Math 6 Honors

Unit Title: Unit 1: Rational Numbers and Exponents

Stage 1: Desired Results

Standards & Indicators:

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.

7.NS.A.2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

7.NS.B.3. Solve real-world and mathematical problems involving the four operations with rational numbers.

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.

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.

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.

Integration of Climate Change:

7.NS.B.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.)

Climate Change Example: Students may solve real-world problems involving the four operations with rational numbers related to the relationship between altitude and the temperature above sea level.

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 $\frac{1}{10}$ of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar $9\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$ 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.

Climate Change Example: Students may solve multi-step real-life problems posed with positive and negative rational numbers in any form related to the relationship between altitude and the temperature above sea level.

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Mathematical Practices:
MP.1 Make sense of problems and persevere in solving them
MP. 2 Reason abstractly and quantitatively
MP. 3 Construct viable arguments and critique the reasoning of others
MP. 4 Model with mathematics
MP. 5 Use appropriate tools strategically
MP. 6 Attend to precision
MP. 7 Look for and make use of structure
MP. 8 Look for and express regularity in repeated reasoning

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12 prof.CR3a).	With a growth mindset, failure is an important part of success.
9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).	
9.4.12.TL.1	Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specific task (e.g., W.11-12.6.).	Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in selecting the best tool for a given task.
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.	Some digital tools are appropriate for gathering, organizing, analyzing, and presenting information, while other types of digital tools are appropriate for creating text, visualizations, models, and communicating with others.

Central Idea/Enduring Understanding:
Chapter 1
Use variables, expressions, and equations to model real-world problems.
Predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations.
Locate and name points on a coordinate graph.

Essential/Guiding Question:
At the end of the Unit, students should be able to answer the Essential Questions:

Chapter 1 - How can you use numbers and symbols to represent mathematical ideas?

Chapter 2 – What happens when you add, subtract, multiply, and divide integers?

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Draw conclusions and make predictions using scatter plots. **Chapter 2** Compare and order integers. Select appropriate operations to solve problems involving integers. Locate and name points on a coordinate plane using ordered pairs of integers. Graph reflections and translations on a coordinate plane. **Chapter 3** Explore rational numbers. Multiply and divide fractions. Add and subtract like fractions and unlike fractions. Convert fractions to decimals. Factor numbers. Determine least common multiple.	Chapter 3 – What happens when you add, subtract, multiply, and divide rational numbers?
Content: **Chapters 1, 2, & 3** 1.1 A Plan for Problem Solving 1.2 Words and Expressions 1.3 Variables and Expressions 1.4 Properties of Numbers 1.5 Problem-Solving Strategies 1.6 Ordered Pairs and Relations 1.7 Words, Equations, Tables, and Graphs 2.1 Integers and Absolute Value 2.2 Adding Integers 2.3 Subtracting Integers 2.4 Multiplying Integers 2.5 Dividing Integers 2.6 Graphing in the Four Quadrants 3.1 Fractions and Decimals 3.2 Rational Numbers 3.3 Multiplying Rational Numbers 3.4 Dividing Rational Numbers 3.5 Adding and Subtracting Like Fractions 3.6 Adding and Subtracting Unlike Fractions	**Skills(Objectives):** Use the four-step plan Solve multi-step problems Translate verbal phrases into expressions Use the order of operations Use the substitution property of equality Use the properties of addition and subtraction Simplify algebraic expressions Use problem solving strategies Identify ordered pairs Express relations as a table Represent relations Use multiple representations Compare and order integers

	Evaluate absolute value Add, subtract, multiply, and divide integers Graph points and algebraic relationships Write fractions as decimals Compare fractions and decimals Add, subtract, multiply, and divide rational numbers Add and subtract like and unlike fractions

Interdisciplinary Connections:
Interdisciplinary connections are integrated in each unit with connections to the mathematical practices.

Stage 2: Assessment Evidence

Performance Task(s):	**Other Evidence:**
7.NS.A.1 Comparing Freezing Points https://www.illustrativemathematics.org/content-standards/7/NS/A/1/tasks/314 7.EE.A.1 Writing Expressions https://www.illustrativemathematics.org/content-standards/7/EE/A/1/tasks/541 7.EE.A.2 Ticket to Ride https://www.illustrativemathematics.org/content-standards/7/EE/A/2/tasks/1450 7.EE.B.3 Discounted Books https://www.illustrativemathematics.org/content-standards/7/EE/B/3/tasks/478 7.EE.B.4, 7.NS.A.1 Bookstore Account https://www.illustrativemathematics.org/content-standards/7/EE/B/4/tasks/1475 7.EE.B.4b Sports Equipment Set https://www.illustrativemathematics.org/content-standards/7/EE/B/4/tasks/986	Online Assignments Mid Chapter Quizzes End of Chapter Assessments End of Unit Common Assessments Common Formative assessments

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Stage 3: Learning Plan	
Learning Opportunities/Strategies: 1.1 A Plan for Problem Solving - use the four-step plan to solve problems 1.2 Words and Expressions - translate verbal phrases into numerical expressions, use the order of operations to evaluate expressions 1.3 Variables and Expressions - translate verbal phrases into algebraic expressions, evaluate expressions containing variables 1.4 Properties of Numbers - identify and use properties of addition and multiplication 1.5 Problem-Solving Strategies - select appropriate problem-solving strategies to solve non routine problems 1.6 Ordered Pairs and Relations - use ordered pairs to locate points, use graphs to represent relations 1.7 Words, Equations, Tables, and Graphs - translate among different verbal, tabular, graphical, and algebraic representations of relations 2.1 Integers and Absolute Value - compare and order integers, find the absolute value of an expression 2.2 Adding Integers - add integers 2.3 Subtracting Integers - subtract integers, find distances on the number line 2.4 Multiplying Integers - multiply integers, simplify algebraic expressions 2.5 Dividing Integers - divide integers, find the mean (average) of a set of data 2.6 Graphing in the Four Quadrants- graph points on a coordinate plane, graph algebraic relationships 3.1 Fractions and Decimals - write fractions as terminating or repeating decimals, compare fractions and decimals 3.2 Rational Numbers - write rational numbers as fractions, identify and classify rational numbers 3.3 Multiplying Rational Numbers - multiply	**Resources:** Glencoe Math Accelerated Textbook (Chapters 1, 2, & 3) Aleks Kahoot Gimkit Lesson Presentations Google Forms and Sheets Virtual Manipulatives App Google apps for education Desmos Graphing Calculator Padlet Mathplayground.com Brain Pop Classkick Edulastic LGBT and Disabilities Resources: ● LGBTQ-Inclusive Lesson & Resources by Garden State Equality and Make it Better for Youth ● LGBTQ+ Books ● Inclusive Math Class DEI Resources: ● Learning for Justice ● GLSEN Educator Resources ● Supporting LGBTQIA Youth Resource List ● Respect Ability: Fighting Stigmas, Advancing Opportunities ● NJDOE Diversity, Equity & Inclusion Educational Resources ● Diversity Calendar

positive and negative fractions, evaluate algebraic expressions with fractions 3.4 Dividing Rational Numbers - divide positive and negative fractions, divide algebraic fractions 3.5 Adding and Subtracting Like Fractions - add and subtract rational numbers with common denominators 3.6 Adding and Subtracting Unlike Fractions - add and subtract unlike fractions	

Differentiation

*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Khan Academy Project based learning Tablets Challenging problems with higher degree of difficulty Higher order thinking questions Differentiation of pacing and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension Technology connection Practice assignments Puzzle time activities Record and practice journal	Tutoring Tables Graphic organizers Differentiation of learning strategies: visual, auditory, kinetic and cooperative Technology connection Practice Assignments Puzzle time activities Record and practice journal Differentiating the lesson activities Lesson tutorials Skills review handbook	Provide a highly structured, predictable learning environment Provide organizers/study guides Lessons designed to the style of learning that matches the student Cooperative Learning Positive reinforcement Announce test with adequate prep time Lessons presentation available on google classroom Frequent check for understanding Break down task into manageable units One-on-one instruction Tutoring	Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries

		Pair student with a high achieving student	

Unit Title: Unit 2: Exponents & Proportionality and Linear Relationships

Stage 1: Desired Results

Standards & Indicators:

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

8.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form and , where p is a positive rational number.

8.EE.A.2a Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that is irrational

8.EE.A.2b Simplify numerical radicals, limiting to square roots (i.e. nonperfect squares).

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

8.EE.A.4. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

8.EE.B.5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

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

7.RP.A.2. Recognize and represent proportional relationships between quantities.

7.RP.A.3. Use proportional relationships to solve multistep ratio and percent problems.

Mathematical Practices:

MP.1 Make sense of problems and persevere in solving them
MP. 2 Reason abstractly and quantitatively
MP. 3 Construct viable arguments and critique the reasoning of others
MP. 4 Model with mathematics
MP. 5 Use appropriate tools strategically
MP. 6 Attend to precision
MP. 7 Look for and make use of structure

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MP. 8 Look for and express regularity in repeated reasoning		
Career Readiness, Life Literacies and Key Skills		
Standard	**Performance Expectations**	**Core Ideas**
9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12 prof.CR3a).	With a growth mindset, failure is an important part of success.
9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).	
9.4.12.TL.1	Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specific task (e.g., W.11-12.6.).	Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in selecting the best tool for a given task.
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.	Some digital tools are appropriate for gathering, organizing, analyzing, and presenting information, while other types of digital tools are appropriate for creating text, visualizations, models, and communicating with others.

Central Idea/Enduring Understanding:	**Essential/Guiding Question:**
Chapter 4 Examine factors and monomials. Evaluate expressions with powers and exponents. Multiply and divide monomials. Express numbers using positive and negative exponents. Use scientific notation. Communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models. Predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations.	At the end of the Unit, students should be able to answer the Essential Questions: Chapter 4 – Why is it useful to write numbers in different ways? Chapter 5 – How can you identify and represent proportional relationships? Chapter 6 – How can you use proportional relationships to solve real-world percent problems?

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Chapter 5 Compare and contrast proportional and nonproportional linear relationships. Use proportional relationships in similar two-dimensional figures to find missing measurements. **Chapter 6** Use ratios, proportions, equations, and percent of change to solve problems. Evaluate a solution for reasonableness.	
Content: **Chapters 4, 5, & 6** 4.1 Powers and Exponents 4.2 Negative Exponents 4.3 Multiplying and Dividing Monomials 4.4 Scientific Notation 4.5 Compute with Scientific Notation 4.6 Square Roots and Cube Roots 4.7 The Real Number System 5.1 Ratios 5.2 Unit Rates 5.3 Complex Fractions and Unit Rates 5.4 Converting Rates 5.5 Proportional and Nonproportional Relationships 5.6 Graphing Proportional Relationships 5.7 Solving Proportions 5.8 Scale Drawings and Models 5.9 Similar Figures 5.10 Indirect Measurement 6.1 Using the Percent Proportion 6.2 Find Percent of a Number Mentally 6.3 Using the Percent Equation 6.4 Percent of Change 6.5 Discount and Markup 6.6 Simple and Compound Interest	**Skills(Objectives):** Use exponents Evaluate expressions Evaluate negative and zero exponents Use the Product and Quotient of Power properties Compare and order numbers Solve scientific notation problems Evaluate scientific notation problems that involve multiplication and division Evaluate scientific notation problems that involve addition and subtraction Evaluate square roots and cube roots Identify and compare real numbers Express ratios in simplest form Simplify ratios involving measurements Find and compare unit rates Simplify complex fractions Identify, analyze, and use proportional relationships Solve proportions

	Use the constant of proportionality Use scale drawings and models Construct scale drawings Solve similar figure problems and find the missing measure Find the scale factor and indirect measurements Use the percent proportion Estimate with percents Find percent of a number mentally Use the percent equation
Interdisciplinary Connections: Interdisciplinary connections are integrated in each unit with connections to the mathematical practices.	

Stage 2: Assessment Evidence

Performance Task(s): 7.RP.A.1 Cooking with the Whole Cup https://www.illustrativemathematics.org/content-standards/7/RP/A/1/tasks/470 7.RP.A.2c Gym Membership Plans https://www.illustrativemathematics.org/content-standards/7/RP/A/2/tasks/1983	**Other Evidence:** Online Assignments Mid Chapter Quizzes End of Chapter Assessments End of Unit Common Assessments Common Formative assessments

Stage 3: Learning Plan

Learning Opportunities/Strategies: 4.1 Powers and Exponents - write and evaluate expressions containing exponents 4.2 Negative Exponents - write and evaluate expressions using negative exponents 4.3 Multiplying and Dividing Monomials - multiply and divide monomials 4.4 Scientific Notation - write, compare, and order numbers in scientific notation 4.5 Compute with Scientific Notation - add, subtract, multiply, and divide numbers written in scientific notation	**Resources:** Glencoe Math Accelerated Textbook (Chapters 4, 5, &6) Aleks Kahoot Gimkit Lesson Presentations Google Forms and Sheets Virtual Manipulatives App Google apps for education Desmos Graphing Calculator Padlet Mathplayground.com

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4.6 Square Roots and Cube Roots - find and estimate square roots and cube roots 4.7 The Real Number System - identify and compare numbers in the real number system, solve equations by finding square roots or cube roots 5.1 Ratios - write ratios as fractions in simplest form and simplify ratios involving measurements 5.2 Unit Rates - find, compare, and use unit rates 5.3 Complex Fractions and Unit Rates - simplify complex fractions and find unit rates 5.4 Converting Rates - convert rates using dimensional analysis, convert between systems of measurement 5.5 Proportional and Nonproportional Relationships - identify proportional and nonproportional relationships in tables, describe a proportional relationship using an equation 5.6 Graphing Proportional Relationships - identify and analyze proportional relationships 5.7 Solving Proportions - use cross products and the constant of proportionality to solve problems 5.8 Scale Drawings and Models - use and construct scale drawings 5.9 Similar Figures - find missing measures of similar figures, use scale factors to solve problems involving similar figures 5.10 Indirect Measurement - solve problems involving indirect measurement using shadow reckoning, solve problems using surveying methods 6.1 Using the Percent Proportion - use and apply the percent proportion to solve problems 6.2 Find Percent of a Number Mentally - compute mentally and estimate with percents 6.3 Using the Percent Equation - solve percent problems and problems involving taxes using percent equations	Brain Pop Classkick Edulastic LGBT and Disabilities Resources: ● LGBTQ-Inclusive Lesson & Resources by Garden State Equality and Make it Better for Youth ● LGBTQ+ Books ● Inclusive Math Class DEI Resources: ● Learning for Justice ● GLSEN Educator Resources ● Supporting LGBTQIA Youth Resource List ● Respect Ability: Fighting Stigmas, Advancing Opportunities ● NJDOE Diversity, Equity & Inclusion Educational Resources ● Diversity Calendar

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6.4 Percent of Change - find percent of increase and decrease, find percent error 6.5 Discount and Markup - solve real-world problems involving discount and markup 6.6 Simple and Compound Interest - solve simple and compound interest problems, apply the simple interest equation to real-world problems	

Differentiation

*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Khan Academy Project based learning Tablets Challenging problems with higher degree of difficulty Higher order thinking questions Differentiation of pacing and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension Technology connection Practice assignments Puzzle time activities Record and practice journal	Tutoring Tables Graphic organizers Differentiation of learning strategies: visual, auditory, kinetic and cooperative Technology connection Practice Assignments Puzzle time activities Record and practice journal Differentiating the lesson activities Lesson tutorials Skills review handbook	Provide a highly structured, predictable learning environment Provide organizers/study guides Lessons designed to the style of learning that matches the student Cooperative Learning Positive reinforcement Announce test with adequate prep time Lessons presentation available on google classroom Frequent check for understanding Break down task into manageable units One-on-one instruction Tutoring Pair student with a high achieving student	Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing ELL supports should include, but are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries

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Unit Title: Unit 3: Proportionality and Linear Relationships

Stage 1: Desired Results

Standards & Indicators:

7.RP.A.2. Recognize and represent proportional relationships between quantities.

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.

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.4a 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 with accuracy and efficiency. 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?

7.NS.A.2. Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

8.EE.B.5. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

8.EE.B.6. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.

8.EE.C.7. Solve linear equations in one variable.

8.EE.C.8. Analyze and solve pairs of simultaneous linear equations.

Mathematical Practices:

MP.1 Make sense of problems and persevere in solving them
MP. 2 Reason abstractly and quantitatively
MP. 3 Construct viable arguments and critique the reasoning of others
MP. 4 Model with mathematics
MP. 5 Use appropriate tools strategically
MP. 6 Attend to precision
MP. 7 Look for and make use of structure
MP. 8 Look for and express regularity in repeated reasoning

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Career Readiness, Life Literacies and Key Skills		
Standard	**Performance Expectations**	**Core Ideas**
9.2.8.CAP.3	Explain how career choices, educational choices, skills, economic conditions, and personal behavior affect income.	An individual's strengths, lifestyle goals, choices, and interests affect employment and income.
9.1.8.PB.1	Predict future expenses or opportunities that should be included in the budget planning process.	A budget aligned with an individual's financial goals can help prepare for life events.
9.1.8.PB.2	Explain how different circumstances can affect one's personal budget.	
9.1.8.PB.3	Explain how to create budget that aligns with financial goals.	
9.1.8.PB.4	Construct a simple personal savings and spending plan based on various sources of income and different stages of life (e.g. teenager, young adult, family).	
9.1.8.PB.5	Identify factors that affect one's goals, including peers, culture, location, and past experiences.	Goals (e.g., higher education, autos, and homes, retirement), affect your finances.
9.1.8.PB.6	Construct a budget to save for short-term, long term, and charitable goals.	
9.1.8.PB.7	Brainstorm techniques that will help decrease expenses including comparison shopping, negotiating, and day-to-day expense management.	There are strategies to decrease and manage expenses.
9.1.8.FP.6	Compare and contrast advertising messages to understand what they are trying to accomplish.	Marketing techniques are designed to encourage individuals to purchase items they may not need or want.
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).	There are a variety of factors that influence how well suited a financial institution and/or service will be in meeting an individual's financial needs.
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.	There are government agencies and policies that affect the financial industry and the broader economy.
9.1.8.CP.1	Compare prices for the same goods or services.	There are strategies to build and maintain a good credit history.
9.1.8.CP.2	Analyze how spending habits affect one's ability to save.	

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9.1.8.CP.3	Explain the purpose of a credit score and credit record, the factors and impact of credit scores.	
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.	There are strategies to increase your savings and limit debt.
9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12 prof.CR3a).	With a growth mindset, failure is an important part of success.
9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).	
9.4.12.TL.1	Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specific task (e.g., W.11-12.6.).	Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in selecting the best tool for a given task.
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.	Some digital tools are appropriate for gathering, organizing, analyzing, and presenting information, while other types of digital tools are appropriate for creating text, visualizations, models, and communicating with others.

Central Idea/Enduring Understanding:	**Essential/Guiding Question:**
Chapter 7 Communicate mathematical ideas using algebraic mathematical models. Use properties to add, subtract, and factor linear expressions. Find and justify solutions to application problems using algebraic expressions. **Chapter 8** Use inverse operations to solve equations predict, find, and justify solutions to application problems using algebraic equations translate verbal phrases into inequalities.	At the end of the Unit, students should be able to answer the Essential Questions: Chapter 7 – Why are algebraic rules useful? Chapter 8 – How are equations and inequalities used to describe and solve multi-step problems? Chapter 9 – How are linear functions used to model proportional relationships?

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Chapter 9 Generate a different representation of data given another representation of data. Predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations. Use unit rates and slopes to compare proportional relationships. **Financial Literacy** Financial literacy is an integral component of a student's college and career readiness, enabling students to achieve fulfilling, financially-secure, and successful careers.	
Content: **Chapters 7, 8, & 9** 7.1 The Distributive Property 7.2 Simplifying Algebraic Expressions 7.3 Adding Linear Expressions 7.4 Subtracting Linear Expressions 7.5 Factoring Linear Expressions 8.1 Solving Equations with Rational Coefficients 8.2 Solving Two-Step Equations 8.3 Writing Equations 8.4 More Two-Step Equations 8.5 Solving Equations with Variables on Each Side 8.6 Inequalities 8.7 Solving Inequalities 8.8 Solving Multi-Step Equations and Inequalities 9.1 Functions 9.2 Representing Linear Functions 9.3 Constant Rate of Change and Slope 9.4 Direct Variation 9.5 Slope-Intercept Form 9.6 Solve Systems of Equations by Graphing 9.7 Solve Systems of Equations Algebraically **Financial Literacy** Career & Education Choices	**Skills(Objectives):** Evaluate numerical and algebraic expressions Identify parts of an expression Simplify algebraic expressions Add linear expressions Find perimeter Solve problems with linear expressions Find the GCF of monomials Factor linear expressions Solve equations by multiplying and dividing Solve two-step equations Write two-step equations Use the distributive property Solve equations with variables on both sides Write and graph inequalities Solve inequalities using addition, subtraction, multiplication, and division

Personal Economy Debit & Credit Savings plan Consumer decision making Disclosure of personal information Product Vs. Advertising Wants vs needs in purchasing decisions	Solve multi-step equations and inequalities Determine whether each relation is a function Describe relationships between functions Solve and graph linear functions Find the rate of change Find the slope Find and compare direct variation State the slope and y-intercept Graph equations using slope and y-intercept Solve systems of equations by graphing Solve systems of equations algebraically

Interdisciplinary Connections:
Interdisciplinary connections are integrated in each unit with connections to the mathematical practices.

Stage 2: Assessment Evidence

Performance Task(s):	**Other Evidence:**
8.EE.B.5 Who Has the Best Job? https://www.illustrativemathematics.org/content-standards/8/EE/B/5/tasks/184 8.EE.B.6 Slopes Between Points on a Line https://www.illustrativemathematics.org/content-standards/8/EE/B/6/tasks/1537 8.EE.C.8 How Many Solutions https://www.illustrativemathematics.org/content-standards/8/EE/C/8/tasks/554 **Financial Literacy** 9.1.8.C.1 Debit & Credit Hands on Banking https://www.youtube.com/watch?v=nlBt9l5krgE	Online Assignments Mid Chapter Quizzes End of Chapter Assessments End of Unit Common Assessments Common Formative assessments

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Stage 3: Learning Plan

Learning Opportunities/Strategies:

Chapters 7, 8, & 9

7.1 The Distributive Property - use the Distributive Property to write equivalent numerical and algebraic expressions
7.2 Simplifying Algebraic Expressions - identify parts of an algebraic expression and use the Distributive Property to simplify algebraic expressions
7.3 Adding Linear Expressions - add linear expressions and find perimeter by adding linear expressions
7.4 Subtracting Linear Expressions - subtract linear expressions, solve real-world problems by subtracting linear expressions
7.5 Factoring Linear Expressions - find the greatest common factor of two monomials, use properties to factor linear expressions

8.1 Solving Equations with Rational Coefficients - solve equations by using the Division Property of Equality, solve equations by using the Multiplication Property of Equality
8.2 Solving Two-Step Equations - solve two-step equations, solve real-world problems involving two-step equations
8.3 Writing Equations - write two-step equations, solve verbal problems by writing and solving two-step equations
8.4 More Two-Step Equations - solve equations of the form $p(x + q) = r$
8.5 Solving Equations with Variables on Each Side - solve equations with variables on each side
8.6 Inequalities - write inequalities, graph inequalities on a number line
8.7 Solving Inequalities - solve inequalities by using the Addition and Subtraction Properties of Inequality, solve inequalities by multiplying or dividing by a positive or negative number

Resources:

Glencoe Math Accelerated Textbook (Chapters 7, 8, & 9)
Aleks
Kahoot
Gimkit
Lesson Presentations
Google Forms and Sheets
Virtual Manipulatives App
Google apps for education
Desmos Graphing Calculator
Padlet
Mathplayground.com
Brain Pop
Classkick
Edulastic
LGBT and Disabilities Resources:

- LGBTQ-Inclusive Lesson & Resources by Garden State Equality and Make it Better for Youth
- LGBTQ+ Books
- Inclusive Math Class

DEI Resources:

- Learning for Justice
- GLSEN Educator Resources
- Supporting LGBTQIA Youth Resource List
- Respect Ability: Fighting Stigmas, Advancing Opportunities
- NJDOE Diversity, Equity & Inclusion Educational Resources
- Diversity Calendar

8.8 Solving Multi-Step Equations and Inequalities - solve multi-step equations, solve multi-step inequalities 9.1 Functions - determine whether a relation is a function and write a function using function notation 9.2 Representing Linear Functions - solve linear equations with two variables and graph linear equations using ordered pairs 9.3 Constant Rate of Change and Slope - find the constant rate of change for a linear relationship and find the slope of a line 9.4 Direct Variation - identify and use direct variation 9.5 Slope-Intercept Form - determine slopes and y-intercepts of lines and use them to graph linear equations 9.6 Solve Systems of Equations by Graphing - solve a system of linear equations by graphing and determine the number of solutions of a system of linear equations 9.7 Solve Systems of Equations Algebraically - solve a system of linear equations algebraically and interpret the meaning of the solutions	

Differentiation

*Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Khan Academy Project based learning Tablets Challenging problems with higher degree of difficulty Higher order thinking questions Differentiation of pacing and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative	Tutoring Tables Graphic organizers Differentiation of learning strategies: visual, auditory, kinetic and cooperative Technology connection Practice Assignments Puzzle time activities	Provide a highly structured, predictable learning environment Provide organizers/study guides Lessons designed to the style of learning that matches the student Cooperative Learning	Any student requiring further accommodations and/or modifications will have them individually listed in their 504 Plan or IEP. These might include, but are not limited to: breaking assignments into smaller tasks, giving directions through several channels (auditory, visual, kinesthetic, model), and/or small group instruction for reading/writing ELL supports should include, but

Enrichment and extension Technology connection Practice assignments Puzzle time activities Record and practice journal	Record and practice journal Differentiating the lesson activities Lesson tutorials Skills review handbook	Positive reinforcement Announce test with adequate prep time Lessons presentation available on google classroom Frequent check for understanding Break down task into manageable units One-on-one instruction Tutoring Pair student with a high achieving student	are not limited to, the following:: Extended time Provide visual aids Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries

Unit Title: Unit 4: Sampling and Inference & Geometric Figures

Stage 1: Desired Results

Standards & Indicators:

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

7.G.B.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.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.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.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.

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8.G.A.1. Verify experimentally the properties of rotations, reflections, and translations:

8.G.A.1a. Lines are transformed to lines, and line segments to line segments of the same length.

8.G.A.1b. Angles are transformed to angles of the same measure.

8.G.A.1c. Parallel lines are transformed to parallel lines.

8.G.A.2. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.

8.G.A.3. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

8.G.A.4. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

8.G.A.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.

Integration of Climate Change:

- 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.
  Climate Change Example: Students may solve real-world problems involving area, surface area, and volume related to deforestation and increasing livestock farming as key contributors to climate change.

Mathematical Practices:

MP.1 Make sense of problems and persevere in solving them
MP. 2 Reason abstractly and quantitatively
MP. 3 Construct viable arguments and critique the reasoning of others
MP. 4 Model with mathematics
MP. 5 Use appropriate tools strategically
MP. 6 Attend to precision
MP. 7 Look for and make use of structure
MP. 8 Look for and express regularity in repeated reasoning

Career Readiness, Life Literacies and Key Skills		
Standard	**Performance Expectations**	**Core Ideas**
9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12 prof.CR3a).	With a growth mindset, failure is an important part of success.

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9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).	Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed.
9.4.12.CT.2	Explain the potential benefits of collaborating to enhance critical thinking and problem solving (e.g., 1.3E.12profCR3.a).	
9.4.12.TL.1	Assess digital tools based on features such as accessibility options, capacities, and utility for accomplishing a specific task (e.g., W.11-12.6.).	Digital tools differ in features, capacities, and styles. Knowledge of different digital tools is helpful in selecting the best tool for a given task.
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.	Some digital tools are appropriate for gathering, organizing, analyzing, and presenting information, while other types of digital tools are appropriate for creating text, visualizations, models, and communicating with others.

Central Idea/Enduring Understanding:

Chapter 10

Select and use appropriate measures of center and variability to compare data displayed in double box plots and double dot plots.
Evaluate methods of sampling to determine validity of an inference made from a set of data.
Find the probabilities of simple and compound events.

Chapter 11

Use equations to find angle measures in two-dimensional figures.
Classify angle relationships when parallel lines are cut by a transversal.
Graph transformations on a coordinate plane.
Use transformations to prove congruence and similarity.

Chapter 12

Understand the relationship among radius, diameter, circumference, and area of a circle.

Essential/Guiding Question:

At the end of the Unit, students should be able to answer the Essential Questions:

Chapter 10 – How are statistics used to draw inferences about and compare populations?

Chapter 11 – How can you determine congruence and similarity?

Chapter 12 – How are two-dimensional figures used to solve problems involving three-dimensional figures?

Math 6 Honors

Draw three-dimensional figures from different perspectives. Connect models of prisms, cylinders, pyramids, spheres, and cones to formulas for volume of these objects. Estimate measurements and use formulas to solve application problems involving lateral and surface area.	
Content: **Chapters 10, 11, & 12** 10.1 Measures of Center 10.2 Measures of Variability 10.3 Mean Absolute Deviation 10.4 Compare Populations 10.5 Using Sampling to Predict 10.6 Probability of Simple Events 10.7 Theoretical and Experimental Probability 10.8 Probability of Compound Events 11.1 Angle and Line Relationships 11.2 Triangles 11.3 Polygons 11.4 Translations and Reflections on the Coordinate Plane 11.5 Rotations on the Coordinate Plane 11.6 Congruence and Transformations 11.7 Dilations on the Coordinate Plane 11.8 Similarity and Transformations 12.1 Circles and Circumference 12.2 Area of Circles 12.3 Area of Composite Figures 12.4 Three-Dimensional Figures 12.5 Volume of Prisms 12.6 Volume of Cylinders 12.7 Volume of Pyramids, Cones, and Spheres 12.8 Surface Area of Prisms 12.9 Surface Area of Cylinders 12.10 Surface Area of Pyramids and Cones	**Skills(Objectives):** Find the mean, median, and mode Find the range and interquartile range Find mean absolute deviation Compare variation Compare two populations Identify sampling techniques Find probability and the probability of the complement Find theoretical and experimental probability Find the outcomes of compound events Find the probability of compound events Identify pair of angles Identify parallel lines Find the angle sum of a triangle Classify triangles Classify polygons Find the interior angles of polygons Identify translations, reflections, and rotations Identify rotational symmetry

	Identify congruence, transformations, dilations Find a scale factor Identify similarity Find the circumference of a circle Find the area of a circle Find the area of composite figures Identify three-dimensional figures Find the volume of a prism Find the volumes of composite figures Find the volume of a cylinder Find the volume of a pyramid, a cone, and a sphere Find the surface area of prisms Find the surface area of cylinders Find the surface area of pyramids and cone

Interdisciplinary Connections:
Interdisciplinary connections are integrated in each unit with connections to the mathematical practices.

Stage 2: Assessment Evidence

Performance Task(s): 7.SP.A.1 Mr. Briggs Class Likes Math https://www.illustrativemathematics.org/content-standards/7/SP/A/1/tasks/974 7.G.A.3 Cube Ninjas! https://www.illustrativemathematics.org/content-standards/7/G/A/3/tasks/1532 8.G.A.1 Reflections, Rotations, and Translations https://www.illustrativemathematics.org/content-standards/8/G/A/1/tasks/1673	**Other Evidence:** Online Assignments Mid Chapter Quizzes End of Chapter Assessments End of Unit Common Assessments Common Formative assessments

8.G.A.2 Congruent Triangles https://www.illustrativemathematics.org/content-standards/8/G/A/2/tasks/1231	

Stage 3: Learning Plan

Learning Opportunities/Strategies:	**Resources:**
10.1 Measures of Center - use measures of center, choose appropriate measures of center 10.2 Measures of Variability - find and use measures of variability to interpret and analyze data 10.3 Mean Absolute Deviation - find the mean absolute deviation of a set of data, compare the mean absolute deviations of two data sets 10.4 Compare Populations - compare two populations using the measures of center and variability 10.5 Using Sampling to Predict - identify various sampling techniques, determine the validity of a sample and predict the actions of a larger group 10.6 Probability of Simple Events - find the probability of simple events, find the probability of the complement of an event 10.7 Theoretical and Experimental Probability - find and compare experimental and theoretical probabilities 10.8 Probability of Compound Events - find the number of outcomes for an event, find the probability of a compound event 11.1 Angle and Line Relationships - examine relationships between pairs of angles, examine relationships of angles formed by parallel lines and a transversal 11.2 Triangles - find the missing angle measure of a triangle, classify a triangle by its angles and by its sides 11.3 Polygons - classify polygons, determine the sum of the measures of the interior angles of a polygon 11.4 Translations and Reflections on the Coordinate Plane - define and identify	Glencoe Math Accelerated Textbook (Chapters 10, 11, & 12) Aleks Kahoot Gimkit Lesson Presentations Google Forms and Sheets Virtual Manipulatives App Google apps for education Desmos Graphing Calculator Padlet Mathplayground.com Brain Pop Classkick Edulastic LGBT and Disabilities Resources: ● LGBTQ-Inclusive Lesson & Resources by Garden State Equality and Make it Better for Youth ● LGBTQ+ Books ● Inclusive Math Class DEI Resources: ● Learning for Justice ● GLSEN Educator Resources ● Supporting LGBTQIA Youth Resource List ● Respect Ability: Fighting Stigmas, Advancing Opportunities ● NJDOE Diversity, Equity & Inclusion Educational Resources ● Diversity Calendar

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transformations, draw translations and reflections on a coordinate plane 11.5 Rotations on the Coordinate Plane - define, identify, and draw rotations, determine if a figure has rotational symmetry 11.6 Congruence and Transformations - use a series of transformations to identify congruent figures, identify transformations 11.7 Dilations on the Coordinate Plane - graph dilations on a coordinate plane, find the scale factor of a dilation 11.8 Similarity and Transformations - use a series of transformations to identify similar figures, use a scale factor to create similar figures 12.1 Circles and Circumference - find the circumference of circles, solve problems involving circumference 12.2 Area of Circles - find areas of circles, use areas of circles to solve problems 12.3 Area of Composite Figures - solve problems involving the area of composite figures 12.4 Three-Dimensional Figures - identify three-dimensional figures, describe and draw vertical, horizontal, angled cross sections of three-dimensional figures 12.5 Volume of Prisms - find volume of prisms, find volume of composite figures 12.6 Volume of Cylinders - find the volumes of circular cylinders, find the volumes of composite figures involving circular cylinders 12.7 Volume of Pyramids, Cones, and Spheres - find the volumes of pyramids and cones, find the volumes of spheres 12.8 Surface Area of Prisms - find lateral area and surface area of prisms, find surface area of real-world objects shaped like prisms 12.9 Surface Area of Cylinders - find lateral and surface areas of cylinders, compare surface areas of cylinders 12.10 Surface Area of Pyramids and Cones - find the lateral areas and surface areas of	

pyramids, find the lateral areas and surface areas of cones	

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Pacing Guide

Course Name	Resource	Standards
MP 1		
UNIT 1 Rational Numbers & Exponents (40 Days)	CHAPTERS: CHAPTER 1: (14 Days) CHAPTER 2: (14 Days) CHAPTER 3: (10 Days) Unit Online Assessment: (2 Days)	7.NS.1 7.NS.2 7.NS.3 7.EE.1 7.EE.2 7.EE.3 7.EE.4
MP 2		
UNIT 2 Exponents & Proportionality and Linear Relationships (40 Days)	CHAPTERS: CHAPTER 4: (14 Days) CHAPTER 5: (14 Days) CHAPTER 6: (10 Days) Unit Online Assessment: (2 Days)	8.EE.1 8.EE.2 8.EE.3 8.EE.4 8.EE.5 7.RP.1 7.RP.2 7.RP.3
MP 3		
UNIT 3 Proportionality and Linear Relationships (40 Days)	CHAPTERS: CHAPTER 7: (14 Days) CHAPTER 8: (14 Days) CHAPTER 9: (10 Days) Unit Online Assessment: (2 Days)	7.RP.2 7.EE.1 7.EE.2 7.EE.4 7.NS.2 8.EE.5 8.EE.6 8.EE.7 8.EE.8
MP 4		
UNIT 4 Sampling and Inference & Geometric Figures (40 Days)	CHAPTERS: CHAPTER 10: (14 Days) CHAPTER 11: (14 Days) CHAPTER 12: (10 Days) Unit Online Assessment: (2 Days)	7.GA.3 7.GB.4 7.GB.5 7.GB.6 7.SP.1 7.SP.2 8.GA. 1 8.GA.2 8.GA.3 8.GA.4