Academic Prep Math 7

Unit Title: Unit 1: Integer Operations and Rational Numbers

Stage 1: Desired Results

Standards & Indicators:

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

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

7.EE.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.

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
9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).	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.
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: Students use and justify the rules for adding, subtracting, multiplying, and dividing integers. Students add, subtract, multiply, and divide rational numbers.	**Essential/Guiding Question:** At the end of the Unit, students should be able to answer the Essential Questions: How can mathematical ideas be represented? What happens when you add, subtract, multiply, and divide integers? What happens when you add, subtract, multiply, and divide fractions?
Content: Operations of Integers Operations with Fractions Compare and Order Rational Numbers	**Skills(Objectives):** Perform math operations with integers. Find the absolute value of integers. Perform math operations with fractions. Write fractions as decimals and decimals as fractions. Compare rational numbers.

Interdisciplinary Connections:
Interdisciplinary connections are integrated in each unit with ELA, Science, Social Studies, Art and Music to the mathematical practices where applicable.

Stage 2: Assessment Evidence

Performance Task(s): IXL skill plan Small group activities Differences of Integers	**Other Evidence:** Online Assignments IXL Diagnostic test

Stage 3: Learning Plan

Learning Opportunities/Strategies: Decimals and Fractions - Write decimals as fractions or mixed numbers and vice versa	**Resources:** IXL Kahoot

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Compare and Order Fractions, Decimals, and Percents - Compare and order fractions, decimals, and percents Compare and Order Rational Numbers- use a variety of fractions, decimals and integers. Think, Pair, Share Small group instruction Teach Like a Champion Strategies	Khan Academy Lesson Presentations Google Forms and Sheets Virtual Manipulatives App Google apps for education Brain Pop 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

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	Tutoring Tables Graphic organizers Differentiation of learning strategies: visual, auditory, kinetic and cooperative Technology connection Practice Assignments Puzzle time activities Differentiating the lesson activities Lesson tutorials	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	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

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Practice assignments Puzzle time activities		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	Repeated directions Differentiate based on proficiency Provide word banks Allow for translators, dictionaries Frequent check for understanding Preferential seating Modify tests, quizzes, homework assignments Read directions allowed Provide copy of notes Stand in proximity to student to focus attention Extended time to complete assignments, tests, quizzes Allow use of calculator One-on-one instruction as needed Assign peer buddies Graphic organizers Lesson presentation available on google classroom Lessons designed to the style of learning that matches the student

Academic Prep Math 7

Unit Title: Unit 2: Ratios, Proportions, & Percents

Stage 1: Desired Results

Standards & Indicators:

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

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

7.EE.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.

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
9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).	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.
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:**
Students distinguish between situations that are proportional or not proportional. Students solve percent problems involving percent of change & sales tax.	At the end of the Unit, students should be able to answer the Essential Questions: How can you use mathematics to describe change and model real-world situations? How can you show that two objects are proportional? How can percent help you understand situations involving money?
Content: Rates & Unit rates Proportional Relationships Constant Rate of Change Percent of a Number The Percent Equation and Proportion Percent of Change Sales Tax	**Skills(Objectives):** Find unit rates. Identify proportional and nonproportional relationships. Use proportions to solve problems. Represent and identify constant rates of change. Find the percent of a number. Solve problems involving percentages by using the percent proportion. Solve problems involving percentages by using the percent equation. Solve problems involving sales tax

Interdisciplinary Connections:
Interdisciplinary connections are integrated in each unit with ELA, Science, Social Studies, Art and Music to the mathematical practices where applicable.

Stage 2: Assessment Evidence

Performance Task(s):	**Other Evidence:**
IXL skill plan Small group activities Track Practice	Online Assignments IXL Diagnostic test

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Stage 3: Learning Plan	
Learning Opportunities/Strategies: Rates - Find unit rates Identify proportional and nonproportional relationships- graph proportions to determine relationship Constant Rate of Change - Represent and identify constant rates of change Percent of a Number - Find the percent of a number The Percent Proportion - Solve problems involving percents by using the percent proportion The Percent Equation - Solve problems involving percents by using the percent equation 6 Sales Tax - Solve real-life problems involving purchasing items with sales tax Think, Pair, Share Small group instruction Teach Like a Champion Strategies	**Resources:** IXL Kahoot Khan Academy Lesson Presentations Google Forms and Sheets Virtual Manipulatives App Google apps for education Brain Pop 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

Differentiation

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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	Tutoring Tables Graphic organizers Differentiation of learning strategies: visual, auditory, kinetic and cooperative Technology connection Practice Assignments Puzzle time	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

and cooperative Enrichment and extension Technology connection Practice assignments Puzzle time activities	activities Differentiating the lesson activities Lesson tutorials	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	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 Frequent check for understanding Preferential seating Modify tests, quizzes, homework assignments Read directions allowed Provide copy of notes Stand in proximity to student to focus attention Extended time to complete assignments, tests, quizzes Allow use of calculator One-on-one instruction as needed Assign peer buddies Graphic organizers Lesson presentation available on google classroom Lessons designed to the style of learning that matches the student

Academic Prep Math 7

Unit Title: Unit 3: Expressions & Equations

Stage 1: Desired Results

Standards & Indicators:

7.EE.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.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.

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
9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).	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.
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.

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Central Idea/Enduring Understanding:	**Essential/Guiding Question:**
Students use properties of operations to write and simplify expressions. Students solve equations and inequalities.	At the end of the Unit, students should be able to answer the Essential Questions: How can you communicate mathematical ideas effectively? How can you use numbers and symbols to represent mathematical ideas? What does it mean to say two quantities are equal?
Content: Algebraic Expressions The Distributive Property Simplify Algebraic Expressions Add & Subtract Linear Expressions One-Step Addition and Subtraction Equations Multiplication and Division Equations Two-Step Equations	**Skills(Objectives):** Evaluate simple algebraic expressions. Apply the Distributive Property to rewrite algebraic expressions. Simplify algebraic expressions. Add and subtract linear expressions. Solve addition and subtraction equations. Solve one-step multiplication and division equations. Solve two-step equations.
Interdisciplinary Connections: Interdisciplinary connections are integrated in each unit with ELA, Science, Social Studies, Art and Music to the mathematical practices where applicable.	
Stage 2: Assessment Evidence	
Performance Task(s): IXL skill plan Small group activities Sports Equipment Set	**Other Evidence:** Online Assignments IXL Diagnostic test
Stage 3: Learning Plan	
Learning Opportunities/Strategies: Algebraic Expressions - Evaluate simple algebraic expressions The Distributive Property - Apply the Distributive Property to rewrite algebraic expressions	**Resources:** IXL Kahoot Khan Academy Lesson Presentations Google Forms and Sheets Virtual Manipulatives App

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Simplify Algebraic Expressions using addition and subtraction Solve One-Step Addition and Subtraction Equations Solve Two-Step Equations Think, Pair, Share Small group instruction Teach Like a Champion Strategies	Google apps for education Brain Pop 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

Differentiation

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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	Tutoring Tables Graphic organizers Differentiation of learning strategies: visual, auditory, kinetic and cooperative Technology connection Practice Assignments Puzzle time activities Differentiating the lesson activities Lesson tutorials	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	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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		Frequent check for understanding Break down task into manageable units One-on-one instruction Tutoring Pair student with a high achieving student	Frequent check for understanding Preferential seating Modify tests, quizzes, homework assignments Read directions allowed Provide copy of notes Stand in proximity to student to focus attention Extended time to complete assignments, tests, quizzes Allow use of calculator One-on-one instruction as needed Assign peer buddies Graphic organizers Lesson presentation available on google classroom Lessons designed to the style of learning that matches the student

Academic Prep Math 7

Unit Title: **Unit 4: Geometry**

Stage 1: Desired Results

Standards & Indicators:

7.G.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.G.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.

7.G.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.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.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.

Mathematical Practices:
MP.1 Make sense of problems and persevere in solving them
MP 2. Reason abstractly and quantitatively
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Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).	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.
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: Students find the area of circles and composite figures and the volume of prisms and pyramids.	**Essential/Guiding Question:** At the end of the Unit, students should be able to answer the Essential Questions: How does geometry help us describe real-world objects? How do measurements help you describe real-world objects?
Content: Complementary & Supplementary Angles Triangles Circumference Area of a Circle Area of Composite Figures	**Skills(Objectives):** Classify angles and identify vertical and adjacent angles. Identify pairs of complementary and supplementary angles. Identify and classify triangles and find missing angle measures. Find the circumference of circles. Find the area of circles. Find the area of composite figures.

Interdisciplinary Connections:
Interdisciplinary connections are integrated in each unit with ELA, Science, Social Studies, Art and Music to the mathematical practices where applicable.

Stage 2: Assessment Evidence

Performance Task(s): IXL skill plan Small group activities Circumference of a circle	**Other Evidence:** Online Assignments IXL Diagnostic test

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Stage 3: Learning Plan	
Learning Opportunities/Strategies: Classify angles and identify vertical and adjacent angles Identify pairs of complementary and supplementary angles Identify and classify triangles and find missing angle measures Find the circumference of circles Find the area of circles Find the area of composite figures Think, Pair, Share Small group instruction Teach Like a Champion Strategies	**Resources:** IXL Kahoot Khan Academy Lesson Presentations Google Forms and Sheets Virtual Manipulatives App Google apps for education Brain Pop 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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Khan Academy Project based learning Tablets Challenging problems with higher degree of difficulty Higher order thinking questions Differentiation of pacing and activities Differentiation of	Tutoring Tables Graphic organizers Differentiation of learning strategies: visual, auditory, kinetic and cooperative Technology connection Practice	Provide a highly structured, predictable learning environment Provide organizers/study guides Lessons designed to the style of learning that matches the 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

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learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension Technology connection Practice assignments Puzzle time activities	Assignments Puzzle time activities Differentiating the lesson activities Lesson tutorials	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	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 Frequent check for understanding Preferential seating Modify tests, quizzes, homework assignments Read directions allowed Provide copy of notes Stand in proximity to student to focus attention Extended time to complete assignments, tests, quizzes Allow use of calculator One-on-one instruction as needed Assign peer buddies Graphic organizers Lesson presentation available on google classroom Lessons designed to the style of learning that matches the student

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Pacing Guide

Academic Prep Math 6	Resource - IXL	Standards
MP 1		
UNIT 1 Integer Operations and Rational Numbers (25 Days)	IXL Skill Plan IXL Diagnostic Assessment	7.NS.1 7.NS.2 7.NS.3 7.EE.3
MP 2		
UNIT 2 Ratios, Proportions, & Percents (25 Days)	IXL Skill Plan IXL Diagnostic Assessment	7.RP.1 7.RP.2 7.RP.3 7.EE.3
MP 3		
UNIT 3 Expressions & Equations (25 Days)	IXL Skill Plan IXL Diagnostic Assessment	7.EE.2 7.EE.4
MP 4		
UNIT 4 Geometry (25 Days)	IXL Skill Plan IXL Diagnostic Assessment	7.G.1 7.G.2 7.G.4 7 G.5 7.G.6