Special Services - Math - 7th Grade

Unit Title: **Unit 1: Integer Operations & 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.
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.

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.

Dynamic Learning Map Essential Elements/New Jersey Student Learning Standards:
EE.7.NS.2.c–d. Express a fraction with a denominator of 10 as a decimal.
EE.7.NS.3. Compare quantities represented as decimals in real-world examples to tenths.
EE.7.EE.2. Identify an arithmetic sequence of whole numbers with a whole number common difference.
EE.7.EE.1. Use the properties of operations as strategies to demonstrate that expressions are equivalent.
EE.7.EE.4. Use the concept of equality with models to solve one-step addition and subtraction equations.

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Career Readiness, Life Literacies and Key Skills		
Standard	**Performance Expectations**	**Core Ideas**
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.	
9.1.8.PB.2	Explain how different circumstances can affect one's personal budget.	A budget aligned with an individual's financial goals can help prepare for life events.
9.1.8.PB.3	Explain how to create a budget that aligns with financial 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.
9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem	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:**
Ratios can be used to solve real-world problems. Ratios are essential in comparing prices to ensure the best deal. Ratios are also seen and used within cooking. Fractions are essential as well in cooking and baking. Fractions can help determine sale prices of items in stores too. All fundamental life skills.	How can you use mathematics to describe change and model real-world situations? How can you show that two objects are proportional? What happens when you add or subtract fractions? What happens when you add, subtract, multiply, and divide integers?
Content: • Unit Rate • Ratios • Equivalent Ratios • Common Denominators • Ordering Rational Numbers • Like Fractions • Adding and Subtracting Like Fractions • Negative and Positive Integers • Absolute value • Graphing on number line • Adding Integers • Opposites • Subtracting Integers • Multiplying Integers • Dividing Integers	**Skills(Objectives):** Find a unit rate Use unit rates Identify and setup ratios Add and subtract like fractions Identify and graph integers Find the absolute value Add integers with the same and different signs Subtract Integers with the same and different signs Multiply integers with same and different signs Divide integers with same and different signs

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Interdisciplinary Connections:
Make sense of problems and persevere in solving them
Reason abstractly and quantitatively
Model with mathematics
Use appropriate tools strategically
Attend to precision
Look for and make use of structure
Look for and express regularity in repeated reasoning

Stage 2: Assessment Evidence

Performance Task(s):

Performance Task 1: Understanding rates and unit rates

- Students will create rates based on real life problems
- Students will be able to differentiate between rates and unit rates
- Students will be able to use unit rates to compare prices of items

Performance Task 2: Adding/Subtracting Fractions

- Students will identify the numerator and denominator of a fraction.
- Students will use real life examples to help them familiarize themselves with fractions.
- Students will use manipulatives to add and subtract fractions with common denominators.

Performance Task 3: Operations with Integers

- Students will distinguish between positive and negative integers on a number line.
- Students will be able to use a number line to determine the absolute value of a number.
- Students will use the number line and knowledge of integers to perform all the operations with integers.

Other Evidence:

Teacher created materials
Written and online assignments
Glencoe Math Review Sheets
Exit Tickets
Cornell Notes
Teacher created quizzes/tests
Modified CFAs
Observations
Projects
Class Discussions

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Rates and Unit Rates:

Resources:
LGBT and Disabilities Law
Inclusive Math Class
GLSEN Educator Resources

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• Students will create an interactive notebook within Google Slides that identifies rates and unit rates. • Students will complete various foldables • Students will review worksheets focused on rates and unit rates • Students will complete hands on activities looking at packages of food products and find the unit rate of the item. <u>Fractions:</u> • Students will complete various foldables to review the parts of a fraction • Students will use google slides to practice adding and subtracting fractions with like denominators • Students use recipes to add fractions. Students will use pizza manipulatives to practice subtracting fractions. (or other manipulatives) <u>Operations with Integers:</u> • Students will complete an interactive activity involving number lines. • Students will stand on a number line and identify integers and their opposites. • Students will use an interactive notebook on google classroom. • Students will complete foldables. • Students will complete and review worksheets. Students will play games involving operations with integers.	Google Classroom Google Slides Google Sheets and Forms Glencoe Math Instructional Videos TeachersPayTeachers STEM activities Teacher created materials Kahoot Khan Academy GimKit BrainPop EdPuzzle Flocabulary MathTV IXL Visual Manipulatives App Desmos Blooket ALEKS

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 Challenging problems with higher degree of difficulty Higher order thinking questions	Tutoring Tables Graphic organizers Differentiation of learning strategies: visual, auditory, kinetic and	Provide a highly structured, predictable learning environment Provide organizers/study guides	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,

Differentiation of pacing and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension Technology connection Practice assignments	cooperative Technology connection Practice Assignments Puzzle time activities Record and practice journal Differentiating the lesson activities Lesson tutorials Skills review handbook	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	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

Unit Title: **Unit 2: Ratios and 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.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.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.

Integration of Climate Change:

- 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.

Dynamic Learning Map Essential Elements/New Jersey Student Learning Standards:
EE.7.RP.1–3. Use a ratio to model or describe a relationship.
EE.7.EE.2. Identify an arithmetic sequence of whole numbers with a whole number common difference.
EE.7.EE.1. Use the properties of operations as strategies to demonstrate that expressions are equivalent.
EE.7.EE.4. Use the concept of equality with models to solve one-step addition and subtraction equations.

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
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.	
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.FI.4	Analyze the interest rates and fees associated with financial products	
9.4.8.TL.1	Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.	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.2	Gather data and digitally represent information to communicate a real-world problem	
9.4.8.TL.5	Compare the process and effectiveness of synchronous collaboration and asynchronous collaboration	Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time.

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Central Idea/Enduring Understanding:	**Essential/Guiding Question:**
Converting fractions to decimals allows quantities to be more easily compared. Comparing decimals becomes valuable when looking at prices at stores. Solving simple equations can be used when you need to get change back from the cashier or you are determining if you budgeted enough money for an item. Equations are used in everyday life and basic mathematical knowledge can help us solve those problems.	What happens when you add, subtract, multiply, and divide integers? How can you convert a fraction to a decimal? How can you compare the value of decimals? How can you use numbers and symbols to represent mathematical ideas?
Content: ● Fractions as Decimals ● Decimals as Fractions ● Repeating Decimals ● Terminating Decimals ● Discounts ● Comparing Prices ● Algebraic Expressions - variables, coefficient ● Arithmetic sequence ● Like Terms	**Skills(Objectives):** Write fractions as decimals Write decimals as fractions Find the sale price of an item Analyze prices in real life situations Write and evaluate algebraic expressions Describe and extend sequences Simplify algebraic expressions
Interdisciplinary Connections: Make sense of problems and persevere in solving them Reason abstractly and quantitatively Model with mathematics Use appropriate tools strategically Attend to precision Look for and make use of structure Look for and express regularity in repeated reasoning	

Stage 2: Assessment Evidence

Performance Task(s):	**Other Evidence:**
Performance Task 1: Understanding the relationship between decimals and fractions ● Students will compare fractions and decimals ● Students will convert fractions to decimals and vice-versa. ● Students will compare prices of items. ● Students will research how discounts impact item prices. Performance Task 2: Algebraic Expressions ● Students will identify the key elements of an algebraic expression.	Teacher created materials Written and online assignments Glencoe Math Review Sheets Exit Tickets Cornell Notes Teacher created quizzes/tests Modified CFAs Observations Projects Class Discussions

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• Students will highlight like terms in an algebraic expressions. • Students will combine like terms in expressions • Students will evaluate a one-step equation.	

Stage 3: Learning Plan

Learning Opportunities/Strategies:	**Resources:**
Relationship between percents, fractions, and decimals • Students will complete a google slides interactive notebook about the steps to convert fractions to decimals and vice-versa. Students will look at prices at various stores and determine the cheaper price between the items. • Students will go holiday shopping. Students will be able to pick at least three people to shop for. They will then pick an item for each person and a discount on each product. They will use that information to first determine the discount, then the final price. Algebraic Expressions: • Students will use a google slides interactive notebook to identify key parts of an algebraic expression. • Students will also use google slides to balance equations. Students will be able to move manipulatives to each side of the balance to visually represent the equation. • Students will use a balance to bring together similar shapes on each side to create balance. • Students will solve problems using real life examples, such as going to a fast food place and combining orders of fries.	LGBT and Disabilities Law Inclusive Math Class GLSEN Educator Resources Google Classroom Google Slides Google Sheets and Forms Glencoe Math Instructional Videos TeachersPayTeachers STEM activities Teacher created materials Kahoot Khan Academy GimKit BrainPop EdPuzzle Flocabulary MathTV IXL Visual Manipulatives App Desmos Blooket ALEKS

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	Tutoring Tables	Provide a highly structured,	Any student requiring further accommodations and/or

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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	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	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	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

Unit Title: Unit 3: Expressions and Equations & Probabilty

Stage 1: Desired Results

Standards & Indicators:

7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
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.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?

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7.SP.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.
7.SP.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.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.

Dynamic Learning Map Essential Elements/New Jersey Student Learning Standards:
EE.7.SP.1–2. Answer a question related to the collected data from an experiment, given a model of data, or from data collected by the student.
EE.7.SP.3. Compare two sets of data within a single data display such as a picture graph, line plot, or bar graph.
EE.7.SP.5–7. Describe the probability of events occurring as possible or impossible.

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.8.TL.1	Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.	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.2	Gather data and digitally represent information to communicate a real-world problem	
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.	
9.4.8.TL.5	Compare the process and effectiveness of synchronous collaboration and asynchronous collaboration	Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time

Central Idea/Enduring Understanding:
Estimation and probability are strategies for solving mathematical problems. Probability describes the likelihood of an event occurring. Probability models will be used to find the probability of simple events.
Reading graphs provide us with a visualization of data. Graphs allow us to bridge the gap between abstract and the real. The ability to endure and persevere in solving problems using precision, reasoning, and strategy is essential.

Essential/Guiding Question:
How can you predict the outcome of future events?
How can you find the probability of an experiment performed in the real world?
How can you use multiplication to find the number of outcomes from an event?
How do you know which types of graph to use when displaying data?
How can you gain information from graphs?
Why is analyzing graphs important in everyday life?
How can you compare various data sets in a graph?

Content:
- Probability
- Outcomes
- Simple Events
- Random

Skills(Objectives):
- Identify the outcomes of events
- Define and explain a simple event
- Observe real life events to determine the outcomes

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• Experimental Probability • Possible or Impossible • Statistics • Survey • Population • Sample • Predictions • Graphs: Line plot, picture graph, pie chart, bar graph • Compare Data Sets • Independent Variables • Dependant Variables	• Differentiate between different types of events • Analyze the probability of outcomes occurring • Indicate whether an event is likely, unlikely, certain or impossible • Describe the population and sample of a set • Create a prediction based on data provided • Compare and contrast the different types of graphs • Examine the data provided in various types of graphs • Compare data sets from graphs • Indicate the independent and dependent variable displayed in graphs

Interdisciplinary Connections:
Make sense of problems and persevere in solving them
Reason abstractly and quantitatively
Model with mathematics
Use appropriate tools strategically
Attend to precision
Look for and make use of structure
Look for and express regularity in repeated reasoning

Stage 2: Assessment Evidence

Performance Task(s): Performance Task 1: Probability • Students will display outcomes that are represented through different events. • Students will explain if an event is likely, unlikely, certain or impossible. • Students will be able to find the probability in various real world events. Performance Task 2: Statistics • Students will identify populations and samples based on surveys and/or other data sets. • Students will create their own survey and be able to pull important information from the data. • Students will analyze graphs and use the graphs to compare data sets.	**Other Evidence:** Teacher created materials Written and online assignments Glencoe Math Review Sheets Exit Tickets Cornell Notes Teacher created quizzes/tests Modified CFAs Observations Projects Class Discussions

Stage 3: Learning Plan

Learning Opportunities/Strategies: Probability: • Students will engage in a variety of probability games, including spinning a	**Resources:** LGBT and Disabilities Law Inclusive Math Class GLSEN Educator Resources

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spinner 20 times and flipping a coin 20 times. For each of these events they will collect data. ● Based on data collected students will be introduced to the term outcomes, and find the probability of simple events. ● Students will work in an interactive notebook with google slides. ● Students will develop foldables to help them through the key terms. ● Students will create their own simple event carnival game. They will have their peers play their game and answer probability questions based on the game. A template will be provided to help the students form their own game. <u>Statistics:</u> ● Students will identify the key terms used in surveys with foldables as well as graphic organizers. ● Students will identify various types of graphs. A graphic organizer will be provided to guide students through how to find important information in different types of graphs. ● Students will create their own survey. They will surveying teachers and other students in the school. ● After they complete their survey they will use the data to form a graph of their information. A step by step guide will be provided to guide students through the project.	Google Classroom Google Slides Google Sheets and Forms Glencoe Math Instructional Videos TeachersPayTeachers STEM activities Teacher created materials Kahoot Khan Academy GimKit BrainPop EdPuzzle Flocabulary MathTV IXL Visual Manipulatives App Desmos Blooket ALEKS

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 Challenging problems with higher degree of difficulty Higher order thinking questions Differentiation of pacing	Tutoring Tables Graphic organizers Differentiation of learning strategies: visual, auditory, kinetic and cooperative	Provide a highly structured, predictable learning environment Provide organizers/study guides Lessons designed	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

and activities Differentiation of learning strategies: visual, auditory, kinetic and cooperative Enrichment and extension Technology connection Practice assignments	Technology connection Practice Assignments Puzzle time activities Record and practice journal Differentiating the lesson activities Lesson tutorials Skills review handbook	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	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

Unit Title: **Unit 4:** Geometry

Stage 1: Desired Results

Standards & Indicators:

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.
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.
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.

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

Integration of Climate Change:

- 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.

- 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.

Dynamic Learning Map Essential Elements/New Jersey Student Learning Standards:
EE.7.G.1. Match two similar geometric shapes that are proportional in size and in the same orientation.
EE.7.G.2. Recognize geometric shapes with given conditions.
EE.7.G.3. Match a two-dimensional shape with a three-dimensional shape that shares an attribute.
EE.7.G4. Determine the perimeter of a rectangle by adding the measures of the sides.
EE.7.G.5. Recognize angles that are acute, obtuse, and right.
EE.7.G.6. Determine the area of a rectangle using the formula for length × width, and confirm the result using tiling or partitioning into unit squares.

Career Readiness, Life Literacies and Key Skills

Standard	Performance Expectations	Core Ideas
9.4.8.DC.7	Collaborate within a digital community to create a digital artifact using strategies such as crowdsourcing or digital surveys.	Digital communities are used by individuals to share information, organize, and engage around issues and topics of interest.
9.4.8.IML.3	Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping	Digital tools make it possible to analyze and interpret data, including text, images, and sound. These tools allow for broad concepts and data to be more

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9.4.8.IML.4	Ask insightful questions to organize different types of data and create meaningful visualizations.	effectively communicated.
9.4.8.TL.1	Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.	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.2	Gather data and digitally represent information to communicate a real-world problem	
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.	
9.4.8.TL.5	Compare the process and effectiveness of synchronous collaboration and asynchronous collaboration	Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time.

Central Idea/Enduring Understanding:	**Essential/Guiding Question:**
Objects have distinct attributes that can be measured and communicated through standard units and the proper tool. The ability to endure and persevere in solving problems using precision, reasoning, and strategy is essential. Real life problems involving area and perimeter can be solved by using formulas. There are many real life applications where finding the area and perimeter of a shape is needed.	How does geometry help us describe real-world objects? How can you use different measurements to solve real-life problems? What does it mean to say two quantities are equal? How do measurements help you describe real-world objects? How can you use attributes to identify various shapes? How can you find the area and perimeter of rectangles? What does it mean to use unit squares to determine the area of a rectangle?
Content: ● Proportionality ● Orientation of Shapes ● Attributes of Shapes ● Classify Angles ● Right Angles, Obtuse Angles, Acute Angles ● Complementary and Supplementary Angles ● Perimeter of Shapes ● Identify Different 3D Shapes ● Area of Shapes ● Circumference of Circles ● Area of Circles	**Skills(Objectives):** ● Identify shapes based on attributes ● Identify if shapes are proportional in size ● Describe the different types of angles ● Define and explain the different types of angles ● Show that a pair of angles is complementary or supplementary ● Identify different 3D shapes ● Indicate the key elements of 3D shapes ● Organize shapes based on attributes ● Solve perimeter of shape problems ● Explain the process for finding the perimeter of a shape ● Solve area of shape problems ● Explain the process for finding the area of a shape ● Execute finding the circumference and area of circles ● Compare and contrast the circumference and area of circles

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Interdisciplinary Connections:
Make sense of problems and persevere in solving them
Reason abstractly and quantitatively
Model with mathematics
Use appropriate tools strategically
Attend to precision
Look for and make use of structure
Look for and express regularity in repeated reasoning

Stage 2: Assessment Evidence

Performance Task(s):

Performance Task 1: Proportional Shapes

- Students will be able to identify the attribute of various shapes
- Students will use everyday objects around the classroom and describe the attributes. From the attributes they will determine the shape of the object.
- Students will also sort everyday objects based on attributes. After sorting they will determine if the shapes are proportional.

Performance Task 2: Angles

- Students will be able to differentiate between acute, obtuse, and right angles
- Students will use their knowledge of angles to identify the various angles in the real world
- Students will use real world problems to classify adjacent, complementary, and supplementary angles

Performance Task 3: Shapes

- Students will use graphic organizers to help classify various 3D shapes
- Students will use hands on activities to assist in finding the perimeter of various shapes
- Students will use hands on activities and unit squares to determine the area of shapes
- Students will use a flowchart to guide them through the process of finding the circumference and area of circles

Other Evidence:
Teacher created materials
Written and online assignments
Glencoe Math Review Sheets
Exit Tickets
Cornell Notes
Teacher created quizzes/tests
Modified CFAs
Observations
Projects
Class Discussions

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Stage 3: Learning Plan

Learning Opportunities/Strategies:

Proportional Shapes:

- Students will use manipulatives to visually see the attributes of various shapes.
- Students will sort shapes based on proportionality
- Students will be able to determine the geometric shape based on given conditions. It will be a What Am I? Riddle.
- Students will receive a graphic organizer going through the key attributes of different shapes.
- After students review the organizer, students will use it to do various scavenger hunts around the classroom looking for different shapes.
- Students will complete a google slides interactive notebook
- Students will complete foldables and review Glencoe Math worksheets to reinforce material.

Angles:

- Students will watch instructional videos about the various types of angles. VIdeos will include elements of song to increase student engagement and increase memory.
- Students will use hands on activities to create types of angles out of different items.
- Students will complete an interactive notebook with Google Slides.
- Students will complete foldables
- Students will complete and review Glencoe Math sheets.

Shapes:

- Students will complete a variety of hands-on activities to find the perimeter of shapes.
- Students will complete hands-on activities, as well as use unit squares to find the area of shapes.

Resources:

LGBT and Disabilities Law
- Inclusive Math Class
- GLSEN Educator Resources

Google Classroom
Google Slides
Google Sheets and Forms
Glencoe Math
Instructional Videos
TeachersPayTeachers
STEM activities
Teacher created materials
Kahoot
Khan Academy
GimKit
BrainPop
EdPuzzle
Flocabulary
MathTV
IXL
Visual Manipulatives App
Desmos
Blooket
ALEKS

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• Students will use a flowchart to help them determine the area and circumference of circles. Students can use food, such as pancakes and waffles to determine the area and circumference of circles in real life. • Students will work with an interactive notebook on Google Slides. • Students will complete foldables and review Glencoe Math to reinforce the material	

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 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	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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Pacing Guide

Course Name	Resource	Standards	Essential Elements
MP			
MP 1: UNIT 1: Unit Rates and Ratios Operations with Rational Numbers (45 days)	**CHAPTERS** **1 (Inquiry Lab, Lessons 1, 3, 4)** **3 (Lessons, 1, 2, 3, 4, 5)** **4 (Lesson 3)** Unit Online Assessment: (2 days)	7.RP.A.1 7.RP.A.2 7.RP.A.3 7.NS.A.1 7.NS.A.3 7.EE.A.2 7.EE.B.3	EE.7.RP.1–3 EE.7.NS.1 EE.7.NS.2.a EE.7.NS.2.b
MP			
UNIT 2: Fractions and Decimals Solving Algebraic Equations (40 days)	**CHAPTERS** **2 (Lessons 1, 6, 7)** **5 (Lesson 1, 2)** **6 (Lesson 1, 2)** Unit Online Assessment: (2 days)	7.RP.A.3 7.NS.A.1 7.NS.A.2 7.NS.A.3 7.EE.A.1 7.EE.A.2 7.EE.B.3	EE.7.NS.2.c–d EE.7.NS.3 EE.7.EE.2 EE.7.EE.1 EE.7.EE.4
MP			
UNIT 3 Probability Analyzing Graphs (40 days)	**CHAPTERS** **9 (Lessons 1, 2)** **10 (Inquiry Lab, 1, 3)** **Analyzing graphs - based on teacher created assignments** Unit Online Assessment: (2 days)	7.SP.A.1 7.SP.A.2 7.SP.C.5 7.SP.C.6 7.SP.C.7 7.SP.C.8 7.SP.B.3 7.SP.B.4	EE.7.SP.1–2 EE.7.SP.3 EE.7.SP.5–7
MP			
UNIT 4 Classifying Shapes Classifying Angles Area and Perimeter (40 days)	**CHAPTERS** **7 (Lessons 1, 2)** **8 (Lesson 1, 2)** **Area and Perimeter - based on teacher created assignments** Unit Online Assessment: (2 days)	7.EE.B.4 7.G.A.1 7.G.A.2 7.G.A.3 7.G.B.4 7.G.B.5 7.G.B.6	EE.7.G.1 EE.7.G.2 EE.7.G.3 EE.7.G4 EE.7.G.5 EE.7.G.6