ROCHELLE PARK SCHOOL DISTRICT

SEVENTH GRADE MATHEMATICS CURRICULUM

Rochelle Park Mission Statement

We envision an educational community, which inspires and empowers all students to become self-sufficient and to thrive in a complex, global society.

Rochelle Park Vision Statement

- Establish and maintain a shared responsibility among home, school, and the greater community which fosters student learning, accountability, and citizenship.

- To provide curricula that enables all students to meet or exceed current national, state, and local standards.

- We will utilize a variety of formative and summative assessments in order to differentiate and guide instruction.

- The district, as a Professional Learning Community, will provide on-going professional development training and opportunities for collaboration among faculty and staff.

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PACING CHART

Topic	Time Frame
Ratios and Proportional Reasoning	16 days
Percent	16 days
Integers	14 days
Rational Numbers	15 days
Expressions	17 days
Equations and Inequalities	18 days
Geometric Figures	15 days
Measure Figures	19 days
Probability	15 days
Statistics	13 days

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Mathematic Domains

Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
- Understand and apply properties of operations and the relationship between addition and subtraction.
- Add and subtract within 20.
- Work with addition and subtraction equations.

Number and Operations in Base Ten

- Extend the counting sequence.
- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

Measurement and Data

- Measure lengths indirectly and by iterating length units.
- Tell and write time.
- Represent and interpret data.

Geometry

- Reason with shapes and their attributes.

Mathematical Practices

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

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8.1 Educational Technology

All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.

8.2 Technology Education, Engineering, Design, and Computational Thinking-Programming

All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.

Educational Technology
Indicators: 8.1.8.A.1, 8.1.8.A.4, 8.1.8.A.5, 8.1.8.F.1
• Demonstrate knowledge of a real world problem using digital tools. • Graph and calculate data within a spreadsheet and present a summary of the results • Create a database query, sort and create a report and describe the process, and explain the report results. • Explore a local issue by using digital tools to collect and analyze data to identify a solution and make an informed decision.

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21st Century Life and Careers Skills

Indicators: 9.1.8.A.1, 9.1.8.B.2, 9.1.8.B.3, 9.1.8.B.4, 9.1.8.E.1, 9.1.8.E.3, 9.1.8.E.4, 9.1.8.E.6, 9.1.8.E.8

- Explain the meaning and purpose of taxes and tax deductions and why fees for various benefits are taken out of play.
- Construct a simple personal savings and spending plan based on various sources of income.
- Justify the concept of "paying yourself first" as a financial savings strategy.
- Relate the concept of deferred gratification to (investment), meeting financial goals, and building wealth.
- Explain what it means to be a responsible consumer and the factors to consider when making consumer decisions.
- Compare and contrast product facts versus advertising claims.
- Prioritize personal wants and needs when making purchases.
- Compare the value of goods or services from different sellers when purchasing large quantities and small quantities.
- Recognize the techniques and effects of deceptive advertising.

Career Ready Practices

Indicators: CRP1, CRP2, CRP4, CRP6, CRP7, CRP8, CRP9, CRP11, CRP12

- Act as responsible and contributing citizen and employee.
- Apply appropriate academic and technical skills.
- Communicate clearly and effectively and with reason.
- Demonstrate creativity and innovation.
- Employ valid and reliable research strategies.
- Utilize critical thinking to make sense of problems and persevere in solving them.
- Model integrity, ethical leadership and effective management.
- Use technology to enhance productivity.
- Work productively in teams while using cultural global competence.

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Grade: Seventh		**Content:** Mathematics
Domain: Ratios and Proportional Relationships	**Topic:** Ratios and Proportional Reasoning	**Time Frame:** 16 days
Standards: 7.RP.A.1 7.RP.A.2, 2a, 2b, 2c, 2d 7.RP.A.3 7.NS.A.3	**Focus Mathematical Practices:** MP.1, MP.2, MP.3, MP.4, MP.5, MP.6	**PARCC Model Content Framework:** Major Content: RP.A.1, RP.A.2, RP.A.3, NS.A.3 Supporting Content: n/a Additional Content: n/a

Essential Questions	Enduring Understandings
• How is a rate a measure of one quantity per unit of another quantity? • What is a complex fraction? • Why does the ratio 3 feet/1 yard have a value of one? • What makes two quantities proportional? • How does graphing relationships help you determine whether the relationship is proportional or not? • How do you solve a proportion? • How can you find the unit rate from a line on a graph that goes through the origin? • How is rate of change related to slope? • How can you determine if a linear function is a direct variation from an equation? a table? a graph?	• Calculate rates and unit rates. • Distinguish between proportional and non-proportional relationships. • Calculate constant rate of change/slope. • Calculate direct variation.

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Skills	NJDOE Model Curriculum (Student Learning Objectives)
Students will be able to: • Find unit rates. • Simplify complex fractions. • Convert rates using unit rates and dimensional analysis. • Identify proportional and non-proportional relationships. • Identify proportional relationships by graphing on the coordinate plane. • Use proportions to solve problems. • Represent and identify constant rates of change. • Identify slope using tables and graphs. • Use direct variation to solve problems.	**Students will know how to:** • Calculate and interpret unit rates of various quantities involving ratios of fractions that contain like and different units. • Determine if proportional relationship exists between two quantities. • Identify the constant of proportionality from tables, graphs, equations, diagrams, and verbal descriptions. • Write equations to model proportional relationships in real world problems. • Use the graph of a proportional relationship to interpret the meaning of any point on the graph in terms of the situation.

Assessment/Project	Resources/Materials	Vocabulary
• Do now • Exit ticket • Teacher observations • Group work • Quizzes • Chapter test	• Tenmarks • Classroom Presentation component • Worksheets • UDL • Versatiles	Complex fractions, dimensional analysis, direct variation, ordered pair, origin, proportion, quadrant, rate, rate of change, slope, and unit rate.

Differentiated Instruction		Interdisciplinary Connections
RTI/ELL	Enrichment	
• Anchor charts/ posters • Small group instruction • Reteach book • Online tutors	• H.O.T. problems • Enrichment book • Be a peer tutor	**Literature Connection**- read the graphic novel, The Go-Kart Race. Research qualifying times for a particular NASCAR race. Use this unit rate to determine if it could predict the actual race time results. **Science Connection**-Have students record their pulse for 30 seconds. Use proportions to calculate pulse over a variety of different extended periods of time.

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Grade: Seventh		**Content:** Mathematics
Domain: Ratios and Proportional Relationships	**Topic:** Percents	**Time Frame:** 16 days
Standards: 7.RP.A.2, 2c 7.RP.A.3 7.EE.A.2 7.EE.B.3	**Focus Mathematical Practices:** MP.1, MP.2, MP.3, MP.4, MP.5, MP.6	**PARCC Model Content Framework:** Major Content: RP.A.1, RP.A.2, RP.A.3, EE.A.2, EE.B.3 Supporting Content: n/a Additional Content: n/a

Essential Questions	Enduring Understandings
• How do you find the percent of a number? • How can you estimate the percent of a number? • How can you use the percent proportion to solve real-world problems? • When might it be easier to use the percent equation rather than the percent proportion? • How can two amounts of change be the same but the percent of change can be different? • Which method for finding the total price of a bill with a 20% tip do you prefer? • What are two methods you could use to find the sale price of an item that is discounted by a percent? • How can you use a formula to determine simple interest?	• Use percents to understand situations involving money. • Use percents to solve problems in a variety of ways.

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Skills	NJDOE Model Curriculum (Student Learning Objectives)
Students will be able to: • Find the percent of a number. • Estimate the percent of a number. • Solve problems involving percents by using the percent proportion. • Solve problems involving percents by using the percent equation. • Solve problems involving percent increase and percent decrease. • Solve problems involving financial literacy, such as sales tax, tip, and markup. • Solve problems involving discount. • Solve problems involving simple interest.	**Students will know how to:** • Solve multi-step ratio and percent problems using proportional relationships. • Rewrite algebraic expressions in equivalent forms to highlight low the quantities in it are related. • Solve multi-step real life and mathematical problems with rational numbers in any form by applying properties of operation and converting rational numbers between forms as needed.

Assessment/Project	Resources/Materials	Vocabulary
• Do now • Exit ticket • Teacher observations • Group work • Quizzes • Chapter test	• Tenmarks • Classroom Presentation component • Worksheets • UDL • Versatiles	Discount, interest, markdown, markup, percent equation, percent error, percent of change, percent of increase, percent proportion, principal, sales tax, selling price, and tip.

Differentiated Instruction		Interdisciplinary Connections
RTI/ELL	Enrichment	
• Anchor charts/ posters • Small group instruction • Reteach book • Online tutors	• H.O.T. problems • Enrichment book • Be a peer tutor	**Literature Connection**- Amusement Park Prices. Look online to find an item that is on sale for a certain percentage off its original price. Calculate and describe the discount. Discuss if it seems to be a good deal or not. **Social Studies Connection**-Using www.census.gov, find the data from the Census of two different decades. Calculate the percent change in any 5 given categories.

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Grade: Seventh		**Content:** Mathematics
Domain: Number System	**Topic:** Integers	**Time Frame:** 14 days
Standards: 7.NS.A.1, 1a, 1b, 1c, 1d 7.NS.A.2, 2a, 2b, 2c 7.NS.A.3 7.EE.B.3	**Focus Mathematical Practices:** MP.1, MP.2, MP.3, MP.4, MP.5, MP.6, MP.7, MP.8	**PARCC Model Content Framework:** Major Content: NS.A.1, NS.A.2, NS.A.3, EE.B.3 Supporting Content: n/a Additional Content: n/a

Essential Questions	Enduring Understandings
• Why is the absolute value of a number positive? • When adding integers, how can you tell whether the sum will be positive, negative, or zero without actually adding? • If x and y are positive integers, is x – y always positive? • When is the product of two or more integers a positive number? • How is dividing integers similar to multiplying integers?	• Accurately compute with integers (add, subtract, multiply and divide). • Know the rules and what happens when integers are added, subtracted, multiplied, and divided.

Skills	NJDOE Model Curriculum (Student Learning Objectives)
Students will be able to: • Read and write integers, and find the absolute value of an integer. • Add integers. • Subtract integers. • Multiply integers. • Divide integers	Students will know how to: • Describe real-world situations in which rational numbers are combined, emphasizing rational numbers that combine to make 0. • Add and subtract rational numbers, multiply and divide signed numbers, and interpret the solution using real-world context. • Apply properties of operations as strategies to add, subtract, multiply, and divide rational numbers.

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<table>
<tr><th>Assessment/Project</th><th>Resources/Materials</th><th>Vocabulary</th></tr>
<tr>
<td>• Do now
• Exit ticket
• Teacher observations
• Group work
• Quizzes
• Chapter test</td>
<td>• Tenmarks
• Classroom Presentation component
• Worksheets
• UDL
• Versatiles</td>
<td>• Absolute value
• Additive inverse
• Integer
• Negative integer
• Opposites
• Positive integer
• Zero pair</td>
</tr>
<tr><th colspan="2">Differentiated Instruction</th><th rowspan="2">Interdisciplinary Connections</th></tr>
<tr><th>RTI/ELL</th><th>Enrichment</th></tr>
<tr>
<td>• Anchor charts/ posters
• Small group instruction
• Reteach book
• Online tutors</td>
<td>• H.O.T. problems
• Enrichment book
• Be a peer tutor</td>
<td>Literature Connection- read the graphic novel, Homecoming Shirts. Use the Internet to find examples of both positive and negative numbers used in the real world. Explain the meaning of each number.

Science Connection-Track the temperature of a given city over the period of 5 days. Identify the change in temperature between each day and the overall change at the end of the fifth day. Find the mean temperature change over the 5 days.</td>
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Grade: Seventh		**Content:** Mathematics
Domain: Number System	**Topic:** Rational Numbers	**Time Frame:** 15 days
Standards: 7.NS.A.1, 1b, 1c, 1d 7.NS.A.2, 2a, 2b, 2c, 2d 7.NS.A.3 7.RP.A.3 7.EE.B.3	**Focus Mathematical Practices:** MP.1, MP.3, MP.4, MP.5, MP.6, MP.7, MP.8	**PARCC Model Content Framework:** Major Content: NS.A.1, NS.A.2, NS.A.3, RP.A.3, EE.B.3 Supporting Content: n/a Additional Content: n/a

Essential Questions	Enduring Understandings
• How can you write a fraction as a decimal? • How can you compare two fractions? • What is a simple rule for adding and subtracting like fractions? • How does adding unlike fractions compare to adding like fractions? • How can you subtract mixed numbers when the fraction in the first mixed number is less than the fraction in the second mixed number? • How is the process of multiplying fractions different from the process of adding fractions? • How can you use dimensional analysis to convert between measurement systems? • How is dividing fractions related to multiplying?	• Accurately compute with rational numbers. • Convert rational numbers to any form to better facilitate computation.

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Skills	NJDOE Model Curriculum (Student Learning Objectives)
Students will be able to: • Write fractions as terminating or repeating decimals and write decimals as fractions. • Compare and order rational numbers. • Add and subtract rational numbers, expressed as like fractions. • Add and subtract fractions with unlike denominators. • Add and subtract mixed numbers. • Multiply fractions and mixed numbers. • Convert units of measure between the customary and metric systems. • Divide fractions and mixed numbers.	**Students will know how to:** • Convert a rational number to a decimal using long division and explain why the decimal is either a terminating or repeating decimal. • Solve mathematical and real-world problems involving addition, subtraction, multiplication, and division of signed rational numbers. • Solve multi-step real life and mathematical problems with rational numbers in any form by applying properties of operation and converting rational numbers between forms as needed.

Assessment/Project	Resources/Materials	Vocabulary
• Do now • Exit ticket • Teacher observations • Group work • Quizzes • Chapter test	• Tenmarks • Classroom Presentation component • Worksheets • UDL • Versatiles	• Bar notation • Common denominator • Like fractions • Repeating decimal • Terminating decimal • Unlike fractions

Differentiated Instruction		Interdisciplinary Connections
RTI/ELL	Enrichment	
• Anchor charts/ posters • Small group instruction • Reteach book • Online tutors	• H.O.T. problems • Enrichment book • Be a peer tutor	**Literature Connection**- Get Organized. Use a tape measure to find the length of 5 classroom items. Calculate the total length and find the difference between the largest and smallest item. **Social Studies Connection**- Work in a group to research five oceans of the world. Create a table that shows what fraction each ocean is of that $\frac{2}{3}$.

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Grade: Seventh		**Content:** Mathematics
Domain: Expressions and Equations	**Topic:** Expressions	**Time Frame:** 17 days
Standards: 7.EE.A.1 7.EE.A.2 7.NS.B.3	**Focus Mathematical Practices:** MP.1, MP.2, MP.3, MP.4, MP.5, MP.6, MP.7, MP.8	**PARCC Model Content Framework:** Major Content: EE.A.1, EE.A.2, NS.A.3 Supporting Content: n/a Additional Content: n/a

Essential Questions	Enduring Understandings
• Will the expression x – 3 and y – 3 sometimes, always, or never represent the same value? • Why is 5, 9, 13, 17, 21, … considered an arithmetic sequence? • What is the difference between the Commutative and Associative Properties? • How is the formula for the perimeter of a rectangle an application of the Distributive Property? • Why are the expressions 2(x – 1) + 3(x – 1) and 5(x – 1) equivalent? • How is adding linear expressions similar to simplifying expressions? • How can you use the additive inverse to help you subtract linear expressions? • How is the GCF used to factor expressions?	• Identify and utilize mathematical properties to simplify and rewrite numeric and algebraic expressions. • Combine like terms to simplify algebraic expressions. • Factor expressions.

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Skills	NJDOE Model Curriculum (Student Learning Objectives)
Students will be able to: • Evaluate simple algebraic expressions. • Describe the relationship and extend terms in arithmetic sequences. • Identify and use mathematical properties to simplify algebraic expressions. • Apply the Distributive Property to rewrite algebraic expressions. • Simplify algebraic expressions. • Add linear expressions. • Subtract linear expressions. • Read and write integers, and find the absolute value of an integer.	**Students will know how to:** • Apply the properties of operations as strategies to add, subtract, factor and expand linear expressions with rational coefficients. • Rewrite algebraic expressions in equivalent forms to highlight how the quantities in it are related.

Assessment/Project	Resources/Materials	Vocabulary
• Do now • Exit ticket • Teacher observations • Group work • Quizzes • Chapter test	• Tenmarks • Classroom Presentation component • Worksheets • UDL • Versatiles	Algebra, algebraic expression, arithmetic sequence, coefficient, constant, counterexample, define a variable, equivalent expression, like terms, property, sequence, simplest form, term, and variable.

Differentiated Instruction		Interdisciplinary Connections
RTI/ELL	Enrichment	
• Anchor charts/ posters • Small group instruction • Reteach book • Online tutors	• H.O.T. problems • Enrichment book • Be a peer tutor	**Literature Connection**- read the graphic novel, Too Many Texts. Research different cell phone plans and compare and contrast each plan using algebraic expressions. **Science Connection**-Use the conversion formula for Fahrenheit to Celsius to convert multiple temperatures to Celsius.

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Grade: Seventh		**Content:** Mathematics
Domain: Expressions and Equations	**Topic:** Equations and Inequalities	**Time Frame:** 18 days
Standards: 7.EE.B.3 7.EE.B.4 7.EE.B.4a 7.EE.B.4b	**Focus Mathematical Practices:** MP.1, MP.2, MP.3, MP.4, MP.5, MP.7	**PARCC Model Content Framework:** Major Content: EE.B.3, EE.B.4 Supporting Content: n/a Additional Content: n/a

Essential Questions	Enduring Understandings
• What are two methods for solving a real-world problem that can be represented by an equation? • How is the process for solving multiplication and division one-step equations like solving one-step addition and subtraction equations? • What is the process for solving a multiplication equation with a rational coefficient? • Why is it important to perform identical operations on each side of the equals sign? • What is the difference between $px + q = r$ and $p(x + q) = r$? • When would you use addition or subtraction to solve an inequality? • When do you reverse the inequality symbol when solving an inequality? • How are the inequalities and solutions of $2x + 8 > 18$ and $2x + 8 \leq 18$ similar and how are they different?	• Properly solve multi-step equations/inequalities using the equality properties. • Know when to reverse the inequality symbol when solving inequalities.

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Skills	NJDOE Model Curriculum (Student Learning Objectives)
Students will be able to: • Solve addition and subtraction equations. • Solve one-step multiplication and division equations. • Solve one-step equations with rational coefficients. • Solve two-step equations. • Solve two-step equations of the form $p(x + q) = r$ • Solve inequalities by using the Addition and Subtraction Properties of Inequality. • Solve inequalities by using Multiplication or Division Properties of Inequality. • Model and solve two-step inequalities and represent the solution on the number line.	**Students will know how to:** • Use variables to represent quantities in a real-world or mathematical problem by constructing simple equations and inequalities to represent problems. • Fluently solve equations; solve inequalities; graph the solution set of the inequality and interpret the solutions in the context of the problem.

Assessment/Project	Resources/Materials	Vocabulary
• Do now • Exit ticket • Teacher observations • Group work • Quizzes • Chapter test	• Tenmarks • Classroom Presentation component • Worksheets • UDL • Versatiles	Addition Property of Equality, Addition Property of Inequality, Division Property of Equality, Division Property of Inequality, Multiplication Property of Equality, Multiplication Property of Inequality, Subtraction Property of Equality, Subtraction Property of Inequality, two-step equation, two-step inequality, and variable.

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Differentiated Instruction		Interdisciplinary Connections
RTI/ELL	**Enrichment**	
• Anchor charts/ posters • Small group instruction • Reteach book • Online tutors	• H.O.T. problems • Enrichment book • Be a peer tutor	**Literature Connection**- read the graphic novel, Movie Night. Identify an expensive item you would like to purchase. Write an equation based on the amount of money you currently have and how much time you need to save for it. Solve the equation to determine how much money needs to be saved per week (month, year, etc.). **Science Connection**-Use the triple-beam balance to represent inequalities. Use cups (filled with an unknown number of counters) and counters to create inequality scenarios. Solve for the unknown.

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Grade: Seventh		**Content:** Mathematics
Domain: Geometry	**Topic:** Geometric Figures	**Time Frame:** 15 days
Standards: 7.G.A.1 7.G.A.2 7.G.A.3 7.G.B.5	**Focus Mathematical Practices:** MP.1, MP.2, MP.3, MP.4, MP.5, MP.6, MP.7, MP.8	**PARCC Model Content Framework:** Major Content: n/a Supporting Content: n/a Additional Content: G.A.1, G.A.2, G.A.3, G.B.5

Essential Questions	Enduring Understandings
• What are the differences between vertical and adjacent angles? • How are vertical, adjacent, complementary, and supplementary angles related? • How can triangles be classified? • How can you use a map to estimate the actual distance between Miami, Florida, and Atlanta, Georgia? • How does drawing the different views of a three-dimensional figure help you have a better understanding of the figure? • How can knowing the shape of the base of a three-dimensional figure help you name the figure?	• Identify different angle relationships in order to find the value of a missing angle measure. • Classify triangles by its angles and sides. • Use proportions to solve problems involving scale drawings. • Describe the resulting shape of a cross section of a three-dimensional figure.

Skills	NJDOE Model Curriculum (Student Learning Objectives)
Students will be able to: • Classify angles and identify vertical and adjacent angles. • Identify pairs of complementary and supplementary angles. • Identify and classify triangles and find missing angle measures. • Solve problems involving scale drawings. • Draw three-dimensional figures given the top, side, and front views. • Identify and draw three-dimensional figures.	**Students will know how to:** • Write and solve simple multi-step algebraic equations involving supplementary, complementary, vertical, and adjacent angles. • Use freehand, mechanical and technological tools to draw geometric shapes with given conditions focusing on constructing triangles. • Describe all 2-dimensional figures that result when 3-dimenional figures are sliced from multiple angles.

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<table>
<tr><th>Assessment/Project</th><th>Resources/Materials</th><th>Vocabulary</th></tr>
<tr><td>• Do now
• Exit ticket
• Teacher observations
• Group work
• Quizzes
• Chapter test</td><td>• Tenmarks
• Classroom Presentation component
• Worksheets
• UDL
• Versatiles</td><td>Acute angle, adjacent angles, complementary angles, cone, congruent segments, cylinder, equilateral triangle, obtuse angle, prism, right angle, scale, scale model, supplementary angles, triangle, vertex, and vertical angles.</td></tr>
<tr><th colspan="2">Differentiated Instruction</th><th rowspan="2">Interdisciplinary Connections</th></tr>
<tr><th>RTI/ELL</th><th>Enrichment</th></tr>
<tr><td>• Anchor charts/ posters
• Small group instruction
• Reteach book
• Online tutors</td><td>• H.O.T. problems
• Enrichment book
• Be a peer tutor</td><td>Literature Connection- read the graphic novel, Campfire Song. Use the Internet to find a map of the local area. Find the map distance, in inches, between school and home. Write about a method that could be used to calculate the actual distance.

Social Studies Connection-Create a scale drawing of a portion of the town. Identify different angle relationships that result from the intersection of streets.</td></tr>
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Grade: Seventh		**Content:** Mathematics
Domain: Geometry	**Topic:** Measure Figures	**Time Frame:** 19 days
Standards: 7.G.B.4 7.G.B.6	**Focus Mathematical Practices:** MP.1, MP.2, MP.3, MP.4, MP.5, MP.6, MP.8	**PARCC Model Content Framework:** Major Content: n/a Supporting Content: n/a Additional Content: G.B.4, G.B.6

Essential Questions	Enduring Understandings
• What is the relationship between the circumference and diameter of a circle? • How are the circumference and area of a circle alike? How are they different? • How can you tell if an answer is exact or an approximation? • How is finding the volume of a rectangular prism and the volume of a triangular prism alike? Different? • When you are finding the volume of a pyramid, why is it important to know the shape of the base of the pyramid? • Why is the surface area of a three-dimensional figure measured in square units instead of cubic units? • How can you justify the formula for the surface area of a pyramid? • How do the previous lessons in this chapter help you find the surface area and volume of a composite figure?	• Calculate the circumference and area of a circle. • Calculate the area of composite figures by decomposing into known polygons. • Find the volume and surface area of three-dimension figures.

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Skills	NJDOE Model Curriculum (Student Learning Objectives)
Students will be able to: • Find the circumference of circles. • Find the area of circles. • Find the area of composite figures. • Find the volume of prisms. • Find the volume of pyramids. • Find the surface area of prisms. • Find the surface area of pyramids. • Find the volume and surface area of composite figures.	**Students will know how to:** • Know the formulas for area and circumference of a circle and use them to solve problems. Give an informal derivation of the relationship between circumference and area of a circle. • 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.

Assessment/Project	Resources/Materials	Vocabulary
• Do now • Exit ticket • Teacher observations • Group work • Quizzes • Chapter test	• Tenmarks • Classroom Presentation component • Worksheets • UDL • Versatiles	Center, circle, circumference, composite figure, diameter, lateral face, pi, radius, semicircle, slant height, surface area, and volume.
Differentiated Instruction		**Interdisciplinary Connections**
RTI/ELL	**Enrichment**	
• Anchor charts/ posters • Small group instruction • Reteach book • Online tutors	• H.O.T. problems • Enrichment book • Be a peer tutor	**Literature Connection**- read the graphic novel, The Dunk Tank. Research the dimensions of a dunk tank. Calculate the volume to determine how much water it could hold. Determine how much metal sheeting is needed to build the dunk tank. **Physical Education Connection**-Go to the gym and students will measure dimensions are various equipment. Then calculate appropriate measure, for example circumference, area, volume, and/or surface area

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Grade: Seventh		**Content:** Mathematics
Domain: Statistics and Probability	**Topic:** Probability	**Time Frame:** 15 days
Standards: 7.SP.C.5 7.SP.C.6 7.SP.C.7, 7a, 7b 7.SP.C.8, 8a, 8b, 8c	**Focus Mathematical Practices:** MP.1, MP.3, MP.4, MP.5	**PARCC Model Content Framework:** Major Content: n/a Supporting Content: SP.C.5, SP.C.6, SP.C.7, SP.C.8 Additional Content: n/a

Essential Questions	Enduring Understandings
• What is the relationship between the probability of an event and its complement? • How are experimental probability and theoretical probability alike? • How do tree diagrams, tables, and lists help you find the probability of a compound event? • How is using a simulation related to experimental probability? • How does using the Fundamental Counting Principle compare to making a tree diagram? • How can you find the number of permutations of a set of objects? • What is the difference between independent and dependent events?	• Identify the differences between experimental and theoretical probability. • Calculate probability of simple and compound events. • Identify the number of outcomes for a given situation.

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Skills	NJDOE Model Curriculum (Student Learning Objectives)
Students will be able to: • Find the probability of a simple event and its complement. • Find and compare experimental and theoretical probabilities. • Find probabilities of compound, independent, and dependent events. • Perform probability simulations to model real-world situations involving uncertainty. • Use multiplication to count the number of outcomes and find probabilities. • Find the number of permutations of a set of objects and find probabilities.	**Students will know how to:** • Interpret and express the likelihood of a chance event as a number between 0 and 1, relating that the probability of an unlikely event happening is near 0, a likely event is near 1, and ½ is neither likely or unlikely. • Approximate that probability of a chance event by collecting data and observing long-run relative frequency. • Develop a uniform probability model by assigning equal probability to all outcomes. • Represent sample spaces for compound events; identify the outcomes.

Assessment/Project	Resources/Materials	Vocabulary
• Do now • Exit ticket • Teacher observations • Group work • Quizzes • Chapter test	• Tenmarks • Classroom Presentation component • Worksheets • UDL • Versatiles	• Complementary events • Permutation • Sample space • Theoretical probability

Differentiated Instruction		Interdisciplinary Connections
RTI/ELL	Enrichment	
• Anchor charts/ posters • Small group instruction • Reteach book • Online tutors	• H.O.T. problems • Enrichment book • Be a peer tutor	**Literature Connection**- Radio Surveys. Use the Internet to find examples of how probability is used in the real world. Write about your example and what it means to you. **Physical Education Connection**-Set up 2 events in the gym. Calculate the theoretical probability of getting a basket and scoring a goal. Have student complete each activity, record results and calculate experimental probability. Compare the probabilities.

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Grade: Seventh		**Content:** Mathematics
Domain: Statistics and Probability	**Topic:** Statistics	**Time Frame:** 13 days
Standards: 7.SP.A.1 7.SP.A.2 7.SP.B.3 7.SP.B.4	**Focus Mathematical Practices:** MP.1, MP.3, MP.4, MP.5, MP.6	**PARCC Model Content Framework:** Major Content: n/a Supporting Content: SP.A.1, SP.A.2 Additional Content: SP.B.3, SP.B.4

Essential Questions	Enduring Understandings
• When can statistics be used to gain information about a population from a sample? • How is using a survey one way to determine experimental probability? • What are ways in which the display of data can influence conclusions? • How can you use data displays to compare two populations? • What are some of the factors to consider when selecting an appropriate display for a data set?	• Determine how data is collected, organized and displayed. • Analyze the results of a statistical investigation and how they can be used to refute or support an argument. • Predict the probability of an event's occurrence.

Skills	NJDOE Model Curriculum (Student Learning Objectives)
Students will be able to: • Predict actions of a larger group by using a sample. • Determine whether sampling methods are valid. • Identify misleading graphs and statistics. • Compare two populations. • Select, organize, and construct appropriate data displays.	Students will know how to: • Distinguish between representative and non-representative samples of a population. • Use random sampling to produce a representative sample. • Develop inferences about a population using data from a random sample and assess the variation in estimates after generating multiple samples of the same size. • Visually compare the means of two distributions that have similar variablility.

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Assessment/Project	Resources/Materials	Vocabulary
• Do now • Exit ticket • Teacher observations • Group work • Quizzes • Chapter test	• Tenmarks • Classroom Presentation component • Worksheets • UDL • Versatiles	Biased sample, convenience sample, double box plot, population, sample, simple random sample, survey, systematic random sample, unbiased sample, and voluntary response sample.
Differentiated Instruction		**Interdisciplinary Connections**
RTI/ELL	**Enrichment**	
• Anchor charts/ posters • Small group instruction • Reteach book • Online tutors	• H.O.T. problems • Enrichment book • Be a peer tutor	**Literature Connection**- read the graphic novel, Record Highs. Then students will find the average monthly high and low temperatures for two cities. Students with then compare the temperatures of the two cities. **College/Career Connection**- Students will use the internet to research a career as a market research analyst. Then write a paragraph summarizing their findings.