Unit Name	Module	Lessons	Vocabulary
UNIT 1 – THE NUMBER SYSTEM			
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. **7.NS.1c** Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (–q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. **7.NS.3** Solve real-world and mathematical problems involving the four operations with rational numbers.	1- ADDING AND SUBTRACTING INTEGERS	1.1 – 1.4	ADDITIVE INVERSE INTEGER
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.	2- MULTIPLYING AND DIVIDING INTEGERS	2.1 – 2.3	

7.NS.2d Convert a fraction to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats. **7.NS.1d** Apply properties of operations as strategies to add and subtract rational numbers. **7.NS.1c** Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. **7.NS.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. **7.EE.3** Solve multi-step real-world 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. Assess the reasonableness of answers using mental computation and estimation strategies.	**3 – RATIONAL NUMBERS**	**3.1 – 3.6**	RATIONAL NUMBER

UNIT 2 – RATIOS AND PROPORTIONAL REASONING			
7.RP.1 Compute unit rates associated with ratios of fractions. **7.RP.2** . Recognize and represent proportional relationships between quantities **7.RP.2a** Decide whether two quantities are in a proportional relationship.	**4 – RATES AND PROPORTIONALITY**	**4.1 - 4.3**	RATE RATIO UNIT RATE CONSTANT CONSTANT OF PROPORTIONALITY CONSTANT RATE OF CHANGE PROPORTIONAL RELATIONSHIP NON-PROPORTIONAL RELATIONSHIP
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 real-world and mathematical problems can reveal and explain how the quantities are related. **7.EE.3** Solve multi-step real-world 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. Assess the reasonableness of answers using mental computation and estimation strategies.	**5- PROPORTIONS AND PERCENT**	**5.1 - 5.3**	PROPORTION PERCENT EXPRESSION PERCENT OF CHANGE MARKUP MARKDOWN TAX DISCOUNT SALE PRICE SIMPLE INTEREST

UNIT 3 – EXPRESSIONS, EQUATIONS & INEQUALITIES			
7.EE.1 . Add, subtract, factor, and expand linear expressions with rational coefficients by applying the properties of operations. **7.EE.4** Use variables to represent quantities in a realworld or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. **7.EE.4a** Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are rational numbers and x represents the unknown quantity. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.	**6- EXPRESSIONS AND EQUATIONS**	6.1-6.4	ALGEBRAIC EXPRESSION EQUATION SOLUTION VARIABLE FACTOR COEFFICIENT SIMPLIFY DISTRIBUTIVE PROPERTY
7.EE.4b Solve word problems leading to inequalities of the form $px + q > r$, $px + q \geq r$, $px + q \leq r$, or $px + q < r$, where p, q, and r are rational numbers and x represents the unknown quantity. Graph the solution set of the inequality on the number line and interpret it in the context of the problem.	**7 - INEQUALITIES**	7.1 – 7.3	INEQUALITY
UNIT 4 - GEOMETRY			
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.	**8 - MODELING GEOMETRIC FIGURES**	8.1	SCALE (DRAWING) SIMILAR
7.G.4 Apply the formulas for the area and circumference of a circle to solve problems. **7.G.6** . Solve real-world and mathematical problems involving area, volume and surface area of twoand three-dimensional objects composed of triangles, trapezoids, parallelograms, cubes, and right rectangular prisms.	**9 - CIRCUMFERENCE, AREA AND VOLUME**	9.1 – 9.5	RADIUS DIAMETER CIRCUMFERENCE PI
UNIT 5 - STATISTICS			
7.SP.1 Construct and interpret box-plots, find the interquartile range and determine if a data point is an outlier. **7.SP.2** Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.	**10- RANDOM SAMPLES AND POPULATIONS**	10.1 – 10.2	POPULATION SAMPLE RANDOM SAMPLE BIAS DOT PLOT BOX PLOT

7.SP.3 Informally assess the degree of visual overlap of two quantitative data distributions. **7.SP.4** Use measures of center and measures of variability for quantitative data from random samples or populations to draw informal comparative inferences about the populations.	**11 - ANALYZING AND COMPARING DATA**	11.1 – 11.3	DATA MEASURE OF CENTER MEASURE OF SPREAD MEAN ABSOLUTE DEVIATION MEDIAN RANGE
UNIT 6 - PROBABILITY			
7.SP.5 Underdstand that the probability of a chance event is a number between 0 and 1 that represents the likelihood of an event occuring **7.SP.6** Approximate the 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, sample space tables, tree diagrams, and simulation.	**12 - EXPERIMENTAL PROBABILITY**	12.1 – 12.4	SIMPLE EVENT EXPERIMENTAL PROBABILITY SAMPLE SPACE LIKELIHOOD OUTCOME COMPLEMENT SIMULATION COMPOUNT EVENT
7.SP.7a Develop a uniform probability model assigning equal probability to all outcomes, and use the model to determine probability of events. **7.SP.8** Find probabilities of compound events using organized lists, sample space tables, tree diagrams, and simulation **7.SP.6** Approximate the 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.	**13 - THEORETICAL PROBABILITY AND STATISTICS**	13.1 – 13.3	THEORETICAL PROBABILITY TREE DIAGRAM
MIDTERM ASSESSMENT (1/22-1/23)	MODULES 1-13		
UNIT 7 – SCIENTIFIC NOTATION			
8.EE.3 . Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.	**15 - EXPONENTS AND SCIENTIFIC NOTATION**	15.2 – 15.4	BASE EXPONENT POWER SCIENTIFIC NOTATION

8.EE.4 Perform multiplication and division with numbers expressed in scientific notation, including problems where both standard decimal form and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology.			

UNIT 8 – LINEAR RELATIONSHIPS AND EQUATIONS			
8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. **8.EE.6** Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y=mx for a line through the origin and the equations y=mx+b for a line intercepting the vertical axis at b. **8.F.4** Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	**16 - PROPORTIONAL RELATIONSHIPS**	16.1 – 16.3	SLOPE LINEAR EQUATION Y-INTERCEPT SLOPE-INTERCEPT FORM FUNCTION DOMAIN RANGE RATE OF CHANGE
8.F.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). **8.F.3** Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line. Recognize examples of functions that are linear and non-linear. **8.F.4** Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	**17 - NONPROPORTIONAL RELATIONSHIPS**	17.1 – 17.4	

8.EE.4 Perform multiplication and division with numbers expressed in scientific notation, including problems where both standard decimal form and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology.			
8.EE.7 Solve linear equations in one variable. **8.EE.7a** Recognize when linear equations in one variable have one solution, infinitely many solutions, or no solutions. Give examples and show which of these possibilities the case is by successively transforming the given equation into simpler forms. **8.EE.7b** Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and combining like terms.	**18 - SOLVING LINEAR EQUATIONS**	18.1 – 18.4	INFINITE SOLUTIONS
UNIT 9 – ALGEBRA PREP			
A.CED.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. **A.REI.6** Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	**ALGEBRA CHAPTER 6 - SYSTEM OF LINEAR EQUATIONS AND INEQUALITIES**	6.1, 6.2	SYSTEM OF EQUATIONS CONSISTENT INDEPENDENT DEPENDENT INCONSISTENT
F.IF.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graps showing key features given a verbal description of the relationship. **F.IF.7a** Graph linear and quadratic functions and show intercepts, maxima, and minima. **A.REI.4a** Use the method of completing the square to transform any quadratic equation in x into an equation $(x – p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. **A.REI.4b** Solve quadratic equations by inspection, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and wite them as $a \pm bi$ for real numbers a and b.	**ALGEBRA CHAPTER 9 - QUADRATIC FUNCTIONS AND EQUATIONS**	9.1, 9.2, 9.5	QUADRATIC FUNCTION STANDARD FORM PARABOLA MINIMUM MAXIMUM AXIS OF SYMMENTRY VERTEX DOUBLE ROOT QUADRATIC FORMULA DISCRIMINANT

8.G.6 Understand a proof of the Pythagorean Theorem and its converse. **8.G.7** Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions **8.G.8** Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	**22 - THE PYTHAGOREAN THEOREM**	22.1, 22.2, 22.3	LEG HYPOTENUSE CONVERSE PYTHAGOREAN TRIPLE
A.CED.1 Create equations and inequalities in one variable and use them to solve problems. **A.REI.3** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	**ALGEBRA CHAPTER 5 - LINEAR INEQUALITIES**	5.3	
FINAL ASSESSMENT (6/18-6/19)	UNITS 7 - 9		