.2: Adding & Subtracting Linear Expressions (2 days) 3. Quiz (1 day) 4. 3.3: Distributive Property - Include Combining Like Terms as 2nd Step (1 day) 5. 3.4: Factoring Expressions (2 days) 6. Review & Expressions Test (2 days)

Career-Ready Practices **CRP1**: Act as a responsible and contributing citizen and employee. **CRP2**: Apply appropriate academic and technical skills. **CRP3**: Attend to personal health and financial well-being. **CRP4**: Communicate clearly and effectively and with reason. **CRP5**: Consider the environmental, social and economic impacts of decisions. **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. **CRP10**: Plan education and career paths aligned to personal goals. **CRP11**: Use technology to enhance productivity. **CRP12**: Work productively in teams while using cultural global competence.	
Differentiation	**Assessments**
Interdisciplinary Connections ● STEAM activities referenced in Big Ideas textbook. To introduce the STEAM Video, read aloud the first paragraph of Trophic Status and discuss the question with your students. ○ “What is an example of an ecosystem?” ○ ”What components of an ecosystem add energy? ○ As students discuss and answer questions, listen for understanding of writing an algebraic expression to represent a real-life situation. ● Many businesses, such as repair companies and rental companies, charge a base rate and a unit charge. A table, a bar chart, or an equation can easily model these charges. Ask students to look through magazines and newspapers to find companies that use this pricing structure. Have students create two separate tables of pricing for two different companies that use this pricing structure.	**Formative Assessments:** ● Quizizz assignments, homework assignments, Do Nows & EdPuzzle results ● Quiz - Add & Subtract Expressions **Summative Assessments, Projects, and Celebrations:** ● Test- Expressions

Technology Integration

- Quizizz, EdPuzzle instructional videos

Media Literacy Integration

Global Perspectives

Supports for English Language Learners		
Sensory Supports	**Graphic Supports**	**Interactive Supports**
Real-life objects	Charts	In pairs or partners
Manipulatives	Graphic Organizers	In triands or small groups
Pictures	Tables	In a whole group
Illustrations, diagrams & drawings	Graphs	Using cooperative group
Magazines & Newspapers	Timelines	Structures
Physical activities	Number lines	Internet / Software support
Videos & Film		In the home language
Broadcasts		With mentors
Models & Figures		

Intervention Strategies		
Accommodations	**Interventions**	**Modifications**
Allow for verbal responses	Multi-sensory techniques	Modified tasks/expectations
Repeat/confirm directions	Increase task structure (e.g. directions, checks for understanding,	Differentiated materials

	feedback	
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding	Individualized assessment tools based on student need
Audio Books	Utilize pre-reading strategies and activities previews, anticipatory guides, and semantic mapping	Modified assessment grading

Recommended Texts to Support Unit:

- Big Ideas Math (Modeling in Real Life CC Grade 7) © 2019

<table>
<tr><th colspan="2">Unit 3: Equations & Inequalities</th></tr>
<tr><td colspan="2">Big Ideas: Course Objectives/Content Statement(s)
• Write and solve equations using addition, subtraction, multiplication and or division.
• Write and solve inequalities and represent solutions of inequalities on number lines.
• Solve multi-step equations and inequalities.</td></tr>
<tr><th>Essential Questions
What provocative questions will foster inquiry, understanding, and transfer of learning?</th><th>Enduring Understandings
What will students understand about the big ideas?</th></tr>
<tr><td>• In what scenarios can algebra be utilized to solve problems in your life?
• How do I write and solve algebraic equations that represent real-world problems ?</td><td>Students will understand that:
• Identify key words and phrases to write equations and inequalities.
• Write word sentences as equations and inequalities.
• Solve equations and inequalities using properties.
• Use equations and inequalities to model and solve real-life problems.</td></tr>
<tr><th>Areas of Focus: Proficiencies
(New Jersey Student Learning Standards)</th><th>Lessons</th></tr>
<tr><td>Students will:
7.EE.B- Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

3. Solve multi-step real-life and mathematical problems</td><td>Lessons: (Chapter 4 - Big Ideas MRL 7)
1. 4.1: Solving Equations Using Addition & Subtraction (all rational numbers) (3 days)
2. Quiz (1 day)</td></tr>
</table>

posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies 4. Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a) Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. b) Solve word problems leading to 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 and interpret it in the context of the problem. **Career-Ready Practices** **CRP1**: Act as a responsible and contributing citizen and employee. **CRP2**: Apply appropriate academic and technical skills. **CRP3**: Attend to personal health and financial well-being. **CRP4**: Communicate clearly and effectively and with reason. **CRP5**: Consider the environmental, social and economic impacts of decisions. **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. **CRP10**: Plan education and career paths aligned to personal goals. **CRP11**: Use technology to enhance productivity. **CRP12**: Work productively in teams while using cultural	3. 4.2: Solving Equations Using Multiplication and Division (all rational numbers) (1 day) 4. 4.3 & Other Resources: Solving Two-Step Equations (1 day) 5. Review & Quest (2 days) 6. 4.4: Writing & Graphing Inequalities (1 day) 7. 4.5: One Step Inequalities Using Addition & Subtraction (1 day) 8. 4.6: One Step Inequalities Using Multiplication & Division (all rational numbers) Include Word Problems (1 day) 9. 4.7 & Other Resources: Two- Step Inequalities - Include Word Problems (2 days) 10. Review & Quest (2 days)

global competence.

Differentiation	Assessments

Interdisciplinary Connections

- STEAM activities referenced in Big Ideas textbook. To introduce the STEAM Video, read aloud the first paragraph of Space Cadets and answer:
  - "Can you think of any other real-life situations where inequalities are useful?"
  - Ask, "Which requirements did Robert and Tory represent with inequalities?"
  - As students discuss and answer questions from video, listen for understanding of writing and interpreting inequalities

Technology Integration

- Quizizz, EdPuzzle instructional videos

Media Literacy Integration

-

Global Perspectives

- Performance Tasks referenced in Big Ideas textbook. Use this information to spark students' interest and promote thinking about real-life problems.
- Ask, "How do you think you can use one value to describe the brightnesses of all the stars that can be seen from Earth? Explain your reasoning."

Supports for English Language Learners		
Sensory Supports	**Graphic Supports**	**Interactive Supports**
Real-life objects	Charts	In pairs or partners
Manipulatives	Graphic Organizers	In triands or small groups
Pictures	Tables	In a whole group
Illustrations, diagrams & drawings	Graphs	Using cooperative group

Formative Assessments:

- Quizizz assignments, homework assignments, Do Nows & EdPuzzle results
- Quiz - Add & Subtract Equations

Summative Assessments, Projects, and Celebrations:

- Quest- Equations
- Quest- Inequalities

Magazines & Newspapers	Timelines	Structures
Physical activities	Number lines	Internet / Software support
Videos & Film		In the home language
Broadcasts		With mentors
Models & Figures		

Intervention Strategies		
Accommodations	**Interventions**	**Modifications**
Allow for verbal responses	Multi-sensory techniques	Modified tasks/expectations
Repeat/confirm directions	Increase task structure (e.g. directions, checks for understanding, feedback	Differentiated materials
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding	Individualized assessment tools based on student need
Audio Books	Utilize pre-reading strategies and activities previews, anticipatory guides, and semantic mapping	Modified assessment grading

Recommended Texts to Support Unit:

- Big Ideas Math (Modeling in Real Life Grade 7 CC) © 2019

Unit 4: Ratios, Proportions and Percents

Big Ideas: *Course Objectives/Content Statement(s)*

- Understand ratios of rational numbers and use ratio tables to represent equivalent ratios.
- Understand rates involving fractions and use unit rates to solve problems.
- Understand proportional relationships and use proportions to solve ratio problems

<table>
<tr><td colspan="2">

- Represent proportional relationships using graphs and equations.
- Solve problems involving scale drawings.
- Rewrite fractions, decimals, and percents using different representations
- Use the percent proportion and equation to find missing quantities.
- Find percentages of change in quantities.
- Solve percent problems involving discounts, tax, tip and markups.
- Understand and apply the simple interest formula.

</td></tr>
<tr><th>Essential Questions
What provocative questions will foster inquiry, understanding, and transfer of learning?</th><th>Enduring Understandings
What will students understand about the big ideas?</th></tr>
<tr><td>

- Can you think of any situation where it might be important to make a comparison of amounts?
- How can you represent a relationship between two quantities?
- How can you use a table of different unit rates, a graph in a coordinate plane, and an equation to solve ratio problems?
- How is a ratio that is part to whole like a fraction?
- How are fractions, decimals, and percents related?
- How do you convert between a fraction, decimal, and a percent?
- What strategies can you use to solve problems using fractions, decimals, and percents?

</td><td>

Students will understand that:

- Students can write and interpret ratios.
- Can describe ratio relationships and proportional relationships.
- Can represent equivalent ratios.
- Can model ratio relationships, proportional relationships, and percents to solve real-life problems.
- You can rewrite, compare and order fractions, decimals, and percents.
- Students can use the percent proportion or percent equation to find a percent, a part, or a whole.

</td></tr>
<tr><th>Areas of Focus: Proficiencies
(New Jersey Student Learning Standards)</th><th>Lessons</th></tr>
<tr><td>

Students will:
7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

7.RP.A.2

a) Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
b) Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
c) Represent proportional relationships by equations.

</td><td>

Calculators allowed for unit
Lessons: (Chapter 5 - Big Ideas MRL 7)

1. 5.1: Ratios & Ratio Tables (1 day)
2. 5.2: Rates & Unit Rats (1 day)
3. Review & Quiz (2 Days)
4. 5.3: Identify Proportional Relationships (1 day)
5. 5.4: Writing & Solving Proportions (with word problems & cross products) (2 days)
6. 5.5: Graphs of Proportional Relationships-Find Constant of Proportionality (3 days)
7. 5.6 Similar Figures & Scale Drawings
8. Review & Test (2 days)

Lessons: (chapter 6 - Big Ideas MRL 7)

9. 6.1: Convert Fractions Decimals & Percents (1

</td></tr>
</table>

d) Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate. 7.RP.A.3 Use proportional relationships to solve multistep ratio and percent problems. 7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. **Career-Ready Practices** **CRP1**: Act as a responsible and contributing citizen and employee. **CRP2**: Apply appropriate academic and technical skills. **CRP3**: Attend to personal health and financial well-being. **CRP4**: Communicate clearly and effectively and with reason. **CRP5**: Consider the environmental, social and economic impacts of decisions. **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. **CRP10**: Plan education and career paths aligned to personal goals. **CRP11**: Use technology to enhance productivity. **CRP12**: Work productively in teams while using cultural global competence.	day) 10. 6.2 Percent Proportion (1 day) 11. 6.3: Percent Equation & Word Problems (1 day) 12. Review & Quiz (2 days) 13. 6.4: Percent Change (1 day) 14. 6.5: Tax, Tip, Markup, Discount (3 days) 15. 6.6 Simple Interest & Commission (2 days) 16. Review & Test (3 days)
Differentiation	**Assessments**
Interdisciplinary Connections ● Discuss where ratios are seen in real life and have students each come up with an example (ie., miles per hour, unit costs, hourly wage, etc.) ● STEAM activities referenced in Big Ideas textbook. To introduce the STEAM Video, read aloud the first paragraph of Tornado! and discuss the question with your students.	**Formative Assessments:** ● Quizizz assignments, homework assignments, Do Nows & EdPuzzle results ● Quiz- Rates & Unit Rates ● Quiz- Percents & Percent Proportion **Summative Assessments, Projects, and Celebrations:** ● Test- Ratios, Rates, Proportions

○ "How can you use a percent to describe the portion of tornadoes in the United States that occur in your state?" **Technology Integration** ● Quizizz, EdPuzzle instructional videos **Media Literacy Integration** ● *Torndao!* Video to relate a real life event with calculating the "percent of' a number. **Global Perspectives** ● Performance Tasks referenced in Big Ideas textbooks. Use this information to spark students' interest and promote thinking about real-life problems. ○ Ask, "Why is it helpful to know the percent of tornadoes that occur in each state?"	● Test- Percent applications

Supports for English Language Learners		
Sensory Supports	**Graphic Supports**	**Interactive Supports**
Real-life objects	Charts	In pairs or partners
Manipulatives	Graphic Organizers	In triands or small groups
Pictures	Tables	In a whole group
Illustrations, diagrams & drawings	Graphs	Using cooperative group
Magazines & Newspapers	Timelines	Structures
Physical activities	Number lines	Internet / Software support
Videos & Film		In the home language
Broadcasts		With mentors
Models & Figures		

Intervention Strategies		
Accommodations	**Interventions**	**Modifications**
Allow for verbal responses	Multi-sensory techniques	Modified tasks/expectations
Repeat/confirm directions	Increase task structure (e.g. directions, checks for understanding, feedback	Differentiated materials
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding	Individualized assessment tools based on student need
Audio Books	Utilize pre-reading strategies and activities previews, anticipatory guides, and semantic mapping	Modified assessment grading

Recommended Texts to Support Unit:

- Big Ideas Math (Modeling in Real Life CC Grade 7) © 2019

Unit 5: Probability & Statistics

Big Ideas: *Course Objectives/Content Statement(s)*

- Understand how the probability of an event indicates its likelihood.
- Develop probability models using experimental and theoretical probability.
- Find sample spaces and probabilities of compound events.
- Understand how to use random samples to make conclusions about a population.
- Understand variability in samples of a population.
- Compare populations using measures of center and variation.

Essential Questions *What provocative questions will foster inquiry, understanding, and transfer of learning?*	**Enduring Understandings** *What will students understand about the big ideas?*
• In an experiment, how can you determine the number of possible results?	**Students will understand that:** • How to identify the possible outcomes of a situation.

<table>
<tr>
<td>

- How can you describe the likelihood of an event?
- How can you use relative frequencies to find probabilities?
- How can you find the number of possible outcomes of one or more events?
- What is the difference between dependent and independent events?
- How can you determine whether a sample accurately represents a population?
- How can you compare data sets that represent two populations?
- How can you make and interpret different representations of data?

</td>
<td>

- Can explain the meaning of experimental and theoretical probability.
- Can make predictions using probabilities.
- Can solve real-life problems using probability
- How to determine the validity of a conclusion.
- How to explain variability in samples of a population.
- Can solve a problem using statistics.
- Can compare populations.

</td>
</tr>
<tr>
<th>Areas of Focus: Proficiencies
(New Jersey Student Learning Standards)</th>
<th>Lessons</th>
</tr>
<tr>
<td>

Students will:
7.SP.A- Use random sampling to draw inferences about a population.

1. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

2. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.

7.SP.B- Draw informal comparative inferences about two populations.

3. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.

4. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.

</td>
<td>

Calculators allowed for unit
Lessons: (Chapter 10 - Big Ideas Red CC)

1. 10.1: Outcomes and Likelihoods of Events (1 day)
2. 10.2: Simply Probability (1 day)
3. 10.3: Experimental & Theoretical Probability (1 day)
4. 10.4: Compound events & sample spaces (1 day)
5. 10.5: Independent & Dependent Events (1 day)
6. Review & Quiz (2 days)

Lessons: (chapter 8 - Big Ideas MRL 7 & Outside sources)

7. Calculate and analyze mean, median, mode range (1 day)
8. Calculate and analyze mean absolute deviation (2 days)
9. Review & Quiz (2 days)
10. 8.1: Samples & Populations (1 day)
11. 8.2: Random Samples & Populations (1 day)
12. 8.3: Compare populations & Finding IQR (2 days)
13. Review & Test (2 days)

</td>
</tr>
</table>

7.SP.C- Investigate chance processes and develop, use, and evaluate probability models 5. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. 6. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. 7. Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a) Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. b) Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. 8. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a) Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b) Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event. **Career-Ready Practices** **CRP1**: Act as a responsible and contributing citizen and employee.	

CRP2: Apply appropriate academic and technical skills. **CRP3**: Attend to personal health and financial well-being. **CRP4**: Communicate clearly and effectively and with reason. **CRP5**: Consider the environmental, social and economic impacts of decisions. **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. **CRP10**: Plan education and career paths aligned to personal goals. **CRP11**: Use technology to enhance productivity. **CRP12**: Work productively in teams while using cultural global competence.	
Differentiation	**Assessments**
Interdisciplinary Connections ● STEAM activities referenced in Big Ideas textbook. To introduce the STEAM Video, read aloud the first paragraph of Massively Multiplayer Rock Paper Scissors and discuss the prompt with students. ○ "Describe a real-life situation where it is helpful to describe the percent of times that a particular outcome occurs." ○ Play Rock Paper Scissors 15 times. How many times do you expect to win? **Technology Integration** ● Quizizz, EdPuzzle instructional videos **Media Literacy Integration** **Global Perspectives** ● After the STEAM video on rock, paper scissors, use this information to spark students' interest and promote thinking about real-life problems. ○ Ask, "In what ways can a game of chance be considered fair? Unfair?." ○ Students will discuss fair and unfair	**Formative Assessments:** ● Quizizz assignments, homework assignments, Do Nows & EdPuzzle results ● Quiz- Probability ● Quiz- Mean, Median, Mode, MAD **Summative Assessments, Projects, and Celebrations:** ● Test- Probability and Statistics

carnival games using probability

Supports for English Language Learners		
Sensory Supports	**Graphic Supports**	**Interactive Supports**
Real-life objects	Charts	In pairs or partners
Manipulatives	Graphic Organizers	In triands or small groups
Pictures	Tables	In a whole group
Illustrations, diagrams & drawings	Graphs	Using cooperative group
Magazines & Newspapers	Timelines	Structures
Physical activities	Number lines	Internet / Software support
Videos & Film		In the home language
Broadcasts		With mentors
Models & Figures		

Intervention Strategies		
Accommodations	**Interventions**	**Modifications**
Allow for verbal responses	Multi-sensory techniques	Modified tasks/expectations
Repeat/confirm directions	Increase task structure (e.g. directions, checks for understanding, feedback	Differentiated materials
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding	Individualized assessment tools based on student need
Audio Books	Utilize pre-reading	Modified

	strategies and activities previews, anticipatory guides, and semantic mapping	assessment grading

Recommended Texts to Support Unit:

- Big Ideas Math (Modeling in Real Life Grade 7) © 2019
- Big Ideas Math (Red CC) © 2017

Unit 6: Geometric Shapes & Angles	
Big Ideas: *Course Objectives/Content Statement(s)* • Find the circumference and area of a circle. • Find perimeters and areas of composite figures. • Construct a polygon with given measures. • Classify triangles by sides and angles. • Use facts about angle relationships to find unknown angle measures.	
Essential Questions *What provocative questions will foster inquiry, understanding, and transfer of learning?*	**Enduring Understandings** *What will students understand about the big ideas?*
• How can you find the circumference of a circle? • How can you find the perimeter of a composite figure? • What formulas could be used to find the areas of circles and composite figures? • How do you solve problems involving angle measures? • How to construct a polygon with set parameters?	**Students will understand that:** • Explain how to find the circumference of a circle. • Find the areas of circles and composite figures. • They can solve problems involving angle measures. • How to construct a polygon.

Areas of Focus: Proficiencies (New Jersey Student Learning Standards)	Lessons
Students will: 7.G.A- Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. 1. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. 2. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle. 7.G.B- Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. 4. Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle. 5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. 6. Solve real-world and mathematical problems involving area, volume and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. **Career-Ready Practices** **CRP1**: Act as a responsible and contributing citizen and employee. **CRP2**: Apply appropriate academic and technical skills. **CRP3**: Attend to personal health and financial well-being. **CRP4**: Communicate clearly and effectively and with reason. **CRP5**: Consider the environmental, social and economic impacts of decisions. **CRP6**: Demonstrate creativity and innovation.	***Calculators allowed for unit*** **Lessons: (Chapter 9 - Big Ideas MRL 7)** 1. 9.1: Circles & Circumference (1 day) 2. 9.2: Area of a Circle (1 day) 3. 9.3: Perimeters & Areas of Composite Figures (3 days) 4. Review & Quiz (2 days) 5. 9.4: Classifying triangles, Interior angles of triangles & Constructing Polygons (3 days) 6. 9.5: Finding Unknown Angle Measures (complementary, supplementary, vertical, adjacent) (2 days) 7. Review & Test (2 days)

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. **CRP10**: Plan education and career paths aligned to personal goals. **CRP11**: Use technology to enhance productivity. **CRP12**: Work productively in teams while using cultural global competence.	
Differentiation	**Assessments**
Interdisciplinary Connections ● STEAM activities referenced in Big Ideas textbook. Read aloud the first paragraph of Track and Field and discuss the question with your students. ○ "How can competitors run in different lanes and have the same finish line?" ○ In the video, Alex and Robert are trying to figure out how the starting lines are determined for a race track. ○ Ask, "What shapes make up the track?" ○ "Why is each lane a different length?" **Technology Integration** ● Calculators, Quizizz, EdPuzzle instructional videos **Media Literacy Integration** ● STEAM video, "Track and Field." **Global Perspectives** ● Performance Tasks referenced in Big Ideas textbooks. Use this information to spark students' interest and promote thinking about real-life problems. ● Ask, "Given a race track, what measures do you need to find the outer perimeter?" ● Ask, "What are some real life examples of perimeter and area?" ○ Applications of area and perimeter can be seen in everyday life, such as finding the floor area of the house, the area of the footpath that will surround the ground, fencing the park with a wire, etc.	**Formative Assessments:** ● Quizizz assignments, homework assignments, Do Nows & EdPuzzle results ● Quiz- Area & Perimeter **Summative Assessments, Projects, and Celebrations:** ● Test- 2D Geometry

Supports for English Language Learners		
Sensory Supports	**Graphic Supports**	**Interactive Supports**
Real-life objects	Charts	In pairs or partners
Manipulatives	Graphic Organizers	In triands or small groups
Pictures	Tables	In a whole group
Illustrations, diagrams & drawings	Graphs	Using cooperative group
Magazines & Newspapers	Timelines	Structures
Physical activities	Number lines	Internet / Software support
Videos & Film		In the home language
Broadcasts		With mentors
Models & Figures		

Intervention Strategies		
Accommodations	**Interventions**	**Modifications**
Allow for verbal responses	Multi-sensory techniques	Modified tasks/expectations
Repeat/confirm directions	Increase task structure (e.g. directions, checks for understanding, feedback	Differentiated materials
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding	Individualized assessment tools based on student need
Audio Books	Utilize pre-reading strategies and	Modified assessment grading

	activities previews, anticipatory guides, and semantic mapping		

Recommended Texts to Support Unit:

- Big Ideas Math (Modeling in Real Life Grade 7) © 2019

<table>
<tr><th colspan="2">Unit 7: Surface Area & Volume</th></tr>
<tr><td colspan="2">Big Ideas: Course Objectives/Content Statement(s)

● Find the surface area of prisms, pyramids and cylinders
● Find the volume of prisms and pyramids
● Describe the cross sections of a solid.</td></tr>
<tr><th>Essential Questions
What provocative questions will foster inquiry, understanding, and transfer of learning?</th><th>Enduring Understandings
What will students understand about the big ideas?</th></tr>
<tr><td>● How can you determine the surface area and volume of three dimensional figures?
● How can you find and compare the areas and volumes of similar solids?</td><td>Students will understand that:
● They can describe the surface area and volume of different shapes.
● They can use formulas to find surface areas and volumes of solids.
● Can solve real-life problems involving surface area and volume.
● How to describe cross sections of solids.</td></tr>
<tr><th>Areas of Focus: Proficiencies
(New Jersey Student Learning Standards)</th><th>Lessons</th></tr>
<tr><td>Students will:

7.G.A.3 -Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

7.G.B- Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

4. Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference</td><td>Calculators allowed for unit
Lessons: (chapter 10) - Big Ideas MRL 7 CC
1. 10.1: Surface area of prisms (1 day)
2. 10.2: Surface area of cylinders (1 day)
3. 10.3: Surface area of pyramids (1 day)
4. Review & quiz (2 days)
5. 10.4: Volume of prisms (1 day)
6. 10.5: Volume of cylinders & pyramids (2 days)
7. 10.6: Cross sections of 3D figures (1 day)
8. Review & test (3 days)</td></tr>
</table>

and area of a circle. 6. Solve real-world and mathematical problems involving area, volume and surface area of two and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. **Career-Ready Practices** **CRP1**: Act as a responsible and contributing citizen and employee. **CRP2**: Apply appropriate academic and technical skills. **CRP3**: Attend to personal health and financial well-being. **CRP4**: Communicate clearly and effectively and with reason. **CRP5**: Consider the environmental, social and economic impacts of decisions. **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. **CRP10**: Plan education and career paths aligned to personal goals. **CRP11**: Use technology to enhance productivity. **CRP12**: Work productively in teams while using cultural global competence.	
Differentiation	**Assessments**
Interdisciplinary Connections ● Art: Importance of the ability to visualize and draw 3-dimensional objects to show depth and perspective. ● Manufacturing: Knowing how to find surface area and volume will help manage packaging expenses **Technology Integration** ● Calculators, Quizizz, EdPuzzle instructional videos, Desmos **Global Perspectives** ● Students will be given the dimensions of a shipping box and the number of bouncy balls that fit in the box.	**Formative Assessments:** ● Quizizz assignments ● Homework assignments ● EdPuzzle results ● Quiz- Surface Area **Summative Assessments, Projects, and Celebrations:** ● Surface Area & Volume Test

- Students will be asked to use the box to estimate the volume of each bouncy ball. Ask, "Why might it be helpful to use the volume of a container of objects to estimate the volume of one of the objects?"

Supports for English Language Learners		
Sensory Supports	**Graphic Supports**	**Interactive Supports**
Real-life objects	Charts	In pairs or partners
Manipulatives	Graphic Organizers	In triands or small groups
Pictures	Tables	In a whole group
Illustrations, diagrams & drawings	Graphs	Using cooperative group
Magazines & Newspapers	Timelines	Structures
Physical activities	Number lines	Internet / Software support
Videos & Film		In the home language
Broadcasts		With mentors
Models & Figures		

Intervention Strategies		
Accommodations	**Interventions**	**Modifications**
Allow for verbal responses	Multi-sensory techniques	Modified tasks/expectations
Repeat/confirm directions	Increase task structure (e.g. directions, checks for understanding, feedback	Differentiated materials
Permit response provided via	Increase opportunities to	Individualized assessment tools

computer or electronic device	engage in active academic responding	based on student need
Audio Books	Utilize pre-reading strategies and activities previews, anticipatory guides, and semantic mapping	Modified assessment grading

Recommended Texts to Support Unit:

- Big Ideas Math (Modeling in Real Life Grade 7) © 2019

Supplemental Unit
(If Time Permits)

Unit 8: Exponent Rules

Big Ideas: *Course Objectives/Content Statement(s)*

- Use exponents to write and evaluate expressions.
- Generate equivalent expressions involving products of powers.
- Generate equivalent expressions involving quotients of powers.
- Understand the concepts of zero and negative exponents.

Essential Questions *What provocative questions will foster inquiry, understanding, and transfer of learning?*	**Enduring Understandings** *What will students understand about the big ideas?*
• How can you use inductive reasoning to observe patterns and write general rules involving properties of exponents? • How can you use exponents to write numbers? • How can you divide and multiply two powers that have the same base?	**Students will understand that:** • They can write products using exponents. • Can describe the value of powers. • Can evaluate expressions.

<table>
<tr><td></td><td></td></tr>
<tr><th>Areas of Focus: Proficiencies
(New Jersey Student Learning Standards)</th><th>Lessons</th></tr>
<tr><td>Students will:

8.EE.A-Work with radicals and integer exponents.

1. Know and apply the properties of integer exponents to generate equivalent numerical expressions.

3. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.

Career-Ready Practices
CRP1: Act as a responsible and contributing citizen and employee.
CRP2: Apply appropriate academic and technical skills.
CRP3: Attend to personal health and financial well-being.
CRP4: Communicate clearly and effectively and with reason.
CRP5: Consider the environmental, social and economic impacts of decisions.
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.
CRP10: Plan education and career paths aligned to personal goals.
CRP11: Use technology to enhance productivity.
CRP12: Work productively in teams while using cultural global competence.</td><td>Calculators allowed for unit
Lessons: (chapter 8) - Big Ideas MRL 7 Advanced CC
1. 8.1: Exponent basics & Product Rule (1 day)
2. 8.2: Exponents & Multiplication (2 days)
3. 8.3: Exponents & Division (1 day)
4. 8.4: Zero & Negative Exponents (1 day)
5. Review & Quiz (2 days)</td></tr>
<tr><th>Differentiation</th><th>Assessments</th></tr>
<tr><td>Interdisciplinary Connections
● STEAM activities referenced in Big Ideas textbook. To introduce the STEAM Video, read</td><td>Formative Assessments:
● Quizizz assignments
● Homework assignments</td></tr>
</table>

aloud the first paragraph of Carbon Atoms

- Carbon is one of the four main elements of life. The number of carbon atoms in a compound can be represented using exponents.
- Ask, "In what other real-life situations are exponents used?"

Technology Integration

- Calculators, Quizizz, EdPuzzle instructional videos

Media Literacy Integration

- The classic video made by two designers in the late 1970s called *Powers of Ten* to show students which is readily available on the Internet.

Global Perspectives

- Work with a partner. On a game show, each small cube is worth $3. The small cubes are arranged to form a large cube.
- Show how you can use a power to find the total value of the large cube.
- Then write an explanation to convince a friend that your answer is correct.

Supports for English Language Learners		
Sensory Supports	**Graphic Supports**	**Interactive Supports**
Real-life objects	Charts	In pairs or partners
Manipulatives	Graphic Organizers	In triands or small groups
Pictures	Tables	In a whole group
Illustrations, diagrams & drawings	Graphs	Using cooperative group
Magazines & Newspapers	Timelines	Structures
Physical activities	Number lines	Internet / Software support

- EdPuzzle results

Summative Assessments, Projects, and Celebrations:

- Exponent Rules Quiz

Videos & Film		In the home language
Broadcasts		With mentors
Models & Figures		

Intervention Strategies		
Accommodations	**Interventions**	**Modifications**
Allow for verbal responses	Multi-sensory techniques	Modified tasks/expectations
Repeat/confirm directions	Increase task structure (e.g. directions, checks for understanding, feedback	Differentiated materials
Permit response provided via computer or electronic device	Increase opportunities to engage in active academic responding	Individualized assessment tools based on student need
Audio Books	Utilize pre-reading strategies and activities previews, anticipatory guides, and semantic mapping	Modified assessment grading

Recommended Texts to Support Unit:

- Big Ideas Math (Modeling in Real Life Grade 7 Advanced CC) © 2010