Grade 7 Mathematics

Bolger Middle School

Full Year

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Statement of Purpose

Reveal Math is a K-12 core math curriculum that empowers educators to uncover the mathematician in every student through powerful explorations, rich mathematical discourse, and timely individualized learning opportunities. Our goal was to create a math program that helps students to become mathematical thinkers—to learn how to think, not what to think. Reveal Math utilizes a seamless blended print and digital delivery and purposeful use of technology to engage students. To ensure student success, our instructional model is based on findings from research on teaching and learning mathematics. Launch Explore and Develop Reflect and Practice

Summary of the Course

This course is designed to introduce concepts and operations with rational numbers. Students apply rules with negatives to solve equations and solve real-world problems. Students also discover ratio and proportion problems with percent and unit rates. They explore area of two dimensional figures, and surface area and volume with three dimensional shapes. Students also solve and write multi-step equations with rational numbers.

In order to demonstrate a cohesive and complete implementation plan the following general suggestions are provided:

· The use of various formative assessments are encouraged in order to provide an ongoing method of determining the current level of understanding the students have of the material presented.

· Homework, when assigned, should be relevant and reflective of the current teaching taking place in the classroom.

· Organizational strategies should be in place that allow the students the ability to take the information gained in the classroom and put it in terms that are relevant to them.

· Instruction should be differentiated to allow students the best opportunity to learn.

· Assessments should be varied and assess topics of instruction delivered in class.

· Modifications to the curriculum should be included that address students with Individualized Educational Plans (IEP), English Language Learners (ELL), and those requiring other modifications (504 plans).

Pacing Guide

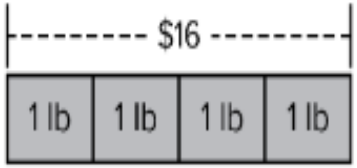
Module	Timeframe	Title of Module
	Marking Period	
1	Marking period 1	Proportional Relationships
2	Marking period 1	Solve Percent Problems
3	Marking Period 1	Operations with Integers
4	Marking period 2	Operations with Rational Numbers
5	Marking period 2	Simplify Algebraic Expressions
6	Marking period 2	Write and Solve Equations
7	Marking period 3	Write and Solve Inequalities
8	Marking period 3	Geometric Figures
9	Marking period 3	Measure Figures
10	Marking period 4	Probability
11	Marking period 4	Sampling and Statistics

Module 1: Proportional Relationships (13 days)

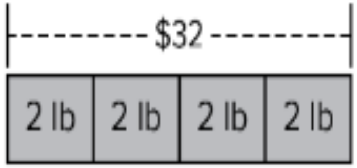
Summary of the Module:

Proportional Relationships

- Students will apply and extend their understanding of ratios and rates to develop foundational understanding of **proportional relationships**.
- In the bar diagram, four pounds cost a total of $16. This means that each pound costs $4. The unit rate is $4 per pound.



- In order for a relationship to be in a **proportional relationship**, the second unit rate must also be $4 per pound.
- In this second bar diagram, eight pounds cost a total of $32. This means that each two-pound section costs $8. By using rate reasoning, this means that each pound costs $4. Because the ratios were maintained, this is a proportional relationship.



- Proportional relationships can be shown in tables, graphs, and equations. In each representation, the constant ratio (or **constant of proportionality**) must be maintained.

Assessment and/ or Summative Criteria to Demonstrate Mastery of the Module: (TB- Textbook, AR- Assessment Resources)

Summative Assessments
Alternative Assessments
Formative Assessments

Link-it Assessment

Reveal Module 1 Test

Instructional Materials:
Student Workbook, Online Reveal Program (online videos, activities, differentiated materials), Aleks, IXL, quizlet, prodigy

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	New Jersey Student Learning Standards/ NGSS, etc.
Lesson 1.1 Unit Rates Involving Ratios of Fractions	2 days	Find unit rates when one or both quantities are fractions	• Ignite activity • Math Probes • Are You Ready Activity • Launch activity • Aleks • Explore and Develop • Reflect and Practice • Differentiate • Explore Activity • Apply Activity • Additional exercises • Language Development Activity • Put It All together	**Standards for Mathematical Content:** **7.RP.A.1** Analyze proportional relationships to solve real world and mathematical problems. 1. Compute unit rates associated with ratios of fractions including ratios of lengths, areas, and other quantities measured in like or different units (if a person walks ½ mile in ¼ hour, compute the unit rate as a complex fraction ½ / ¼ miles per hour, equivalently 2 miles per hour) **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP6** Attend to precision. **MP7** Look for and make use of structure
Lesson 1.2 Understand Proportional Relationships	2 days	Understand what makes a relationship between two quantities a proportional relationship		**Standards for Mathematical Content:** **7.RP.A.2** Recognize and represent proportional relationships between quantities

				Standards for Mathematical Practice **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP6** Attend to precision. **MP7** Look for and make use of structure
Lesson 1.3 Tables of Proportional Relationships	2 days	Identify a proportional relationship from a table		**Standards for Mathematical Content**: **7.RP.A.2** Recognize and represent proportional relationships between quantities **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. **7.RP.A.2.B** Identify the constant of proportionality (unit rate), in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.

Lesson 1.4 Graphs of Proportional Relationships	2 days	Analyze the relationship between two quantities graphed on a coordinate plane to determine proportionality		**Standards for Mathematical Content**: **7.RP.A.2** Recognize and represent proportional relationships between quantities **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. **7.RP.A.2.B** Identify the constant of proportionality (unit rate), in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. **7.RP.A.2.D** Explain what point (x,y) on a 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. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP8** Look for and express regularity in repeated reasoning
Lesson 1.5 Equations of Proportional Relationships	1 day	Write equations to represent proportional relationships		**Standards for Mathematical Content** **7.RP.A.2** Recognize and represent proportional relationships between quantities

				7.RP.A.2.B Identify the constant of proportionality (unit rate), in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. **7.RP.A.2.C** Represent proportional relationships by equations. For example, if total cost *t* is proportional to the number *n* of items purchased at a constant price *p*, the relationship between the total cost and the number of items can be expressed as *t=pn* **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. MP5 Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Lesson 1.6 Solve Problems Involving Proportional Relationships	2 days	Solve problems involving proportional relationships		**Standards for Mathematical Content** **7.RP.A.2** Recognize and represent proportional relationships between quantities **7.RP.A.3** Use proportional relationships to solve multi step percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. **Standards for Mathematical Practice** **MP1** Make sense of problems and

				persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.
Module Assessment and Review	2 days	Please follow the assessment calendar for assessment dates	• Review exercise in Reveal Program • Review of student needs from assessment data	**Standards for Mathematical Content** 7.RP.A.1; 7.RP.A.2; 7.RP.A.2.A;7.RP.A.2.B; 7.RP.A.2.C; 7.RP.A.2.D; 7.RP.A.3 **Standards for Mathematical Practice** MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8

Suggested Modifications for Special Education, 504, English Language Learners, RTI and Gifted Students:

Students with Disabilities & 504:Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

English Language Learners: Developing models from oral discourse and multimedia Teacher modeling. Peer modeling Develop and post routines. Label classroom materials. Word walls. Give directions/instructions verbally and in simple written format. Pre-teaching of vocabulary and concepts, Visual learning, including graphic organizers,, Teacher modeling, Pairing students with beginning English language skills with students who have more advanced English language skills, Scaffolding (word walls, think-pair-share, cooperative learning group). Students will be supported according to the recommendations for “can do’s” as outlined by WIDA - https://www.wida.us/standards/CAN_DOs/

Bilingual: Repetition, simplify language (use shorter phrases), visual word banks, limited use of idioms, metaphors and words with multiple meanings, use of cognates. Use realia (concrete objects), dramatization (gestures, facial expressions, intonation), built on students background knowledge (topics/examples students can relate to), texts that reflect their experiences, extended time, provide samples (teacher and students created), model, pair with with partner.

Gifted Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.** Student driven instruction. Allow students to complete an independent project as an alternative test. Inquiry based instruction, Independent study. Higher order thinking skills

RTI: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Suggested Technological Innovations/ Use:

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.**(Guided Math Centers, Math Talk, Formative Assessments)**

8.1.8.IC.1: Compare the trade-offs associated with computing technologies that affect individual's everyday activities and career options. **(Guided Math Centers, Math Talk, Formative Assessments)**

Students will utilize the following devices, subscriptions, and websites to meet these standards:

- Reveal Online Program
- Aleks Math Trainer
- Chromebooks

Interdisciplinary Connections, Career Readiness Practices & 21st Century Connections:

Comprehensive Health and Physical Education:

2.1.8.PGD.4: Analyze the relationship between healthy behaviors and personal health. **(Guided Math Centers)**

2.1.8.EH.1: Compare and contrast stress management strategies that are used to address various types of stress-induced situations (e.g., academics, family, personal relationships, finances, celebrations, violence). **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Tickets)**

ELA:

RL.7.9. Compare, contrast and reflect on (e.g. practical knowledge, historical/cultural context, and background knowledge) a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history. **(Do Now, Guided Math Centers, Assessments)**.

W.IW.7.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. **(Do Now, Guided Math Centers, Assessments)**.

SL.7.1.Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly. **(Do Now, Guided Math Centers, Math Talk, Assessments)**.

9.1.8.CDM.2: Demonstrate an understanding of the terminology associated with different types of credit (e.g., credit cards, installment loans, mortgages, lines of credit) and compare and calculate the interest rates associated with each. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

9.1.8.FI.3: Evaluate the most appropriate financial institutions to assist with meeting various personal financial needs and goals. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**

9.1.8.CP.1: Compare prices for the same goods or services. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**

Module 2: Solve Percent Problems (12 days)

Summary of the Module:

Solving Percent Problems

- Students will apply and extend their understanding of percents to develop fluency in solving percent problems.
- Students will use various methods, such as ratio reasoning or properties of operations, to find **tax, tips, discounts, commission,** and **fees.**
- For example, suppose a smart TV is discounted 15% during a sale. If the original price of the TV is $499, students will write and solve a proportion to find the sale price.

$$\frac{x}{499} = \frac{15}{100}$$

$$\frac{x}{499} = 0.15$$

$$499 \ \frac{x}{499} = (0.15)499$$

$$x = 74.85$$

So, the amount of the discount is $74.85, and the sale price of the TV is $499 - $74.85, or $424.15.

- **Simple interest** can be found using the simple interest formula, $I = prt$. I represents the **interest,** p represents the **principal,** r represents the interest rate as a decimal, and t represents the time in years.

Assessment and/ or Summative Criteria to Demonstrate Mastery of the Module: (TB- Textbook, AR- Assessment Resources)

Summative Assessments
Alternative Assessments
Formative Assessments

Link-it Assessment
Reveal Module 2 Test

Instructional Materials:

Student Workbook, Online Reveal Program (online videos, activities, differentiated materials), Aleks, IXL, quizlet, prodigy

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	New Jersey Student Learning Standards/ NGSS, etc.
Lesson 2.1 Percent of Change	1.5 days	Students will solve problems involving percent of increase and percent of decrease.	• Ignite activity • Math Probes • Are You Ready Activity • Launch activity • Aleks • Explore and Develop • Reflect and Practice • Differentiate • Explore Activity • Apply Activity • Additional exercises • Language Development Activity • Put it All together	**Standards for Mathematical Content** **7.RP.A.3** Use proportional relationships to solve multi step percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

				Standards for Mathematical Practice **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments.
Lesson 2.2 Tax	1.5 days	Students will solve multi-step ratio and percent problems involving taxes.		**Standards for Mathematical Content** **7.RP.A.3** Use proportional relationships to solve multi step percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error **7.EE.A.2** Use properties of operations to generate equivalent expressions. 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, means that "increase by 5%" is the same as "multiply by 1.05." **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her

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Lesson 2.3 Tips and Markups	1.5 days	Students will solve multi-step ratio and percent problems involving tips and markups.		**Standards for Mathematical Content** **7.RP.A.3** Use proportional relationships to solve multi step percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error **7.EE.A.2** Use properties of operations to generate equivalent expressions. 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, means that “increase by 5%” is the same as “multiply by 1.05.” **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions

				and equations. 3. Solve multi-step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP7** Look for and make use of structure.
Lesson 2.4 Discounts	1.5 days	Students will solve multi-step ratio and percent problems involving discounts.		**Standards for Mathematical Content** **7.RP.A.3** Use proportional relationships to solve multi step percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and

				commissions, fees, percent increase and decrease, percent error **7.EE.A.2** Use properties of operations to generate equivalent expressions. 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, means that "increase by 5%" is the same as "multiply by 1.05." **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi-step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively.

				MP3 Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Lesson 2.5 Interest	1 days	Students will solve problems involving simple interest.		**Standards for Mathematical Content** **7.RP.A.3** Use proportional relationships to solve multi step percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

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Lesson 2.6 Commission and Fees	1.5 days	Students will solve problems involving commission and fees.		**Standards for Mathematical Content** **7.RP.A.3** Use proportional relationships to solve multi step percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error **7.EE.A.2** Use properties of operations to generate equivalent expressions. 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, means that "increase by 5%" is the same as "multiply by 1.05." **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi step and real world 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 answering using mental computation and estimation

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Lesson 2.7 Percent Error	1.5 days	Students will solve problems involving percent error.		**Standards for Mathematical Content** **7.RP.A.3** Use proportional relationships to solve multi step percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi-step and real world 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

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Module Assessment and Review	2 days	Please follow the assessment calendar for assessment dates	• Review exercise in Reveal Program • Review of student needs from assessment data	**Standards for Mathematical Content** 7.RP.A.3; 7.EE.A.2; 7.EE.B.3 **Standards for Mathematical Practice** MP1, MP2, MP3, MP4, MP5, MP6, MP7

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Interdisciplinary Connections, Career Readiness Practices & 21st Century Connections:

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W.IW.7.2.Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. **(Do Now, Guided Math Centers, Assessments)**.

SL.7.1.Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly. **(Do Now, Guided Math Centers, Math Talk, Assessments)**.

9.1.8.CR.2: Compare various ways to give back through strengths, passions, goals, and other personal factors. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

9.1.8.CR.1: Compare and contrast the role of philanthropy, volunteer service, and charities in community development and the quality of life in a variety of cultures. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

9.1.8.FI.3: Evaluate the most appropriate financial institutions to assist with meeting various personal financial needs and goals. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**

Module 3: Operations with Integers (11 days)

Summary of the Module:

Add, Subtract, Multiply or Divide Integers

- Students will draw on their knowledge of rational numbers to develop understanding of addition of integers and finding **additive inverses.** They use this understanding to gain fluency in adding multiple signed numbers.
- Students will draw on their knowledge of integers and subtraction to develop understanding of and build fluency in subtraction of integers. They will gain an understanding of finding the distance between two integers.
- Students will draw on their knowledge of the multiplication of whole numbers to develop understanding of multiplication of integers. They build fluency by multiplying two integers with different signs, multiplying two integers with the same signs, and multiplying groups of 3 or more integers.
- Students will draw on their knowledge of the division of whole numbers to develop understanding of division of integers. They build fluency by dividing two integers with different signs and dividing two integers with the same signs.

Apply Integer Operations

- Students will draw on their knowledge of operations with integers and the order of operations to develop fluency in applying the **order of operations** to integers.
- For example, using the order of operations to solve $2 \quad \frac{80}{4} \quad 14$ the student would divide first resulting in $2(\ 20) \quad 14$. Then the student would multiply, resulting in $40 \quad 14$. Lastly, the student would subtract resulting in 54.

Assessment and/ or Summative Criteria to Demonstrate Mastery of the Module: (TB- Textbook, AR- Assessment Resources)

Summative Assessments
Alternative Assessments
Formative Assessments

Link-it Assessment
Reveal Module 3 Test

Instructional Materials:

Student Workbook, Online Reveal Program (online videos, activities, differentiated materials), Aleks, IXL, quizlet, prodigy

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	New Jersey Student Learning Standards/ NGSS, etc.
Lesson 3.1 Add Integers	2 days	Students will solve problems adding integers.	• Ignite activity • Math Probes • Are You Ready Activity • Launch activity • Aleks • Explore and Develop • Reflect and Practice • Differentiate • Explore Activity • Apply Activity • Additional exercises • Language Development Activity • Put it All together	**Standards for Mathematical Content** **7.NS.A.1** Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. **7.NS.A.1.A** Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged. **7.NS.A.1.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. **7.NS.A.1.D** Apply properties of operations as strategies to add and subtract rational numbers. **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **Standards for Mathematical Practice** **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure. **MP8** Look for and express regularity in repeated reasoning.
Lesson 3.2 Subtract Integers	2 days	Students will solve problems subtracting integers.		**Standards for Mathematical Content** **7.NS.A.1** Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

				7.NS.A.1.C Understand subtraction of rational numbers as adding the additive inverse, . Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. **7.NS.A.1.D** Apply properties of operations as strategies to add and subtract rational numbers. **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers

				extend the rules for manipulating fractions to complex fractions.) **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.
Lesson 3.3 Multiply Integers	2 days	Students will solve problems multiplying integers.		**Standards for Mathematical Content** **7.NS.A.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide 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. **7.NS.A.2.C** Apply properties of operations as strategies to multiply and divide rational numbers. **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP7** Look for and make use of structure. **MP8** Look for and express regularity in repeated reasoning.
Lesson 3.4 Divide Integers	1 day	Students will solve problems dividing integers.		**Standards for Mathematical Content** **7.NS.A.2** Apply and extend previous

				understandings of multiplication and division and of fractions to multiply and divide rational numbers. **7.NS.A.2.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. **7.NS.A.2.C** Apply properties of operations as strategies to multiply and divide rational numbers. **7.NS.A.1.D** Apply properties of operations as strategies to add and subtract rational numbers. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her

				salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.
Lesson 3.5 Apply Integers Operations	2 day	Students will solve problems by applying all operations to integers.		**Standards for Mathematical Content** **7.NS.A.1** Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. **7.NS.A.1.D** Apply properties of operations as strategies to add and subtract rational numbers. **7.NS.A.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. **7.NS.A.2.C** Apply properties of operations as strategies to multiply and divide rational numbers. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)

				7.EE.B.3 Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **Standards for Mathematical Practice** **MP3** Construct viable arguments and critique the reasoning of others. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Module Assessment and Review	2 days	Please follow the assessment calendar for assessment dates	• Review exercise in Reveal Program • Review of student needs from assessment data	**Standards for Mathematical Content** 7.NS.A.1; 7.NS.A.1.A; 7.NS.A.1.B; 7.NS.A.1.C; 7.NS.A.1.D; 7.NS.A.2; 7.NS.A.2.A; 7.NS.A.2.B; 7.NS.A.2.C; 7.NS.A.3 ; 7.EE.B.3

				Standards for Mathematical Practice MP1, MP2, MP3, MP4, MP5, MP6, MP7

Suggested Modifications for Special Education, 504, English Language Learners, RTI and Gifted Students:

Students with Disabilities & 504:Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

English Language Learners: Developing models from oral discourse and multimedia Teacher modeling. Peer modeling Develop and post routines. Label classroom materials. Word walls. Give directions/instructions verbally and in simple written format. Pre-teaching of vocabulary and concepts, Visual learning, including graphic organizers,, Teacher modeling, Pairing students with beginning English language skills with students who have more advanced English language skills, Scaffolding (word walls, think-pair-share, cooperative learning group). Students will be supported according to the recommendations for "can do's" as outlined by WIDA - https://www.wida.us/standards/CAN_DOs/

Bilingual: Repetition, simplify language (use shorter phrases), visual word banks, limited use of idioms, metaphors and words with multiple meanings, use of cognates. Use realia (concrete objects), dramatization (gestures, facial expressions, intonation), built on students background knowledge (topics/examples students can relate to), texts that reflect their experiences, extended time, provide samples (teacher and students created), model, pair with with partner.

Gifted Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.** Student driven instruction. Allow students to complete an independent project as an alternative test. Inquiry based instruction, Independent study. Higher order thinking skills

RTI: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Suggested Technological Innovations/ Use:

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.**(Guided Math Centers, Math Talk, Formative Assessments)**

8.1.8.IC.1: Compare the trade-offs associated with computing technologies that affect individual's everyday activities and career options. **(Guided Math Centers, Math Talk, Formative Assessments)**

Students will utilize the following devices, subscriptions, and websites to meet these standards:

- Reveal Online Program
- Aleks Math Trainer
- Chromebooks

Interdisciplinary Connections, Career Readiness Practices & 21st Century Connections:

Comprehensive Health and Physical Education:

2.1.8.EH.2: Analyze how personal attributes, resiliency, and protective factors support mental and emotional health. **(Guided Math Centers, Assessments)**.

2.1.8.PGD.4: Analyze the relationship between healthy behaviors and personal health. **(Do Now, Math Talk, Guided Math Centers, Assessments, exit tickets)**.

ELA:

SL.7.5.Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points **(Guided Math Centers, Assessments)**.

SL.7.1.Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly **(Do Now, Math Talk, Guided Math Centers, Exit Tickets)**.

L.VL.7.3.C Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Tickets).**

9.1.8.CR.4: Examine the implications of legal and ethical behaviors when making financial decisions. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

9.1.8.EG.7: Explain the effect of the economy (e.g., inflation, unemployment) on personal income, individual and family security, and consumer decisions. **(Do Now, Math Talk, Guided Math Centers, Assessments,**

9.1.8.FI.2: Determine the most appropriate use of various financial products and services to borrow and access money for making purchases (e.g., ATM, debit cards, credit cards, check books, online/mobile banking). **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**

Module 4: Operations with Rational Numbers (8 days)

Summary of the Module:

Fractions Written as Decimals

- Students will convert fractions to decimals using long division.
- Students will understand when to use fractions, instead of decimals, in mathematical operations. For example, in the multiplication × –2.75, converting the fraction to a decimal would result in multiplying –2.75 by the repeating decimal, $0.\overline{3}$, which cannot be performed without rounding. To find the exact answer, –2.75 would need to be converted to a fraction [see box below].

Add and Subtract Rational Numbers in Different Forms

- Students will combine mixed numbers by rewriting them as improper fractions with common denominators.
- Students will combine fractions and decimals, either by converting fractions to decimals, or by converting decimals to fractions.

Multiply and Divide Rational Numbers in Different Forms

- Students will multiply fractions and divide out common factors.
- Students will rewrite division by a fraction as multiplication by the reciprocal.

Find (–2.75). Write in simplest form.

When the factors are written in different forms, you first need to rewrite them in the same form.

Because repeats non-zero digits, write the second factor as a mixed number.

(–2.75)	Write the expression.
= (–2)	Write –2.75 as a mixed number.
= (–)	Write –2 as an improper fraction.
=	Multiply the numerators and denominators.
= –	Simplify

Assessment and/ or Summative Criteria to Demonstrate Mastery of the Module: (TB- Textbook, AR- Assessment Resources)

Summative Assessments

Alternative Assessments

Formative Assessments

Link-it Assessment

Reveal Module 4 Test

Instructional Materials:
Student Workbook, Online Reveal Program (online videos, activities, differentiated materials), Aleks, IXL, quizlet, prodigy

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	New Jersey Student Learning Standards/ NGSS, etc.
Lesson 4.1 Rational Numbers	1 day	Students will identify terminating and repeating decimals, and use long division to convert rational numbers to decimals.	• Ignite activity • Math Probes • Are You Ready Activity • Launch activity • Aleks • Explore and Develop • Reflect and Practice • Differentiate • Explore Activity • Apply Activity • Additional exercises • Language Development Activity • Put it All together	**Standards for Mathematical Content** **7.NS.A.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. **7.NS.A.2.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. **7.NS.A.2.D** Convert a rational number to a 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. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure. **MP8** Look for and express regularity in repeated reasoning.
Lesson 4.2 Add Rational Numbers	1 day	Students will demonstrate application of the additive inverse, and an understanding of addition of rational numbers.		**Standards for Mathematical Content** **7.NS.A .1** Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition

				and subtraction on a horizontal or vertical number line diagram. **7.NS.A.1.A** Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged. **7.NS.A.1.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 **7.NS.A.1.D** Apply properties of operations as strategies to add and subtract rational numbers. **7.EE.B.3** Solve real world and mathematical problems using numerical and algebraic expressions and equations. 3. Solve multi step and real world 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 answering using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar inches long in the center of a door that is inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be

				used as a check on the exact computation. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Lesson 4.3 Subtract Rational Numbers	1 day	Students will demonstrate understanding of subtraction of rational numbers as adding the additive inverse and apply it to solving real-world problems.		**Standards for Mathematical Content** **7.NS.A.1** Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. **7.NS.A.1.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 of their difference, and apply this principle in real-world contexts. **7.NS.A.1.D** Apply properties of operations as strategies to add and subtract rational numbers. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **Standards for Mathematical Practice** **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP6** Attend to precision.
Lesson 4.4 Multiply Rational Numbers	1 day	Students will apply understanding of multiplication to rational numbers, and use the order of operations to solve real-world problems.		**Standards for Mathematical Content** **7.NS.A.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide 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.

				7.NS.A.2.C Apply properties of operations as strategies to multiply and divide rational numbers. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Lesson 4.5 Divide Rational Numbers	1 day	Students will apply understanding of division to rational numbers, and use the order of operations to solve real-world problems.		**Standards for Mathematical Content** **7.NS.A.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. **7.NS.A.2.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. **7.NS.A.2.C** Apply properties of operations as strategies to multiply and divide rational numbers. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers.

				7.NS.A.1.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. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **<u>Standards for Mathematical Practice</u>** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively.

				MP3 Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP6** Attend to precision.
Lesson 4.6: Apply Rational Number Operations	1 day	Students will apply understanding of the four operations with rational numbers to evaluate mathematical expressions.		**Standards for Mathematical Content** **7.NS.A.1** Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. **7.NS.A.1.D** Apply properties of operations as strategies to add and subtract rational numbers. **7.NS.A.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. **7.NS.A.2.C** Apply properties of operations as strategies to multiply and divide rational numbers. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Module Assessment and Review	2 days	Please follow the assessment calendar for assessment dates	• Review exercise in Reveal Program • Review of student needs from assessment data	**Standards for Mathematical Content** 7.NS.A.1; 7.NS.A.1.A; 7.NS.A.1.B; 7.NS.A.1.C; 7.NS.A.1.D; 7.NS.A.2; 7.NS.A.2.A; 7.NS.A.2.B; 7.NS.A.2.C;

				7.NS.A.3 ; 7.EE.B.3 **Standards for Mathematical Practice** MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8

Suggested Modifications for Special Education, 504, English Language Learners, RTI and Gifted Students:

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Gifted Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.** Student driven instruction. Allow students to complete an independent project as an alternative test. Inquiry based instruction, Independent study. Higher order thinking skills

RTI: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Suggested Technological Innovations/ Use:

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.**(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.IC.1: Compare the trade-offs associated with computing technologies that affect individual's everyday activities and career options. **(Guided Math Centers, Math Talk, Formative Assessments)**

Students will utilize the following devices, subscriptions, and websites to meet these standards:

- Reveal Online Program
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- Chromebooks

Interdisciplinary Connections, Career Readiness Practices & 21st Century Connections:

Comprehensive Health and Physical Education:
2.1.8.EH.2: Analyze how personal attributes, resiliency, and protective factors support mental and emotional health. **(Guided Math Centers, Assessments)**.
2.1.8.PGD.4: Analyze the relationship between healthy behaviors and personal health. **(Do Now, Math Talk, Guided Math Centers, Assessments, exit tickets)**.
ELA:
SL.7.5.Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points **(Guided Math Centers, Assessments)**.
SL.7.1.Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly **(Do Now, Math Talk, Guided Math Centers, Exit Tickets)**.
L.VL.7.3.C.Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Tickets).**

9.1.8.CR.4: Examine the implications of legal and ethical behaviors when making financial decisions. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.
9.1.8.EG.7: Explain the effect of the economy (e.g., inflation, unemployment) on personal income, individual and family security, and consumer decisions. **(Do Now, Math Talk, Guided Math Centers, Assessments,**
9.1.8.FI.2: Determine the most appropriate use of various financial products and services to borrow and access money for making purchases (e.g., ATM, debit cards, credit cards, check books, online/mobile banking). **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**

Module 5: Simplify Algebraic Expressions (11 days)

Summary of the Module:

Combine Like Terms

- Students will combine like terms by combining the coefficients of the terms containing the same variable.
- Students will add algebraic expressions by combining the like terms.

Distribute Integers Across Algebraic Expressions

- Students will recognize parentheses as indicating multiplication. For example, students will recognize $3(x)$ as meaning 3 times x.
- Students will eliminate parentheses by distributing integer constants to the terms inside the parentheses. For example, students will rewrite $3(x + 2)$ as $3x + 6$.
- Students will subtract linear expressions by distributing the subtraction to each term of the subtracted expression. For example: students will understand $x + 2 - (-x + 5)$ as meaning $x + 2 - - x - + 5$, and will remove the double operators to write $x + 2 + x - 5$. They should then be able to combine like terms to write: $2x - 3$.

Factor Linear Expressions

- Students will identify the greatest common factor (GCF) for a set of monomials using prime factorization. In the prime factorization shown, the factors shared by both $18a$ and $20ab$ are 2 and a. The GCF is $2a$.

$$18a = 2 \cdot 3 \cdot 3 \cdot a$$
$$20ab = 2 \cdot 2 \cdot 5 \cdot a \cdot b$$

Assessment and/ or Summative Criteria to Demonstrate Mastery of the Module: (TB- Textbook, AR- Assessment Resources)

Summative Assessments
Alternative Assessments
Formative Assessments

Link-it Assessment
Reveal Module 5 Test

Instructional Materials:

Student Workbook, Online Reveal Program (online videos, activities, differentiated materials), Aleks, IXL, quizlet, prodigy

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	New Jersey Student Learning Standards/ NGSS, etc.
Lesson 5.1 Simplify Algebraic Expressions	2 days	Students will simplify algebraic expressions by combining like terms and using the Distributive Property	• Ignite activity • Math Probes • Are You Ready Activity • Launch activity • Aleks • Explore and Develop • Reflect and Practice • Differentiate • Explore Activity • Apply Activity • Additional exercises • Language Development Activity • Put it All together	**Standards for Mathematical Content** **7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **7.EE.A.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.” **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.
Lesson 5.2 Add Linear Expressions	2 days	Students will add linear expressions and express the sum in simplest form.		**Standards for Mathematical Content** **7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **Standards for Mathematical Practice**

				MP1 Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Lesson 5.3 Subtract Linear Expressions	2 days	Students will subtract linear expressions and express the difference in simplest form.		**Standards for Mathematical Content** **7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure. **MP8** Look for and express regularity in repeated reasoning.
Lesson 5.4 Factor Linear Expressions	1 day	Students will find the GCF of monomials and factor algebraic expressions.		**Standards for Mathematical Content** **7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients **Standards for Mathematical Practice**

				MP3 Construct viable arguments and critique the reasoning of others. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Lesson 5.5 Combine Operations with Linear Expressions	2 days	Students will combine operations to simplify linear expressions.		**Standards for Mathematical Content** **7.EE.A.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Module Assessment and Review	2 days	Please follow the assessment calendar for assessment dates	• Review exercise in Reveal Program • Review of student needs from assessment data	**Standards for Mathematical Content** 7.EE.A.1; 7.EE.A.2 **Standards for Mathematical Practice** MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8

Suggested Modifications for Special Education, 504, English Language Learners, RTI and Gifted Students:

Students with Disabilities & 504: Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

English Language Learners: Developing models from oral discourse and multimedia Teacher modeling. Peer modeling Develop and post routines. Label classroom materials. Word walls. Give directions/instructions verbally and in simple written format. Pre-teaching of vocabulary and concepts, Visual learning, including graphic organizers,, Teacher modeling, Pairing students with beginning English language skills with students who have more advanced English language skills, Scaffolding (word walls, think-pair-share, cooperative learning group). Students will be supported according to the recommendations for "can do's" as outlined by WIDA - https://www.wida.us/standards/CAN_DOs/

Bilingual: Repetition, simplify language (use shorter phrases), visual word banks, limited use of idioms, metaphors and words with multiple meanings, use of cognates. Use realia (concrete objects), dramatization (gestures, facial expressions, intonation), built on students background knowledge (topics/examples students can relate to), texts that reflect their experiences, extended time, provide samples (teacher and students created), model, pair with with partner.

Gifted Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.** Student driven instruction. Allow students to complete an independent project as an alternative test. Inquiry based instruction, Independent study. Higher order thinking skills

RTI: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Suggested Technological Innovations/ Use:

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.**(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose. **(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.IC.1: Compare the trade-offs associated with computing technologies that affect individual's everyday activities and career options. **(Guided Math Centers, Math Talk, Formative Assessments)**

Students will utilize the following devices, subscriptions, and websites to meet these standards:

- Reveal Online Program
- Aleks Math Trainer
- Chromebooks

Interdisciplinary Connections, Career Readiness Practices & 21st Century Connections:

Comprehensive Health and Physical Education:

2.1.8.EH.2: Analyze how personal attributes, resiliency, and protective factors support mental and emotional health. **(Guided Math Centers, Assessments)**.

2.1.8.PGD.4: Analyze the relationship between healthy behaviors and personal health. **(Do Now, Math Talk, Guided Math Centers, Assessments, exit tickets)**.

ELA:

L.KL.7.2.C Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.

L.SS.7.1.Demonstrate the command of the system and structure of the standard English language and usage when writing or speaking.

SL.7.6.Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

9.1.8.EG.7: Explain the effect of the economy (e.g., inflation, unemployment) on personal income, individual and family security, and consumer decisions. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

9.1.8.CP.2: Analyze how spending habits affect one's ability to save. **(Math Talk) (Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**

9.1.8.CDM.1: Compare and contrast the use of credit cards and debit cards for specific purchases and the advantages and disadvantages of using each. **(Math Talk)**

Module 6: Write and Solve Equations (12 days)

Summary of the Module:

Write and Solve One-Step Equations

- Students will solve equations in the form $px = r$ or $p + x = r$, where p and r represent rational numbers. For example, given $x = 25$, students could multiply both sides of the equation by the reciprocal of to obtain(x) = (25). Since × = 1, $x =$, or 45.

Solve Two-Step Equations by Undoing Operations in Reverse of the *Order of Operations*

- Students will write and solve equations in the form $px + q = r$, where p, q and r represent rational numbers. For example, given $x + 5 = 8$, students will first subtract 5 from each side of the equation, resulting in $x = 3$, and then divide each side of the equation by , resulting in the answer $x =$, or 4.

Assessment and/ or Summative Criteria to Demonstrate Mastery of the Module: (TB- Textbook, AR- Assessment Resources)

Summative Assessments
Alternative Assessments
Formative Assessments

Link-it Assessment
Reveal Module 6 Test

Instructional Materials:

Student Workbook, Online Reveal Program (online videos, activities, differentiated materials), Aleks, IXL, quizlet, prodigy

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	New Jersey Student Learning Standards/ NGSS, etc.
Lesson 6.1 Write and Solve One-Step Equations	2 days	Students will write and solve one-step equations with rational numbers.	• Ignite activity • Math Probes • Are You Ready Activity • Launch activity • Aleks • Explore and Develop • Reflect and Practice • Differentiate • Explore Activity • Apply Activity • Additional exercises • Language Development Activity • Put it All together	**Standards for Mathematical Content** **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. **7.EE.B.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. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **7.EE.B.4.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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.
Lesson 6.2 Solve Two-Step Equations: px + q = r	2 days	Students will solve two-step equations of the form *px* + *q* = *r*.		**Standards for Mathematical Practice** **7.EE.B.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. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches

				long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **7.EE.B.4.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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Lesson 6.3 Write and Solve Two-Step Equations: px + q = r	2 days	Students will write and solve two-step equations of the form $px + q = r$.		**Standards for Mathematical Practice** **7.EE.B.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. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **7.EE.B.4.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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically.

Lesson 6.4 Solve Two-Step Equations: p(x + q) = r	2 days	Students will write and solve two-step equations of the form *px* + *q* = *r*		**Standards for Mathematical Practice** **7.EE.B.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. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **7.EE.B.4.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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

				Standards for Mathematical Practice **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.
Lesson 6.5 Write and Solve Two-Step Equations: p(x + q) = r	2 days	Students will write and solve two-step equations of the form $p(x + q) = r$.		**Standards for Mathematical Practice** **7.EE.B.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. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

				7.EE.B.4.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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically.
Module Assessment and Review	2 days	Please follow the assessment calendar for assessment dates	• Review exercise in Reveal Program • Review of student needs from assessment data	**Standards for Mathematical Content** 7.NS.A.3; 7.EE.B.4; 7.EE.B.4.A **Standards for Mathematical Practice** MP1, MP2, MP3, MP4, MP5, MP6, MP7

Suggested Modifications for Special Education, 504, English Language Learners, RTI and Gifted Students:

Students with Disabilities & 504:Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

English Language Learners: Developing models from oral discourse and multimedia Teacher modeling. Peer modeling Develop and post routines. Label classroom materials. Word walls. Give directions/instructions verbally and in simple written format. Pre-teaching of vocabulary and concepts, Visual learning, including graphic organizers,, Teacher modeling, Pairing students with beginning English language skills with students who have more advanced English language skills, Scaffolding (word walls, think-pair-share, cooperative learning group). Students will be supported according to the recommendations for "can do's" as outlined by WIDA - https://www.wida.us/standards/CAN_DOs/

Bilingual: Repetition, simplify language (use shorter phrases), visual word banks, limited use of idioms, metaphors and words with multiple meanings, use of cognates. Use realia (concrete objects), dramatization (gestures, facial expressions, intonation), built on students background knowledge (topics/examples students can relate to), texts that reflect their experiences, extended time, provide samples (teacher and students created), model, pair with with partner.

Gifted Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.** Student driven instruction. Allow students to complete an independent project as an alternative test. Inquiry based instruction, Independent study. Higher order thinking skills

RTI: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Suggested Technological Innovations/ Use:

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.**(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose. **(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.IC.1: Compare the trade-offs associated with computing technologies that affect individual's everyday activities and career options. **(Guided Math Centers, Math Talk, Formative Assessments)**

Students will utilize the following devices, subscriptions, and websites to meet these standards:

- Reveal Online Program
- Aleks Math Trainer
- Chromebooks

Interdisciplinary Connections, Career Readiness Practices & 21st Century Connections:

Comprehensive Health and Physical Education:

2.1.8.PGD.4: Analyze the relationship between healthy behaviors and personal health.**(Guided Math Centers, Assessments)**.

2.1.8.EH.2: Analyze how personal attributes, resiliency, and protective factors support mental and emotional health. **(Do Now, Math Talk, Guided Math Centers, Assessments, exit tickets)**.

ELA:

L.KL.7.2.C Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.

L.SS.7.1 Demonstrate command of the system and structure of the English language when writing or speaking.

SL.7.6.Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

9.1.8.EG.8: Analyze the impact of currency rates over a period of time and the impact on trade, employment, and income. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

9.1.8.CR.4: Examine the implications of legal and ethical behaviors when making financial decisions. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**

9.1.8.CT.2 Explain the economic principle of supply and demand **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**

Module 7: Write and Solve Inequalities (11 days)

Summary of the Module:

One-Step Inequalities

- Students will draw on their knowledge of inequalities and solving one-step addition and subtraction equations to build understanding of solving and graphing one-step addition and subtraction inequalities. They will then use this understanding to build fluency to solve and graph one-step addition and subtraction inequalities.
- Students will draw on their knowledge of solving one-step addition and subtraction inequalities and solving one-step multiplication and division equations to build understanding of solving and graphing one-step multiplication and division inequalities. They will then use this understanding to build fluency in solving and graphing one-step multiplication and division inequalities.
- Students will draw on their knowledge of solving one-step multiplication and division inequalities to build understanding of writing addition, subtraction. multiplication and division inequalities.

Two-Step Inequalities

- Students will draw on their knowledge of solving one-step inequalities and solving two-step equations to build understanding of solving two-step inequalities. They will use this understanding to build fluency in solving two-step inequalities.
- For example, when solving an inequality, the Properties of Inequality would be used:

$3x - 5 < 4$ Use the Addition Property of Equality to add 5 to both sides.

$3x < 9$ Use the Division Property of Equality to divide both sides

Assessment and/ or Summative Criteria to Demonstrate Mastery of the Module: (TB- Textbook, AR- Assessment Resources)

Summative Assessments

Alternative Assessments

Formative Assessments

Link-it Assessment
Reveal Module 7 Test

Instructional Materials:
Student Workbook, Online Reveal Program (online videos, activities, differentiated materials), Aleks, IXL, quizlet, prodigy

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	New Jersey Student Learning Standards/ NGSS, etc.
Lesson 7.1 Solve One-Step Addition and Subtraction Inequalities	1 day	Students will solve and graph one-step addition and subtraction inequalities.	• Ignite activity • Math Probes • Are You Ready Activity • Launch activity • Aleks • Explore and Develop • Reflect and Practice • Differentiate • Explore Activity • Apply Activity • Additional exercises • Language Development Activity • Put it All together	**Standards for Mathematical Content** **7.EE.B.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. **7.EE.B.4.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. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.
Lesson 7.2 Write and Solve One-Step Addition and Subtraction Inequalities	1 day	Students will write and solve one-step addition and subtraction inequalities.		**Standards for Mathematical Content** **7.EE.B.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. **7.EE.B.4.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. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.

Lesson 7.3 Solve One-Step Multiplication and Division Inequalities with Positive Coefficients	1 day	Students will solve and graph one-step multiplication and division inequalities with positive coefficients.		**Standards for Mathematical Content** **7.EE.B.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. **7.EE.B.4.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. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

				Standards for Mathematical Practice **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure. **MP8** Look for and express regularity in repeated reasoning.
Lesson 7.4 Solve One-Step Multiplication and Division Inequalities with Negative Coefficients	2 days	Students will solve and graph one-step multiplication and division inequalities with negative coefficients.		**Standards for Mathematical Content** **7.EE.B.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. **7.EE.B.4.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. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure. **MP8** Look for and express regularity in repeated reasoning.
Lesson 7.5 Write and Solve One-Step Multiplication and Division Inequalities	2 days	Students will write and solve one-step multiplication and division inequalities.		**Standards for Mathematical Content** **7.EE.B.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. **7.EE.B.4.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. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP7** Look for and make use of structure.

Lesson 7.6 Write and Solve Two-Step Inequalities	2 days	Students will write and solve two-step inequalities.		**Standards for Mathematical Content** **7.EE.B.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. **7.EE.B.4.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. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

				Standards for Mathematical Practice **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Module Assessment and Review	2 days	Please follow the assessment calendar for assessment dates	• Review exercise in Reveal Program • Review of student needs from assessment data	**Standards for Mathematical Content** 7.EE.B.4; 7.EE.B.4.B; 7.EE.B.3 **Standards for Mathematical Practice** MP1, MP2, MP3, MP4, MP5, MP6, MP7

Suggested Modifications for Special Education, 504, English Language Learners, RTI and Gifted Students:

Students with Disabilities & 504:Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

English Language Learners: Developing models from oral discourse and multimedia Teacher modeling. Peer modeling Develop and post routines. Label classroom materials. Word walls. Give directions/instructions verbally and in simple written format. Pre-teaching of vocabulary and concepts, Visual learning, including graphic organizers,, Teacher modeling, Pairing students with beginning English language skills with students who have more advanced English language skills, Scaffolding (word walls, think-pair-share, cooperative learning group). Students will be supported according to the recommendations for “can do’s” as outlined by WIDA - https://www.wida.us/standards/CAN_DOs/

Bilingual: Repetition, simplify language (use shorter phrases), visual word banks, limited use of idioms, metaphors and words with multiple meanings, use of cognates. Use realia (concrete objects), dramatization (gestures, facial expressions, intonation), built on students background knowledge

(topics/examples students can relate to), texts that reflect their experiences, extended time, provide samples (teacher and students created), model, pair with with partner.

Gifted Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.** Student driven instruction. Allow students to complete an independent project as an alternative test. Inquiry based instruction, Independent study. Higher order thinking skills

RTI: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Suggested Technological Innovations/ Use:

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.**(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose. **(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.IC.1: Compare the trade-offs associated with computing technologies that affect individual's everyday activities and career options. **(Guided Math Centers, Math Talk, Formative Assessments)**

Students will utilize the following devices, subscriptions, and websites to meet these standards:

- Reveal Online Program
- Aleks Math Trainer
- Chromebooks

Interdisciplinary Connections, Career Readiness Practices & 21st Century Connections:

Comprehensive Health and Physical Education:
2.1.8.PGD.4: Analyze the relationship between healthy behaviors and personal health.**(Guided Math Centers, Assessments)**.
2.1.8.EH.2: Analyze how personal attributes, resiliency, and protective factors support mental and emotional health. **(Do Now, Math Talk, Guided Math Centers, Assessments, exit tickets)**.
ELA:
W.AW.7.1 Write arguments on discipline-specific content (e.g. Social Studies, Science, Math, Technical Subjects, and English/Language Arts) to support claims with clear reasons and relevant evidence **(Do Now, Guided Math Centers, Assessments, Exit Tickets)**.

L.VL.7.3.C Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Tickets)**.
L.VL.7.3.E Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary) **(Do Now, Guided Math Centers, Exit Questions)**.

S.S:

6.1.8.C.3.Explain how taxes and government regulation can affect economic opportunities, and assess the impact of these on relations between Britain and its North American colonies **(Do Now, Guided Math Centers, Assessments)**.

9.1.8.EG.8: Analyze the impact of currency rates over a period of time and the impact on trade, employment, and income. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.
9.1.8.CR.4: Examine the implications of legal and ethical behaviors when making financial decisions. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**
9.1.8.CT.2 Explain the economic principle of supply and demand **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**

Module 8: Geometric Figures (9 days)

Summary of the Module:

Angle relationships

- Students will gain understanding of **vertical and adjacent angles**. These angles are classified by their position in relation to the other.
- Students will extend their knowledge of the measurement of angles with **complementary and supplementary angles**. These are two angles that combine to sum either 90^0 or 180^0.

Triangles

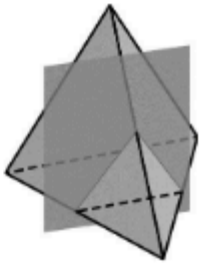
- Students will apply and extend their knowledge of classifying triangles by angle measures and side lengths.
- Students will use their understanding of the classification of triangles to create triangles freehand, with tools, and with dynamic geometric software.

Scale Drawings

- Students will apply their knowledge of ratios and rates to gain understanding of **scale** and **scale factor**.
- Students will apply their knowledge of **scale** to interpret **scale drawings** and **scale models**.

Three-Dimensional Figures

- Students will gain knowledge of different types of **polyhedrons** and classify them as **prisms, cylinders, pyramids,** or **cones.**
- Students will apply their knowledge of geometric figures to identify **cross sections** of **planes** and **polyhedrons**. For example, when a **plane** intersects a **pyramid** the result is a triangle.



Assessment and/ or Summative Criteria to Demonstrate Mastery of the Module: (TB- Textbook, AR- Assessment Resources)

Summative Assessments

Alternative Assessments

Formative Assessments

Link-it Assessment
Reveal Module 8 Test

Instructional Materials:
Student Workbook, Online Reveal Program (online videos, activities, differentiated materials), Aleks, IXL, quizlet, prodigy

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	New Jersey Student Learning Standards/ NGSS, etc.
Lesson 8.1 Vertical and Adjacent Angles	1.5 days	Students will identify vertical and adjacent angles and use what they know to find missing values.	• Ignite activity • Math Probes • Are You Ready Activity • Launch activity • Aleks • Explore and Develop • Reflect and Practice • Differentiate • Explore Activity • Apply Activity • Additional exercises • Language Development Activity • Put it All together	**Standards for Mathematical Content** **7.G.B.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. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from

				each edge; this estimate can be used as a check on the exact computation. **7.EE.B.4.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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP8** Look for and express regularity in repeated reasoning.
Lesson 8.2 Complementary and Supplementary Angles	1.5 days	Students will identify complementary and supplementary angles and use what they know to find missing values.		**Standards for Mathematical Content** **7.G.B.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. **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **7.EE.B.4.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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP8** Look for and express regularity in repeated reasoning.
Lesson 8.3 Triangles	1.5 days	Students will draw triangles with and without tools.		**Standards for Mathematical Content** **7.G.A.2** Draw (freehand, with ruler

				and protractor, and with technology) geometric shapes with given conditions. 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. **Standards for Mathematical Practice** **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP8** Look for and express regularity in repeated reasoning.
Lesson 8.4 Scale Drawings	1.5 days	Students will solve problems involving scale drawings.		**Standards for Mathematical Content** **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. **7.RP.A.2** Recognize and represent proportional relationships between quantities **7.RP.A.2.B** Identify the constant of proportionality (unit rate), in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. **7.RP.A.3** Use proportional relationships to solve multi step percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

				7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **7.EE.B.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. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.

Lesson 8.5 Three-Dimensional Figures	1 day	Students will analyze three-dimensional figures.		**Standards for Mathematical Content** 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. **Standards for Mathematical Practice** **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP6** Attend to precision. **MP7** Look for and make use of structure. **MP8** Look for and express regularity in repeated reasoning.
Module Assessment and Review	2 days	Please follow the assessment calendar for assessment dates	• Review exercise in Reveal Program • Review of student needs from assessment data	**Standards for Mathematical Content** 7.RP.A.2, 7.RP.A.2.B, 7.RP.A.3, 7.NS.A.3, 7.EE.B.3, 7.EE.B.4.A, 7.G.A.1, 7.G.A.2, 7.G.A.3, 7.G.B.5 **Standards for Mathematical Practice** MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8

Suggested Modifications for Special Education, 504, English Language Learners, RTI and Gifted Students:

Students with Disabilities & 504:Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

English Language Learners: Developing models from oral discourse and multimedia Teacher modeling. Peer modeling Develop and post routines. Label classroom materials. Word walls. Give directions/instructions verbally and in simple written format. Pre-teaching of vocabulary and concepts, Visual

learning, including graphic organizers,, Teacher modeling, Pairing students with beginning English language skills with students who have more advanced English language skills, Scaffolding (word walls, think-pair-share, cooperative learning group). Students will be supported according to the recommendations for "can do's" as outlined by WIDA - https://www.wida.us/standards/CAN_DOs/

Bilingual: Repetition, simplify language (use shorter phrases), visual word banks, limited use of idioms, metaphors and words with multiple meanings, use of cognates. Use realia (concrete objects), dramatization (gestures, facial expressions, intonation), built on students background knowledge (topics/examples students can relate to), texts that reflect their experiences, extended time, provide samples (teacher and students created), model, pair with with partner.

Gifted Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.** Student driven instruction. Allow students to complete an independent project as an alternative test. Inquiry based instruction, Independent study. Higher order thinking skills

RTI: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Suggested Technological Innovations/ Use:

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.**(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose. **(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.NI.1: Model how information is broken down into smaller pieces, transmitted as addressed packets through multiple devices over networks and the Internet, and reassembled at the destination. **(Guided Math Centers, Math Talk, Formative Assessments)**

Students will utilize the following devices, subscriptions, and websites to meet these standards:

- Reveal Online Program
- Aleks Math Trainer
- Chromebooks

Interdisciplinary Connections, Career Readiness Practices & 21st Century Connections:

Comprehensive Health and Physical Education:

2.1.8.PGD.4: Analyze the relationship between healthy behaviors and personal health.**(Guided Math Centers, Assessments)**.
2.1.8.EH.2: Analyze how personal attributes, resiliency, and protective factors support mental and emotional health. **(Do Now, Math Talk, Guided Math Centers, Assessments, exit tickets)**.

ELA:

W.AW.7.1.Write arguments to support claims with clear reasons and relevant evidence **(Do Now, Guided Math Centers, Assessments, Exit Tickets)**.
L.VL.7.3.C.Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Tickets)**.
L.VL.7.3.E Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary) **(Do Now, Guided Math Centers, Exit Questions)**.

S.S:

6.1.8.C.3.Explain how taxes and government regulation can affect economic opportunities, and assess the impact of these on relations between Britain and its North American colonies **(Do Now, Guided Math Centers, Assessments)**.

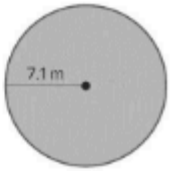
9.1.8.CR.1: Compare and contrast the role of philanthropy, volunteer service, and charities in community development and the quality of life in a variety of cultures. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.
9.1.8.FI.4: Analyze the interest rates and fees associated with financial products. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.
9.1.8.EG.5: Interpret how changing economic and societal needs influence employment trends and future education. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.
9.1.8.CT.2 Prioritize personal wants and needs when making purchases **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**

Module: 9 Measure Figures 12 days

Summary of the Module:

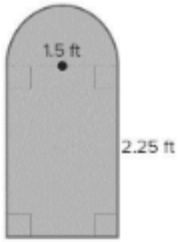
Circles

- Students will develop an understanding of the **radius** and **diameter** of a **circle** and how they relate to the **circumference** of the **circle.**
- Students will draw on their knowledge of **circles** to build an understanding of the **area** of **circles**. Students will also develop an understanding of finding the **area** of a **circle** given the **circumference**.
- For example, in the figure shown the **circumference** would be
  $C = 2(\pi)(7.1\text{ m}) = 14.2\pi\text{ m} \approx 44.6\text{ m}$. The **area** is
  $A = \pi(7.1^2) = 50.41\pi\text{ m}^2 \approx 158.4\text{ m}^2$.



Composite Figures

- Students will draw on their knowledge of finding the **area** of triangles and quadrilaterals to gain fluency in finding the **area** of composite figures.
- For example, to find the area of the figure shown the student would need to find the area of the rectangle and the area of the **semicircle**.
  $A = (2.25)(1.5) + (\pi)(1.5^2) \approx 3.375 + .884 \approx 4.26\text{ ft}^2$



Volume and Surface Area

- Students will draw on their knowledge of finding **area** to gain fluency in finding the **volume** of rectangular **prisms**, triangular **prisms** and **pyramids**. They will use their knowledge to gain an understanding of using **volume** of a three-dimensional object to find a missing dimension.

Assessment and/ or Summative Criteria to Demonstrate Mastery of the Module: (TB- Textbook, AR- Assessment Resources)

Summative Assessments

Alternative Assessments

Formative Assessments

Link-it Assessment
Reveal Module 9 Test

Instructional Materials:
Student Workbook, Online Reveal Program (online videos, activities, differentiated materials), Aleks, IXL, quizlet, prodigy

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	New Jersey Student Learning Standards/ NGSS, etc.
Lesson 9.1 Circumference of Circles	2 days	Students will use radius and diameter to find circumference.	• Ignite activity • Math Probes • Are You Ready Activity • Launch activity • Aleks • Explore and Develop • Reflect and Practice • Differentiate • Explore Activity • Apply Activity • Additional exercises • Language Development Activity • Put it All together	**Standards for Mathematical Content** **7.G.B.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. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **7.EE.B.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. **7.EE.B.4.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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Lesson 9.2 Area of Circles	2 days	Students will find the area of circles.		**Standards for Mathematical Content** **7.G.B.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. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **7.EE.B.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.

				7.EE.B.4.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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure. **MP8** Look for and express regularity in repeated reasoning.
Lesson 9.3 Area of Composite Figures	2 days	Students will find the area of composite figures.		**Standards for Mathematical Content** **7.G.B.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. **7.G.B.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.

				7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **7.EE.B.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. **7.EE.B.4.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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Lesson 9.4 Volume	1 day	Students will find the volume of prisms and pyramids.		**Standards for Mathematical Content** **7.G.B.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. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **7.EE.B.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. **7.EE.B.4.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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure. **MP8** Look for and express regularity in repeated reasoning.

Lesson 9.5 Surface Area	1 day	Students will find the surface area of prisms and pyramids.		**Standards for Mathematical Content** **7.G.B.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. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.) **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure. **MP8** Look for and express regularity in repeated reasoning.
Lesson 9.6 Volume and Surface Area of Composite Figures	2 days	Students will find the volume and surface area of composite figures.		**Standards for Mathematical Content** **7.G.B.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. **7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. (Clarification: Computations with rational numbers extend the

				rules for manipulating fractions to complex fractions.) **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. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Module Assessment and Review	2 days	Please follow the assessment calendar for assessment dates	• Review exercise in Reveal Program • Review of student needs from assessment data	**Standards for Mathematical Content** 7.NS.A.3, 7.EE.B.4, 7.EE.B.4.A, 7.G.A.1, 7.G.B.4, 7.G.B.6 **Standards for Mathematical Practice** MP1, MP2, MP3, MP4, MP5, MP6, MP7

Suggested Modifications for Special Education, 504, English Language Learners, RTI and Gifted Students:

Students with Disabilities & 504:Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

English Language Learners: Developing models from oral discourse and multimedia Teacher modeling. Peer modeling Develop and post routines. Label classroom materials. Word walls. Give directions/instructions verbally and in simple written format. Pre-teaching of vocabulary and concepts, Visual learning, including graphic organizers,, Teacher modeling, Pairing students with beginning English language skills with students who have more

advanced English language skills, Scaffolding (word walls, think-pair-share, cooperative learning group). Students will be supported according to the recommendations for "can do's" as outlined by WIDA - https://www.wida.us/standards/CAN_DOs/

Bilingual: Repetition, simplify language (use shorter phrases), visual word banks, limited use of idioms, metaphors and words with multiple meanings, use of cognates. Use realia (concrete objects), dramatization (gestures, facial expressions, intonation), built on students background knowledge (topics/examples students can relate to), texts that reflect their experiences, extended time, provide samples (teacher and students created), model, pair with with partner.

Gifted Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.** Student driven instruction. Allow students to complete an independent project as an alternative test. Inquiry based instruction, Independent study. Higher order thinking skills

RTI: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Suggested Technological Innovations/ Use:

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.**(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose. **(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.NI.1: Model how information is broken down into smaller pieces, transmitted as addressed packets through multiple devices over networks and the Internet, and reassembled at the destination. **(Guided Math Centers, Math Talk, Formative Assessments)**

Students will utilize the following devices, subscriptions, and websites to meet these standards:

- Reveal Online Program
- Aleks Math Trainer
- Chromebooks

Interdisciplinary Connections, Career Readiness Practices & 21st Century Connections:

Comprehensive Health and Physical Education:

2.1.8.PGD.4: Analyze the relationship between healthy behaviors and personal health.**(Guided Math Centers, Assessments)**.

2.1.8.EH.2: Analyze how personal attributes, resiliency, and protective factors support mental and emotional health. **(Do Now, Math Talk, Guided Math Centers, Assessments, exit tickets)**.

ELA:

W.AW.7.1.Write arguments on discipline-specific content (e.g. social studies, science, math, technical subjects, English/Language Arts) to support claims with clear reasons and relevant evidence.**(Do Now, Guided Math Centers, Assessments, Exit Tickets)**.

L.VL.7.3.C Analyze the impact of specific word choice meaning and tone.**(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Tickets)**.

L.VL.7.3.E Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary) **(Do Now, Guided Math Centers, Exit Questions)**.

S.S:

6.1.8.C.3.Explain how taxes and government regulation can affect economic opportunities, and assess the impact of these on relations between Britain and its North American colonies **(Do Now, Guided Math Centers, Assessments)**.

9.1.8.CR.1: Compare and contrast the role of philanthropy, volunteer service, and charities in community development and the quality of life in a variety of cultures. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

9.1.8.FI.4: Analyze the interest rates and fees associated with financial products. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

9.1.8.EG.5: Interpret how changing economic and societal needs influence employment trends and future education. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

9.1.8.CT.2 Prioritize personal wants and needs when making purchases **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**

Module 10: Probability (11.5 days)

Summary of the Module:

Likelihoods and Frequency

- Students will develop their understanding of **outcomes** and **likelihoods** of **events**. They build mathematical language to describe the **likelihood** of **events** and use the terminology to communicate about chance **events**.
- Students will use their knowledge of **outcomes** and **likelihood** to develop an understanding of **relative frequency** of **simple events** and making predictions using **relative frequency**. They will use this understanding to develop fluency in finding **relative frequencies** of **simple events**.

Probabilities

- Students will develop their understanding of the **sample space** for **simple events** and how it relates to **probability**. They will use their knowledge of r**elative frequency** to develop an understanding of **theoretical probability** of simple events and the **complement** of a **simple event**.
- Students will use their knowledge of **relative frequency** and **theoretical probability** to build an understanding of comparing **probabilities** of **simple events**.
- Students will use their knowledge of **sample space** of **simple events** to develop an understanding of finding the **sample space** of **compound events**. They will use their knowledge of the **probability**

Assessment and/ or Summative Criteria to Demonstrate Mastery of the Module: (TB- Textbook, AR- Assessment Resources)

Summative Assessments

Alternative Assessments

Formative Assessments

Link-it Assessment
Reveal Module 10 Test

Instructional Materials:
Student Workbook, Online Reveal Program (online videos, activities, differentiated materials), Aleks, IXL, quizlet, prodigy

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	New Jersey Student Learning Standards/ NGSS, etc.
Lesson 10.1 Find Likelihoods	1 day	Students will solve problems that classify the likelihood of simple events.	• Ignite activity • Math Probes • Are You Ready Activity • Launch activity • Aleks • Explore and Develop • Reflect and Practice • Differentiate • Explore Activity • Apply Activity • Additional exercises • Language Development Activity • Put it All together	**Standards for Mathematical Content** **7.SP.C.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. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.
Lesson 10.2 Relative Frequency of Simple Events	1.5 days	Students will find the relative frequency of simple events and compare relative frequency to experimental probability.		**Standards for Mathematical Content** **7.SP.C.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. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times. **7.SP.C.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. **7.SP.C.7.B** Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.
Lesson 10.3 Theoretical Probability of Simple Events	2 days	Students will solve problems involving theoretical probability of simple events and their complements.		**Standards for Mathematical Content** **7.SP.C.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. **7.SP.C.7.A** Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.
Lesson 10.4 Compare Probabilities of Simple Events	1 day	Students will solve problems that compare probabilities and relative frequencies of simple events.		**Standards for Mathematical Content** **7.SP.C.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. For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times. **7.SP.C.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. **7.SP.C.7.A** Develop a uniform probability model by assigning equal

				probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected. **7.SP.C.7.B** Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies? **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Lesson 10.5 Probability of Compound Events	2 days	Students will solve problems involving the probability of compound events.		**Standards for Mathematical Content** **7.SP.C.8** Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. **7.SP.C.8.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. **7.SP.C.8.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. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision.
Lesson 10.6 Simulate Chance Events	2 days	Students will solve problems by simulating compound probability events.		**Standards for Mathematical Content** **7.SP.C.8** Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. **7.SP.C.8.C** Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood? **Standards for Mathematical Pratice** **MP2** Reason abstractly and quantitatively. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure.

Module Assessment and Review	2 days	Please follow the assessment calendar for assessment dates	• Review exercise in Reveal Program • Review of student needs from assessment data	**Standards for Mathematical Content** 7.SP.C.5 ; 7.SP.C.6 ; 7.SP.C.7; 7.SP.C.7.A; 7.SP.C.7.B; 7.SP.C.8; 7.SP.C.8.A; 7.SP.C.8.B; 7.SP.C.8.C **Standards for Mathematical Content** MP1, MP2, MP3, MP4, MP5, MP6, MP7

Suggested Modifications for Special Education, 504, English Language Learners, RTI and Gifted Students:

Students with Disabilities & 504:Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

English Language Learners: Developing models from oral discourse and multimedia Teacher modeling. Peer modeling Develop and post routines. Label classroom materials. Word walls. Give directions/instructions verbally and in simple written format. Pre-teaching of vocabulary and concepts, Visual learning, including graphic organizers,, Teacher modeling, Pairing students with beginning English language skills with students who have more advanced English language skills, Scaffolding (word walls, think-pair-share, cooperative learning group). Students will be supported according to the recommendations for “can do’s” as outlined by WIDA - https://www.wida.us/standards/CAN_DOs/

Bilingual: Repetition, simplify language (use shorter phrases), visual word banks, limited use of idioms, metaphors and words with multiple meanings, use of cognates. Use realia (concrete objects), dramatization (gestures, facial expressions, intonation), built on students background knowledge (topics/examples students can relate to), texts that reflect their experiences, extended time, provide samples (teacher and students created), model, pair with with partner.

Gifted Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.** Student driven instruction. Allow students to complete an independent project as an alternative test. Inquiry based instruction, Independent study. Higher order thinking skills

RTI: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Suggested Technological Innovations/ Use:

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.**(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose. **(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.NI.1: Model how information is broken down into smaller pieces, transmitted as addressed packets through multiple devices over networks and the Internet, and reassembled at the destination. **(Guided Math Centers, Math Talk, Formative Assessments)**

Students will utilize the following devices, subscriptions, and websites to meet these standards:

- Reveal Online Program
- Aleks Math Trainer
- Chromebooks

Interdisciplinary Connections, Career Readiness Practices & 21st Century Connections:

Comprehensive Health and Physical Education:
2.1.8.PGD.4: Analyze the relationship between healthy behaviors and personal health.**(Guided Math Centers, Assessments)**.
2.1.8.EH.2: Analyze how personal attributes, resiliency, and protective factors support mental and emotional health. **(Do Now, Math Talk, Guided Math Centers, Assessments, exit tickets)**.

ELA:
SL.7.5.Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points **(Guided Math Centers, Assessments)**.
SL.7.2.Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study **(Guided Math Centers, Assessments)**.
W.7.8.Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation **(Do Now, Guided Math Centers,** .
W.7.7.Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation **(Guided Math Centers, Assessments)**.

9.1.8.FI.1: Identify the factors to consider when selecting various financial service providers. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.
9.1.8.CP.2: Analyze how spending habits affect one's ability to save. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.
9.1.8.CR.3: Relate the importance of consumer, business, and government responsibility to the economy and personal finance. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

Module 11: Sampling and Statistics (10 days)

Summary of the Module:

Sampling and Populations

- **Statistics** can be used to gain information about a population. One way to do this is to **survey** a **sample**, or part, of the population.
- One type of sampling method is a **valid sampling method**. With this method, the sample must be representative of the population, random, and large enough to provide accurate data. These samples are also called **unbiased samples**.
- **Biased samples** come from **convenience samples** (members of the population that are easily accessible, such as your neighbors) and **voluntary response samples** (only those members of the population that choose to participate).
- **Inferences**, or predictions, can be made from both biased and unbiased samples. Only those from unbiased samples can be considered **valid inferences**. For example, only surveying the people in a library about whether they enjoy reading would be considered a convenience sample and therefore the inference that the entire population enjoys reading would be an invalid inference.

Assessment and/ or Summative Criteria to Demonstrate Mastery of the Module: (TB- Textbook, AR- Assessment Resources)

Summative Assessments
Alternative Assessments
Formative Assessments

Link-it Assessment
Reveal Module 11 Test

Instructional Materials:

Student Workbook, Online Reveal Program (online videos, activities, differentiated materials), Aleks, IXL, quizlet, prodigy

Topic/ Selection	Suggested Timeline per topic	General Objectives	Instructional Activities	New Jersey Student Learning Standards/ NGSS, etc.
Lesson 11.1 Biased and Unbiased Samples	2 days	Students will identify samples as biased or unbiased and determine whether inferences from the samples are valid.	• Ignite activity • Math Probes • Are You Ready Activity • Launch activity • Aleks • Explore and Develop • Reflect and Practice • Differentiate • Explore Activity • Apply Activity • Additional exercises • Language Development Activity • Put it All together	**Standards for Mathematical Content** **7.SP.A.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. **7.SP.A.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. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be. **Standards for Mathematical Practice** **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP6** Attend to precision.

Lesson 11.2 Make Predictions	1 day	Students will make predictions based on data gathered using a valid sampling method.		**Standards for Mathematical Content** **7.SP.A.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. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be. **7.RP.A.2** Recognize and represent proportional relationships between quantities **7.RP.A.3** Use proportional relationships to solve multi step percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP6** Attend to precision.
Lesson 11.3 Generate Multiple Samples	2 days	Students will understand that taking multiple samples can help them gauge the variation in their predictions.		**Standards for Mathematical Content** **7.SP.A.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. For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be. **7.RP.A.2** Recognize and represent proportional relationships between quantities **Standards for Mathematical Practice** **MP1** Make sense of problems and persevere in solving them. **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP4** Model with mathematics. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure. **MP8** Look for and express regularity in repeated reasoning.
Lesson 11.4 Compare Two Populations	2 days	Students will make comparative inferences about two populations based on the data from random samples.		**Standards for Mathematical Content** 7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book. **Standards for Mathematical Practice** **MP2** Reason abstractly and quantitatively.

				MP3 Construct viable arguments and critique the reasoning of others. **MP5** Use appropriate tools strategically. **MP6** Attend to precision. **MP7** Look for and make use of structure.
Lesson 11.5 Assess Visual Overlap	1 day	Students will informally assess the degree of visual overlap between two distributions.		**Standards for Mathematical Content** **7.SP.B.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. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable. **Standards for Mathematical Practice** **MP2** Reason abstractly and quantitatively. **MP3** Construct viable arguments and critique the reasoning of others. **MP7** Look for and make use of structure.
Module Assessment and Review	2 days	Please follow the assessment calendar for assessment dates	• Review exercise in Reveal Program • Review of student needs from assessment data	**Standards for Mathematical Content** 7.SP.A.1, 7.SP.A.2, 7.RP.A.2, 7.RP.A.3, 7.SP.B.3, 7.SP.B.4 **Standards for Mathematical Practice** MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8

Suggested Modifications for Special Education, 504, English Language Learners, RTI and Gifted Students:

Students with Disabilities & 504:Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

English Language Learners: Developing models from oral discourse and multimedia Teacher modeling. Peer modeling Develop and post routines. Label classroom materials. Word walls. Give directions/instructions verbally and in simple written format. Pre-teaching of vocabulary and concepts, Visual learning, including graphic organizers,, Teacher modeling, Pairing students with beginning English language skills with students who have more advanced English language skills, Scaffolding (word walls, think-pair-share, cooperative learning group). Students will be supported according to the recommendations for "can do's" as outlined by WIDA - https://www.wida.us/standards/CAN_DOs/

Bilingual: Repetition, simplify language (use shorter phrases), visual word banks, limited use of idioms, metaphors and words with multiple meanings, use of cognates. Use realia (concrete objects), dramatization (gestures, facial expressions, intonation), built on students background knowledge (topics/examples students can relate to), texts that reflect their experiences, extended time, provide samples (teacher and students created), model, pair with with partner.

Gifted Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.** Student driven instruction. Allow students to complete an independent project as an alternative test. Inquiry based instruction, Independent study. Higher order thinking skills

RTI: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Suggested Technological Innovations/ Use:

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.**(Guided Math Centers, Math Talk, Formative Assessments)**
8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose. **(Guided Math Centers, Math Talk, Formative Assessments)**

8.1.8.NI.1: Model how information is broken down into smaller pieces, transmitted as addressed packets through multiple devices over networks and the Internet, and reassembled at the destination. **(Guided Math Centers, Math Talk, Formative Assessments)**

Students will utilize the following devices, subscriptions, and websites to meet these standards:

- Reveal Online Program
- Aleks Math Trainer
- Chromebooks

Interdisciplinary Connections, Career Readiness Practices & 21st Century Connections:

Comprehensive Health and Physical Education:

2.1.8.PGD.4: Analyze the relationship between healthy behaviors and personal health.**(Guided Math Centers, Assessments)**.

2.1.8.EH.2: Analyze how personal attributes, resiliency, and protective factors support mental and emotional health. **(Do Now, Math Talk, Guided Math Centers, Assessments, exit tickets)**.

ELA:

SL.7.5.Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points **(Guided Math Centers, Assessments)**.

SL.7.2.Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study **(Guided Math Centers, Assessments)**.

W.7.7.Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation **(Guided Math Centers, Assessments)**.

9.1.8.FI.1: Identify the factors to consider when selecting various financial service providers. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

9.1.8.CP.2: Analyze how spending habits affect one's ability to save. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.

9.1.8.CR.3: Relate the importance of consumer, business, and government responsibility to the economy and personal finance. **(Do Now, Math Talk, Guided Math Centers, Assessments, Exit Questions)**.