East Newark Public School

Mathematics Curriculum
Grade 6

Revised 2022

Equity Statement:

East Newark Public School District does not discriminate on the basis of race, color, creed, religion, sex, ancestry, or national origin. The East Newark Board of Education ensures that all students enrolled in the schools of this district shall be afforded equal educational opportunities in strict accordance with the law. No student shall be denied access to or benefit from any educational program or activity on the basis of the student's race, color, creed, religion, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, gender identity or expression, socioeconomic status, or disability. The Board directs the Superintendent to allocate faculty, administrators, support staff members, curriculum materials, and instructional equipment supplies among classes of this district in a manner that ensures equivalency of educational opportunity throughout this district. The school district's curricula will eliminate discrimination, promote mutual acceptance and respect among students, and enable students to interact effectively with others, regardless of race, color, creed, religion, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, gender identity or expression, socioeconomic status, or disability.

Course Description:

In Grade 6, instructional time should focus on four critical areas: (1) connecting ratio and rate to whole number multiplication and division and using concepts of ratio and rate to solve problems; (2) completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers; (3) writing, interpreting, and using expressions and equations; and (4) developing understanding of statistical thinking. Students learn to describe and summarize numerical data sets, identifying clusters, peaks, gaps, and symmetry, considering the context in which the data were collected. Students in Grade 6 also build on their work with area in elementary school by reasoning about relationships among shapes to determine area, surface area, and volume. They find areas of right triangles, other triangles, and special quadrilaterals by decomposing these shapes, rearranging or removing pieces, and relating the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles and parallelograms. Students find areas of polygons and surface areas of prisms and pyramids by decomposing them into pieces whose area they can determine. They reason about right rectangular prisms with fractional side lengths to extend formulas for the volume of a right rectangular prism to fractional side lengths. They prepare for work on scale drawings and constructions in Grade 7 by drawing polygons in the coordinate plane.

Focus Area 1:
Students use reasoning about multiplication and division to solve ratio and rate problems about quantities. By viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and by analyzing simple drawings that indicate the relative size of quantities, students connect their understanding of multiplication and division with ratios and rates. Thus students expand the scope of problems for which they can use multiplication and division to solve problems, and they connect ratios and fractions. Students solve a wide variety of problems involving ratios and rates.

Focus Area 2:
Students use the meaning of fractions, the meanings of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for dividing fractions make sense. Students use these operations to solve problems. Students extend their previous understanding of numbers and the ordering of numbers to the full system of rational numbers, which includes negative rational numbers, and in particular negative integers. They reason about the order and absolute value of rational numbers and about the location of points in all four quadrants of the coordinate plane.

Focus Area 3:
Students understand the use of variables in mathematical expressions. They write expressions and equations that correspond to given situations, evaluate expressions, and use expressions and formulas to solve problems. Students understand that expressions in different forms can be equivalent, and they use the properties of operations to rewrite expressions in equivalent forms. Students know that the solutions of an equation are the values of the variables that make the equation true. Students use properties of operations and the idea of maintaining the equality of both sides of an equation to solve simple one-step equations. Students construct and analyze tables, such as tables of quantities that are in equivalent ratios, and they use equations (such as $3x = y$) to describe relationships between quantities.

Focus Area 4:
Building on and reinforcing their understanding of numbers, students begin to develop their ability to think statistically. Students recognize that a data distribution may not have a definite center and that different ways to measure center yield different values. The median measures center in the sense that it is roughly the middle value. The mean measures center in the sense that it is the value that each data point would take on if the total of the data values were redistributed equally, and also in the sense that it is a balance point. Students recognize that a measure of variability (interquartile range or mean absolute deviation) can also be useful for summarizing data because two very different sets of data can have the same mean and median yet be distinguished by their variability.

Course Modifications:
The course instructor will determine, with the assistance of administrators, teacher assistants/aides, educational specialists, and/or special education teachers, what modifications will be made for his/her students. Such examples of modifications can include, but not be limited to:

- Extended time as needed
- Modification of tests and quizzes
- Preferential seating
- Alternative/Formative assessment (projects)
- Effective teacher questioning (ranging from simple recall to higher order critical thinking questions)
- Supplemental materials
- Cooperative learning
- Teacher tutoring
- Peer tutoring
- Differentiated Instruction

Grade 6 Pacing Guide:

UNIT		STANDARDS	PACING
Unit 1			
1A	Operations with Fractions	6.NS.A.1, 6.NS.B.4	12 days
1B	Introduction to Ratios	6.RP.A.1, 6.RP.A.3.a	15 days
1C	Unit Rate and Percents	6.EE.9, 6.RP.2, 6.RP.A.3.b-d	13 days
Unit 2			
2A	Operations with Decimals	6.NS.B.2, 6.NS.B.3	8 days
2B	Numerical and Algebraic Expressions	6.EE.A.1, 6.EE.A.2, 6.EE.A.3, 6.EE.A.4	20 days
2C	Integers	6.NS.C.5, 6.NS.C.6, 6.NS.C.7, 6.NS.C.8, 6.G.A.3	17 days
Unit 3			
3A	Area, Surface Area, and Volume	6.RP.A.3d, 6.G.A.1, 6.G.A.2, 6.G.A.4	17 days
3B	One-Step Equations and Inequalities	6.EE.B.5, 6.EE.B.6, 6.EE.B.7, 6.EE.B.8	13 days
3C	Data Analysis	6.SP.A.1, 6.SP.A.2, 6.SP.A.3, 6.SP.B.4, 6.SP.B.5	19 days
Unit 4			
4A	Proportions and Data Analysis	6.EE.6, 6.RP.3, 7.G.B.4	15 days
4B	Putting it All Together	6.G.A.1-4, 6.NS.A.1-3, 6.RP.3	17 days

Marking Period	Unit Title	Recommended Instructional Days
1	**Unit 1**	40 days

Domain:		**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit**
Strand:	***Progress Indicator:***	**<u>Essential Question/s:</u>**
Ratios and Proportional Relationships	• **6.RP.A.1:** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes." • **6.RP.A.2:** Understand the concept of a unit rate a/b associated with a ratio a:b with b≠0, and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of lour to 4 cups of sugar, so there is 3⁄4 cup of lour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger. • **6.RP.A.3:** Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratio relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took	1. How can real-world problems be solved by dividing fractions? 2. When is it useful to be able to relate one quantity to another? 3. What is the connection between a ratio and a fraction? 4. How are unit rates identified in verbal descriptions, double number lines, tables, and graphs? 5. How can unit rates and equivalent ratios be used to solve real-world problems? 6. How can the relationship between two variables be represented verbally, numerically, graphically, and algebraically? 7. How are ratios and percentages related? **<u>Activity Description</u>**: • *Are You Ready?* activities (Into Math) • Lesson Review (Into Math) • Assessment Forms (Into Math) • Compute quotients of fractions (including mixed numbers) with like denominators. • Compute quotients of fractions (including mixed numbers) with unlike denominators. • Interpret quotients of fractions. • Solve word problems involving the division of fractions by fractions. • Use visual fraction models to represent word problems involving the division of fractions. • Use equations to represent word problems involving the division of fractions by fractions.

	7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? c. Find a percent of a quantity as a rate per 100 (e.g. 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given the part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	• Perform addition, subtraction, multiplication, and division in expressions with fractions. • Find the greatest common factor of two whole numbers less than or equal to 100. • Find the least common multiple of two whole numbers less than or equal to 12. • Use the distributive property to express the sum of two whole numbers 1-100 with common factor as a multiple of a sum of two whole numbers with no common factor. • Use ratio language to describe a ratio relationship between two quantities. • Compute unit rates in real-world contexts to solve problems. • Represent and compare ratios using double number lines, tables and graphs to see if they are equivalent. • Make tables of equivalent ratios and find missing values in tables. • Plot pairs of equivalent ratios on the coordinate plane. • Use equivalent ratios to solve problems. • Identify unit rates from tables and graphs. • Compute unit rates in real-world contexts to solve problems. • Represent an equation with tables and graphs. • Represent a verbal description with an equation. • Use bar diagrams to find a percent of a quantity. • Find a percent of a quantity as a rate per 100. • Find the percent, part, or the whole given the other two values. **Interdisciplinary Connections: Content: ;NJSLS#:** Science - • MS-PS1-1 - Develop models to describe the atomic composition of simple molecules and extended structure. • MS-PS1-2 - Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. • MS-LS2-5 - Evaluate competing design solutions for maintaining biodiversity and ecosystem services. • MS-LS4-6 - Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. Technology - • 8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.
The Number System	• **6.NS.A.1:** Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc). How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi? • **6.NS.B.4:** Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with common factor as a multiple of a sum of two whole numbers with no common factor. For example, express 36+8 as 4(9+2).	
Expressions and Equations	• **6.EE.C.9:** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity,	

	thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at a constant speed, list and graph ordered pairs of distances and times, and write the equation d=65t to represent the relationship between distance and time.	
Mathematics Practices		
● Make sense of problems and persevere in solving them. ● Reason abstractly and quantitatively. ● Construct viable arguments and critique the reasoning of others. ● 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.		
Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***	
● Self-Awareness ● Self-Management ● Responsible Decision Making ● Social Awareness ● Relationship Skills ● Motivation	● Emotional Awareness ● Internal Regulation ● Behavior Control ● Goal Pursuance ● Appreciating Social and Environment Diversity ● Adaptive Behavior ● Communication ● Social Engagement ● Constructive Thinking ● Consequence Evaluation ● Respect for Self and Others ● Enthusiasm ● Initiative ● Resilience	
Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***		**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***

Formative Assessments:	**Benchmarks:**
• Check for Understanding Questions • Quizzes • Class activities/participation • Exit tickets • Illustrative Mathematics Tasks	• Module Assessment • iReady scores **Summative Assessments:** • Module Test • Unit Assessment

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
• *Into Math* Textbook, Modules 2-3, 5-7, 10 • Student Activity Cards • Teacher Activity Cards • Numeral Cards • Dot Cards • White Boards • Connecting Cubes • Number Cubes • Visual Representations of Numbers and Number of Objects • Counters	• *Into Math* Textbook, Modules 2-3, 5-7, 10 (modified excerpts) • Extra Practice pages • Anchor charts • Scaffolded explanations of topics • Manipulatives • Visual aids • Hands-on learning activities	• *Into Math* Textbook, Modules 2-3, 5-7, 10 (translated resources) • Visual aids • Manipulatives • Vocabulary with images and examples • Hands-on learning activities • Extra Practice pages • Anchor charts	• *Into Math* Textbook, Modules 2-3, 5-7, 10 • Student Activity Cards • Teacher Activity Cards • Numeral Cards • Dot Cards • White Boards • Connecting Cubes • Number Cubes • Visual Representations of Numbers and Number of Objects • Counters

Supplemental Resources

Technology:
- SmartBoards
- Chromebooks
- IXL
- Teacher Online Resources
- Applicable educational videos
- Kahoot
- Toy Theater
- Math Playground
- Visnos
- National Council of Teachers of Mathematics
- Desmos

- PhET Colorado
- PBS Learning Media
- Illustrative Mathematics

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
• Small group instruction • Peer tutoring • Modeling • Visual demonstrations • Encourage creative expression and thinking	• Provide additional manipulatives to support instruction • Allow for alternative strategies to solve algorithms or tasks • Provide the steps needed to complete the task • Model frequently • Use visuals to demonstrate/model the processes • Extra time for work • Modified assignments • Small group work for more individualize attention	• Use of translate materials and simplified language • Provide additional manipulatives to support instruction • Allow for alternative strategies to solve algorithms or tasks • Provide the steps needed to complete the task • Model frequently • Use visuals to demonstrate/model the processes • Extra time for work • Modified assignments • Small group work for more individualize attention	• Enrichment book • Higher-level questions • Leading group work

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	**Disciplinary Concept:**	
	Core Ideas:	An individual's strengths, lifestyle goals, choices, and interests affect employment and income.
	Performance Expectation/s:	• 9.2.8.CAP.2: Develop a plan that includes information about career areas of interest. • 9.2.8.CAP.3: Explain how career choices, educational choices, skills, economic conditions, and personal behavior affect income. • 9.2.8.CAP.4: Explain how an individual's online behavior (e.g., social networking, photo exchanges, video postings) may impact opportunities for employment or advancement.
	Career Readiness, Life Literacies, & Key Skills Practices	
	• Act as a responsible and contributing community members and employee. • Attend to financial well-being.	

	• Consider the environmental, social and economic impacts of decisions. • Demonstrate creativity and innovation. • Utilize critical thinking to make sense of problems and persevere in solving them. • Model integrity, ethical leadership and effective management • Plan education and career paths aligned to personal goals. • Use technology to enhance productivity increase collaboration and communicate effectively. • Work productively in teams while using cultural/global competence.

Marking Period	**Unit Title**	**Recommended Instructional Days**
2-3	**Unit 2**	45

Domain:		**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit**
Strand:	***Progress Indicator?***	**<u>Essential Question/s:</u>** 1. How are the four operations--addition, subtraction, multiplication, and division--performed with decimals? 2. How can real-world problems be solved by performing operations with decimals? 3. How can real-world problems be represented algebraically? 4. How can equivalent expressions be generated? 5. How are real-world situations such as "below sea level," "below freezing," debt, and electrical charge represented in the number system? 6. How are negative numbers represented on a number line and in the coordinate plane? **<u>Activity Description</u>**: • *Are You Ready?* activities (Into Math) • Lesson Review (Into Math)
The Number System	• **6.NS.B.2:** Fluently divide multi-digit numbers using the standard algorithm. • **6.NS.B.3:** Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. • **6.NS.C.5:** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. • **6.NS.C.6:** Understand a rational number as a point on the number line. Extend the number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	

	a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating location in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. ● **6.NS.C.7:** Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret − 3 > − 7 as a statement that − 3 is located to the right of − 7 on a number line oriented from left to right. b. Write, interpret, and explain statements or order for rational numbers in real-world contexts. For example, write − 3°C > − 7°C to express the fact that − 3°C is warmer than − 7°C . c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of -30 dollars, write |-30| = 30 to describe the debt in dollars. d. Distinguish comparisons of absolute value from statements about order. For example, recognize that an account balance less than -30 dollars	● Assessment Forms (Into Math) ● Solve real-world problems by adding multi-digit decimals. ● Solve real-world problems by subtracting multi-digit decimals. ● Solve real-world problems by multiplying multi-digit decimals. ● Solve real-world problems by dividing multi-digit whole numbers. ● S5. Estimate quotients of multi-digit division. ● Solve real-world problems by dividing multi-digit decimals. ● Interpret remainders of multi-digit division in real-world contexts. ● Write and evaluate numerical expressions involving whole-number exponents. ● Write expressions with numbers and letters standing for numbers ● Identify parts of an expression using mathematical terms. ● Use variables to represent numbers and write expressions to solve problems. ● Evaluate expressions at specific values of their variables. ● Perform arithmetic operations using the order of operations. ● Apply the properties of operations to generate equivalent expressions ● Identify when two expressions are equivalent. ● Use positive and negative integers and zero to represent real-world quantities. ● Graph rational numbers on a horizontal or vertical number line. ● Understand the relationship between numbers and their opposites. ● Compare and order rational numbers with or without number lines. ● Write, interpret, and explain statements of order for rational numbers in real-world contexts. ● Interpret statements of inequality as statements about the relative position of two numbers on a number-line diagram. ● Interpret absolute value as a magnitude. ● Distinguish comparison of absolute value from comparisons of order. ● Identify the four quadrants of the coordinate plane. ● Identify in which quadrant a coordinate would be plotted without graphing. ● Write rational ordered pairs to represent points on the coordinate plane. ● Plot points on the coordinate plane. ● Graph polygons on the coordinate plane given coordinates for the vertices. ● Plot points a specified distance from a given point. ● Find and position pairs of integers on the coordinate plane to complete polygons

	represents a debt greater than 30 dollars. ● **6.NS.C.8:** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	● Find the distance between two points that share a irst or second coordinate, with a coordinate plane or by using absolute value.. ● Reflect points across the x-axis or y-axis. ● Solve real-world problems involving distance using points on a coordinate plane, including finding the perimeter and area of polygons. **Interdisciplinary Connections: Content: ;NJSLS#:** Science - ● MS-LS1-7 - Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. ● MS-LS2-3 - Develop a model to describe the cycling of matter and low of energy among living and nonliving parts of an ecosystem. ● MS-PS1-4 - Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. ● MS-PS2-1 - Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. ● MS-PS2-2 Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. Technology - ● 8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.
Expressions and Equations	● **6.EE.A.1:** Write and evaluate numerical expressions involving whole-number exponents. ● **6.EE.A.2:** Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those New Jersey Student Learning Standards for Mathematics involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). ● **6.EE.A.3:** Apply the properties of operations to generate equivalent expressions. ● **6.EE.A.4:** Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). ● **6.EE.B.6:** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or,	

	depending on the purpose at hand, any number in a specified set.
Geometry	**6.G.A.3:** Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

Mathematics Practices

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- 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.

Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***
• Self-Awareness • Self-Management • Responsible Decision Making • Social Awareness • Relationship Skills • Motivation	• Emotional Awareness • Internal Regulation • Behavior Control • Goal Pursuance • Appreciating Social and Environment Diversity • Adaptive Behavior • Communication • Social Engagement • Constructive Thinking • Consequence Evaluation • Respect for Self and Others • Enthusiasm • Initiative • Resilience

Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***

Formative Assessments: ● Check for Understanding Questions ● Quizzes ● Class activities/participation ● Exit tickets ● Illustrative Mathematics Tasks	**Benchmarks:** ● Module Assessment ● iReady scores **Summative Assessments:** ● Module Test ● Unit Assessment

Differentiated Student Access to Content: **Teaching and Learning *Resources/Materials***			
Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
● *Into Math* Textbook, Modules 1-2, 4, 8, 11, 14, 16 ● Student Activity Cards ● Teacher Activity Cards ● Numeral Cards ● Dot Cards ● White Boards ● Connecting Cubes ● Number Cubes ● Visual Representations of Numbers and Number of Objects ● Counters	● Modified excerpts from *Into Math* Textbook, Modules 1-2, 4, 8, 11, 14, 16 ● Extra Practice pages ● Anchor charts ● Scaffolded explanations of topics ● Manipulatives ● Visual aids ● Hands-on learning activities	● *Into Math* Textbook, Modules 1-2, 4, 8, 11, 14, 16 (translated resources) ● Visual aids ● Manipulatives ● Vocabulary with images and examples ● Hands-on learning activities ● Extra Practice pages ● Anchor charts	● *Into Math* Textbook, Modules 1-2, 4, 8, 11, 14, 16 ● Student Activity Cards ● Teacher Activity Cards ● Numeral Cards ● Dot Cards ● White Boards ● Connecting Cubes ● Number Cubes ● Visual Representations of Numbers and Number of Objects ● Counters

Supplemental Resources

Technology:
- SmartBoards
- Chromebooks
- IXL
- Teacher Online Resources
- Applicable educational videos
- Kahoot
- PhET Colorado
- Desmos
- Illustrative Mathematics

Differentiated Student Access to Content: **Recommended *Strategies & Techniques***			
Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
• Small group instruction • Peer tutoring • Modeling • Visual demonstrations • Encourage creative expression and thinking	• Provide additional manipulatives to support instruction • Allow for alternative strategies to solve algorithms or tasks • Provide the steps needed to complete the task • Model frequently • Use visuals to demonstrate/model the processes • Extra time for work • Modified assignments • Small group work for more individualize attention	• Use of translate materials and simplified language • Provide additional manipulatives to support instruction • Allow for alternative strategies to solve algorithms or tasks • Provide the steps needed to complete the task • Model frequently • Use visuals to demonstrate/model the processes • Extra time for work • Modified assignments • Small group work for more individualize attention	• Enrichment book • Higher-level questions • Leading group work

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	**Disciplinary Concept:**	
	Core Ideas:	An individual's strengths, lifestyle goals, choices, and interests affect employment and income.
	Performance Expectation/s:	• 9.2.8.CAP.2: Develop a plan that includes information about career areas of interest. • 9.2.8.CAP.3: Explain how career choices, educational choices, skills, economic conditions, and personal behavior affect income. • 9.2.8.CAP.4: Explain how an individual's online behavior (e.g., social networking, photo exchanges, video postings) may impact opportunities for employment or advancement.
	Career Readiness, Life Literacies, & Key Skills Practices	
	• Act as a responsible and contributing community members and employee. • Attend to financial well-being. • Consider the environmental, social and economic impacts of decisions. • Demonstrate creativity and innovation. • Utilize critical thinking to make sense of problems and persevere in solving them.	

	• Model integrity, ethical leadership and effective management • Plan education and career paths aligned to personal goals. • Use technology to enhance productivity increase collaboration and communicate effectively. • Work productively in teams while using cultural/global competence.

Marking Period	**Unit Title**	**Recommended Instructional Days**
3-4	**Unit 3**	49 days

Domain:		**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit**
Strand:	***Progress Indicator:***	**<u>Essential Question/s:</u>** 1. How can polygons be composed and decomposed to find their area? 2. How can real-world problems be modeled by one-step equations? 3. How can data be displayed 4. How can the center and variability of a data set be described quantitatively? **<u>Activity Description</u>**: • *Are You Ready?* activities (Into Math) • Lesson Review (Into Math) • Assessment Forms (Into Math) • Convert measurement units within measurement systems using ratio reasoning. • Convert measurement units between measurement systems using ratio reasoning. • Transform units appropriately when multiplying or dividing quantities. • Derive the formula for the area of a parallelogram.
Ratios and Proportional Relationships	• **6.RP.A.3d:** Use ratio reasoning to convert measurement units, manipulate and transform units appropriately when multiplying or dividing quantities.	
Expressions and Equations	• **6.EE.B.5:** Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. • **6.EE.B.7:** Solve real-world and mathematical problems by writing and solving equations of the form x+p=q and px=q for cases in which p, q, and x are all nonnegative rational numbers. • **6.EE.B.8:** Write an inequality of the form x>c or x<c to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form x>c or x<c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	

Geometry	• 6.G.A.1: Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. • **6.G.A.2:** Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths of the prism. Apply the formulas $V = lwh$ and $V = Bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real world and mathematical problems. • **6.G.A.3:** Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. • **6.G.A.4:** Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	• Apply the formula for the area of a parallelogram to solve mathematical and real-world problems. • Find the area of right triangles and other triangles. • Apply the formula for the area of a triangle to solve mathematical and real-world problems. • Find the area of trapezoids by composing or decomposing using rectangles and triangles. • Apply the formula for the area of a trapezoid to solve mathematical and real-world problems. • Find the area of a composite figure by composing or decomposing the figure into rectangles, parallelograms, triangles, and trapezoids. • Construct and interpret the net of a prism or pyramid. • Calculate the surface area of a prism or pyramid by using a net. • Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths of the prism. • Derive and apply the formula for the area of a right rectangular prism. • Apply the formulas $V = lwh$ and $V = Bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real world and mathematical problems. • Determine whether a value is the solution to a given equation. • Represent real-world and mathematical problems with an equation of the form x+p=q or x-p=q, in which p, q, and x are non-negative rational numbers. • Solve an equation using the Subtraction Property of Equality or the Addition Property of Equality. • Represent real-world and mathematical problems with an equation in the form px=q and xp=q in which p, q, and x are non-negative rational numbers. • Solve an equation using the Division Property of Equality or the Multiplication Property of Equality. • Determine whether a value is a solution to a given inequality. • Represent real-world and mathematical problems with a one-step inequality. • Graph inequalities on the number line. • Explain whether a question is a statistical question. • Display a numerical data set with dot plots, histograms, and box plots. • nterpret the information presented in a dot plot, histogram, and box plot. • Display a categorical data set with circle graphs. • Relate the mean to the concepts of fair share and balance point.
Statistics and Probability	• **6.SP.A.1:** Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages. • **6.SP.A.2:** Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. • **6.SP.A.3:** Recognize that a measure of center for a numerical data set summarizes all of its values with a single	

	number. ● **6.SP.B.4:** Display numerical data in plots on a number line, including dot plots, histograms, and box plots. ● **6.SP.B.5:** Summarize numerical data in relation to their context, such as by: a. Reporting the number of observations b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	● Compute and interpret measures of center--mean and median--for a numerical data set. ● Compute and interpret measures of variability--range, interquartile range, and mean absolute deviation--for a numerical data set. ● Summarize a numerical data set by the number of observations, the nature of the attribute measured (including units), the measures of center and variability, and the overall pattern and deviations from that pattern. ● Determine whether the mean, median, or mode is the most appropriate measure of center for a data set based on the shape of the distribution. **Interdisciplinary Connections: Content: ;NJSLS#:** Science - ● MS-PS1-2 - Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. Technology - ● 8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.
Mathematics Practices		
● Make sense of problems and persevere in solving them. ● Reason abstractly and quantitatively. ● Construct viable arguments and critique the reasoning of others. ● 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.		
Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***	

• Self-Awareness • Self-Management • Responsible Decision Making • Social Awareness • Relationship Skills • Motivation	• Emotional Awareness • Internal Regulation • Behavior Control • Goal Pursuance • Appreciating Social and Environment Diversity • Adaptive Behavior • Communication • Social Engagement • Constructive Thinking • Consequence Evaluation • Respect for Self and Others • Enthusiasm • Initiative • Resilience	

Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
<u>Formative Assessments:</u> • Check for Understanding Questions • Quizzes • Class activities/participation • Exit tickets • Illustrative Mathematics Tasks	**<u>Benchmarks:</u>** • Module Assessment • iReady scores **<u>Summative Assessments:</u>** • Module Test • Unit Assessment

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
• *Into Math* Textbook, Modules 6, 9, 10, 12-15 • Student Activity Cards • Teacher Activity Cards • Numeral Cards • Dot Cards • White Boards • Connecting Cubes • Number Cubes • Visual Representations of	• Modified excerpts from *Into Math* Textbook, Modules 6, 9, 10, 12-15 • Extra Practice pages • Anchor charts • Scaffolded explanations of topics • Manipulatives • Visual aids • Hands-on learning activities	• *Into Math* Textbook, Modules 6, 9, 10, 12-15 (translated resources) • Visual aids • Manipulatives • Vocabulary with images and examples • Hands-on learning activities • Extra Practice pages • Anchor charts	• *Into Math* Textbook, Modules 6, 9, 10, 12-15 • Student Activity Cards • Teacher Activity Cards • Numeral Cards • Dot Cards • White Boards • Connecting Cubes • Number Cubes • Visual Representations of

Numbers and Number of Objects • Counters			Numbers and Number of Objects • Counters

Supplemental Resources

Technology:

- SmartBoards
- Chromebooks
- IXL
- Teacher Online Resources
- Applicable educational videos
- Kahoot
- Desmos
- GeoGebra
- National Council of Teachers of Mathematics
- Google Sheets
- Illustrative Mathematics

Differentiated Student Access to Content:
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Core Resources	Alternate Core Resources *IEP/504/At-Risk/ESL*	ELL Core Resources	Gifted & Talented Core
• Small group instruction • Peer tutoring • Modeling • Visual demonstrations • Encourage creative expression and thinking	• Provide additional manipulatives to support instruction • Allow for alternative strategies to solve algorithms or tasks • Provide the steps needed to complete the task • Model frequently • Use visuals to demonstrate/model the processes • Extra time for work • Modified assignments • Small group work for more individualize attention	• Use of translate materials and simplified language • Provide additional manipulatives to support instruction • Allow for alternative strategies to solve algorithms or tasks • Provide the steps needed to complete the task • Model frequently • Use visuals to demonstrate/model the processes • Extra time for work • Modified assignments • Small group work for more individualize attention	• Enrichment book • Higher-level questions • Leading group work

	Disciplinary Concept:

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	***Core Ideas:***	An individual's strengths, lifestyle goals, choices, and interests affect employment and income.
	Performance Expectation/s:	• 9.2.8.CAP.2: Develop a plan that includes information about career areas of interest. • 9.2.8.CAP.3: Explain how career choices, educational choices, skills, economic conditions, and personal behavior affect income. • 9.2.8.CAP.4: Explain how an individual's online behavior (e.g., social networking, photo exchanges, video postings) may impact opportunities for employment or advancement.
	Career Readiness, Life Literacies, & Key Skills Practices	
	• Act as a responsible and contributing community members and employee. • Attend to financial well-being. • Consider the environmental, social and economic impacts of decisions. • Demonstrate creativity and innovation. • Utilize critical thinking to make sense of problems and persevere in solving them. • Model integrity, ethical leadership and effective management • Plan education and career paths aligned to personal goals. • Use technology to enhance productivity increase collaboration and communicate effectively. • Work productively in teams while using cultural/global competence.	

Marking Period	**Unit Title**	**Recommended Instructional Days**
4	**Unit 4**	32 days

Domain:		**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit**
Strand:	***Progress Indicator:***	**Essential Question/s:**
Ratios and Proportional Relationships	• **6.RP.1 1:** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.	1. How can I apply proportions to solve real-world and mathematical problems?

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6.RP.A.3: Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?

c. Find a percent of a quantity as a rate per 100 (e.g. 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given the part and the percent.

d. Use ratio reasoning to convert measurement units, manipulate and transform units appropriately when multiplying or dividing quantities.
6.RP.3c: Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.

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2. How can real-world problems be solved using ratios and percentages?
3. How is gerrymandering related to mathematical concepts and ideas?

<u>Activity Description</u>:

Are You Ready? activities (Into Math)
Lesson Review (Into Math)
Assessment Forms (Into Math)
Identify the items representing quantities that will be compared in real world situations.
Use proportions to solve problems to ind missing values.
Add, subtract, multiply and divide decimals and fractions; set up and solve ratios and proportions.
Find the arc length of a circle using a proportion.
Solve word problems involving the division of fractions by fractions.
Use equations to represent word problems involving the division of fractions by fractions.
Find a percent of a quantity as a rate per 100.
Find the percent, part, or the whole given the other two values.
Fluently add, subtract, multiply and divide to solve real-world problems
Use variables to represent numbers and write expressions to solve problems.
Apply the formulas $V = lwh$ and $V = Bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real world and mathematical problems.
Calculate the surface area of a prism or pyramid by using a net.

Interdisciplinary Connections: Content: ;NJSLS#:

Social Studies -

6.1.5.CivicsPD.1: Describe the roles of elected representatives and explain how individuals at local, state, and national levels can interact with them.

Technology -

8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.

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<td>Expressions and Equations</td>
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6.EE.B.6: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

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<td>The Number System</td>
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6.NS.A.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication

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	and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc). How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4 cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi? ● **6.NS.B.2:** Fluently divide multi-digit numbers using the standard algorithm. ● **6.NS.B.3:** Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	
Geometry	● **6.G.A.1:** Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. ● **6.G.A.4:** Represent three-dimensional igures using nets made up of rectangles and triangles, and use the nets to ind the surface area of these igures. Apply these techniques in the context of solving real-world and mathematical problems. ● **7.G.B.4:** Know the formulas for the area and circumference of a circle and use them to solve problems. Give an information derivation of the relationship between the circumference and area of a circle.	
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	Career Readiness, Life Literacies, & Key Skills Practices	
	● Act as a responsible and contributing community members and employee. ● Attend to financial well-being. ● Consider the environmental, social and economic impacts of decisions. ● Demonstrate creativity and innovation. ● Utilize critical thinking to make sense of problems and persevere in solving them. ● Model integrity, ethical leadership and effective management ● Plan education and career paths aligned to personal goals. ● Use technology to enhance productivity increase collaboration and communicate effectively. ● Work productively in teams while using cultural/global competence.	

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)									
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*