INTRODUCTION

MATHEMATICAL PRACTICES

Student Mathematical Practices	NCTM Teaching 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.	1. Establish mathematics goals to focus learning. 2. Implement tasks that promote reasoning and problem solving. 3. Use and connect mathematical representations. 4. Facilitate meaningful mathematical discourse. 5. Pose purposeful questions. 6. Build procedural fluency from conceptual understanding. 7. Support productive struggle in learning mathematics. 8. Elicit and use evidence of student thinking.

LITERACY SKILLS FOR MATHEMATICAL PROFICIENCY

Communication in mathematics employs literacy skills in reading, vocabulary, speaking and listening, and writing. Mathematically proficient students communicate using precise terminology and multiple representations including graphs, tables, charts, and diagrams. By describing and contextualizing mathematics, students create arguments and support conclusions. They evaluate and critique the reasoning of others and analyze and reflect on their own thought processes. Mathematically proficient students have the capacity to engage fully with mathematics in context by posing questions, choosing appropriate problem-solving approaches, and justifying solutions.

1. Use multiple reading strategies.
2. Understand and use correct mathematical vocabulary.
3. Discuss and articulate mathematical ideas.
4. Write mathematical arguments.

GENERAL RESOURCES

INSTRUCTIONAL FOCUS DOCUMENTS (IFDs)

Each unit within this guide includes detailed information from the Instructional Focus Documents (IFDs) for all standards within that unit. The IFDs are state documents that include grade-level expectations and instructional guidance for each content standard within this math course.

For the complete list of IFDs for 8th grade standards, click HERE

TEXTBOOK RESOURCES

INCLUDE INFORMATION ABOUT TEXTBOOK ACCESS AND ALIGNMENT INFORMATION.

ADDITIONAL RESOURCES

For additional unit-specific resources, click the Unit Title at the beginning of each unit of study. For general resources that are not unit-specific, click.

Note that all resources are also available on our CMCSS MATH HUB MS site. Access requires the use of your CMCSS-provided Google account.

CURRICULUM GUIDE FEEDBACK

Your constructive feedback about the content and organization of the curriculum guide is vital to continuous improvement. Please submit your feedback using the survey link. CMCSS CURRICULUM FEEDBACK SURVEY

PACING

SEMESTER 1 August 7 - December 19 , 2024 (83 total days)			
1	EXPONENTS AND SCIENTIFIC NOTATION	**August 12 - September 3** **Universal Screener (1 Day)**	16
2	REAL NUMBERS	**September 4 - September 18**	10
3	SOLVE EQUATIONS WITH VARIABLES ON EACH SIDE	**September 19 - October 11** **Benchmark 1 (2 Days)**	17
4	LINEAR RELATIONSHIPS AND SLOPE	**October 21- November 4**	11
5	FUNCTIONS	**November 6 - December 2**	15
6	SYSTEMS OF LINEAR EQUATIONS	**December 3 - December 19** **Benchmark 2 (2 Days)**	14
SEMESTER 2 January 6 - May 21, 2025 (89 total days)			
6	SYSTEMS OF LINEAR EQUATIONS	**January 6 - January 9**	4
7	TRIANGLES AND THE PYTHAGOREAN THEOREM	**January 10- January 30**	14
8	TRANSFORMATIONS	**January 31 - February 14**	10
9	CONGRUENCE AND SIMILARITY	**February 18 - March 7** **Benchmark 3 (2 Days)**	14
10	VOLUME	**March 17 - April 1** **Universal Screener**	12

11	SCATTER PLOTS AND TWO-WAY TABLES	**April 2 - 11**	8
TCAP	TCAP Window	**April 14 - May 2**	14
12	Transition to 9th grade	**May 5 - May 21**	13

DISTRICT AND STATE ASSESSMENTS	
ASSESSMENT	**ASSESSMENT WINDOW**
Fall Universal Screener	**August 12 - 23**
Benchmark 1 Modules 1 and 2	**September 25 - October 4**
Winter Universal Screener	**December 2 - 13**
Benchmark 2 Modules 3,4, and 5	**December 4 - 13**
Benchmark 3 Modules 6,7, and 8	**February 24-25**
State-TNReady	**April 14 - May 2**
Spring Universal Screener	**April 1 - 11**

SCOPE AND SEQUENCE

8.NS.A.1	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.NS.A.2	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.A.1	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.A.2	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.A.3	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.A.4	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.B.5	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.B.6	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.C.7	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.C.7.a	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.C.7.b	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.C.8	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.C.8a	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.C.8.b	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.EE.C.9	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.F.A.1	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.F.A.2	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11

8.F.A.3	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.F.B.4	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.F.B.5	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.G.A.1	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.G.A.1.a	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.G.A.1.b	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.G.A.1.c	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.G.A.1.d	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.G.A.2	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.G.B.3	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.G.B.4	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.G.B.5	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.G.C.6	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.SP.A.1	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.SP.A.2	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.SP.A.3	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.SP.B.4	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.SP.B.4.a	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11
8.SP.B.4.b	MOD.1	MOD.2	MOD.3	MOD.4	MOD.5	MOD.6	MOD.7	MOD.8	MOD.9	MOD.10	MOD.11

MODULE 1 | EXPONENTS and SCIENTIFIC NOTATION

Approximately 16 Days | August 14 - September 5

Module 1 : Students will develop and use the Laws of Exponents to evaluate, simplify, and perform computation with expressions with powers.

TN Reveal Lessons: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6

LESSON	STANDARD	MODULE 1 INSTRUCTIONAL FOCUS		
		APPROACHING UNDERSTANDING (1-2)	GRADE-LEVEL UNDERSTANDING (3)	EXTENSIVE UNDERSTANDING (4)
1.2 1.3 1.4 1.6	**8.EE.A.1** **Know and apply the properties of integer exponents to generate equivalent numerical expressions.**	➔ State that negative numbers raised to an even power can yield different products when parentheses are used. For example, (−5) = 25 and −5 = −25 ➔ State that any number raised to the zeroth power has a value of 1. ➔ Write repeated multiplication of rational numbers using exponential notation. ➔ Use the product rule with positive integer exponents to write equivalent numerical expressions using exponential notation. ➔ Use the quotient rule with positive integer exponents to write equivalent numerical expressions using exponential notation. ➔ Re-write a numerical expression, involving multiplication or division with positive integer exponents, as a simplified integer.	➔ Use properties of integer exponents to generate equivalent numerical expressions (e.g., product rule, quotient rule, power rule, power of a product rule, zero exponent rule, and negative exponent rule). ➔ Rewrite numerical expressions with fractional bases raised to a power.	➔ Explain why finding the power of a product results in each factor being raised to that power. ➔ Explain why any number to the zeroth power is 1 using known properties of integers and precise mathematical language. ➔ Explain how the properties of exponents apply to negative exponents.

1.5 1.6	**8.EE.A.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.** ***For example, estimate the population of the United States as 3 x 10 8 and the population of the world as 7 x 10 9 , and determine that the world population is more than 20 times larger.***	➔ Choose a number expressed in scientific notation to represent a small or large number. ➔ Estimate powers of 10. ➔ Estimate very small or very large quantities using numbers that are represented in scientific notation. ➔ Translate between numbers written in standard form and scientific notation.	➔ Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities. ➔ Indicate how many times larger one number represented in scientific notation is than a second number also expressed in scientific notation.	➔ Solve real-world and mathematical problems by comparing estimated quantities represented in scientific notation and explain the benefits for using scientific notation using precise mathematical vocabulary.
1.5 1.6	**8.EE.A.4** **Using technology, solve real-world problems with numbers expressed in decimal and scientific notation. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading).**	➔ Choose an expression in scientific notation that represents a decimal number and vice versa. ➔ Estimate very small or very large quantities using numbers that are represented in scientific notation. ➔ Perform operations with numbers expressed exclusively in scientific notation using technology. ➔ Express a number written in decimal form in scientific notation and vice versa	➔ Choose units of appropriate size expressed in scientific notation to represent measurements of very large or very small quantities in a real-world context. ➔ Perform operations using technology with numbers expressed in scientific notation including problems where both decimal and scientific notation are used in a real-world context.	➔ Generate units of appropriate size expressed in scientific notation to represent measurements of very large or very small quantities ➔ Solve real-world problems that involve performing operations with numbers expressed in scientific notation including problems where both decimal and scientific notation are used. ➔ Interpret scientific notation that has been generated by technology.

MODULE 2 | REAL NUMBERS

Approximately 10 Days | September 6 - September 20

Module 2 : Students will learn about the real number system by identifying, calculating, and estimating irrational numbers ad comparing them to rational numbers.

TN Reveal Lessons: 2.1, 2.2, 2.3, 2.4, 2.5

LESSON	STANDARD	MODULE 2 INSTRUCTIONAL FOCUS		
		APPROACHING UNDERSTANDING (1-2)	**GRADE-LEVEL UNDERSTANDING (3)**	**EXTENSIVE UNDERSTANDING (4)**
2.1 2.3 2.5	**8.NS.A.1** **Know that numbers that are not rational are called irrational (e.g., π, √2, etc.). Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually or terminates and converts a decimal expansion which repeats eventually or terminates into a rational number.**	➔ Convert fractions to decimals. ➔ Convert terminating decimals to fractions. ➔ Differentiate between non repeating, non-terminating decimals and repeating decimals. ➔ Differentiate between terminating and repeating decimals. ➔ Convert repeating decimals to fractions. ➔ Identify a given number as rational or irrational.	➔ Explain how irrational numbers differ from rational numbers. ➔ Determine when the decimal expansion of a fraction will terminate or repeat. ➔ Show that the decimal expansion of rational numbers eventually repeats or terminates.	➔ Explain the relationship between numbers within the Real Number System using precise mathematical language.
2.2 2,3 2.4	**8.EE.A.2** **Use square root and cube root symbols to represent solutions to equations of the form $xx2$ = pp and $xx3$ = pp, where pp is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes.**	➔ Recognize that a positive rational perfect square number is the product of two identical factors that can be written using a power of 2. ➔ Recognize that a positive rational perfect cube number is the product of three identical factors that can be written using a power of 3. ➔ Determine if a number is rational or irrational. ➔ Identify the relationship between raising a number to second power (squaring a number) and taking the square root of a number as inverse operations. ➔ Identify the relationship between raising a number to the third power (cubing a number) and taking the cube root of a number as inverse	➔ Identify the square root of a non perfect square as irrational. ➔ Identify the cube root of a non perfect cube as irrational. ➔ Evaluate square roots of small perfect square numbers. ➔ Evaluate cube roots of small, perfect cube numbers. ➔ Solve equations that require finding the square root of a number of the form, $xx2$ = pp, where pp is a positive rational small perfect square number. ➔ Solve equations that require finding the cube root of a number of the form, $xx3$ = pp, where pp is a positive rational	➔ Solve real-world problems that involve evaluating square roots and cube roots. ➔ Solve real-world problems that involve equations of the form $xx2$ = pp or $xx3$ = pp, where pp is a positive rational number. ➔ Create contextual problems that represent an equation of the form of $xx2$ = pp or $xx3$ = pp, where pp is a positive rational number. ➔ Explain why the square root of a non-perfect square or cube root of a non-perfect cube is irrational using precise mathematical language.

		operations. ➔ Know that the solution to the equation xx2 = pp can be a positive or negative value (x = ±�pp).	small perfect cube number.	
2.4 2.5	**8.NS.A.2** **Use rational approximations of irrational numbers to compare the size of irrational numbers locating them approximately on a number line diagram. Estimate the value of irrational expressions (such as $\pi\pi$2). For example, by truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.**	➔ Plot positive rational numbers on the number line. ➔ Order positive rational numbers using the number line. ➔ Compare positive rational numbers using the number line. ➔ Make comparative statements about the size of positive rational numbers. ➔ Evaluate numerical expressions containing positive rational numbers. ➔ Write the decimal equivalent of rational numbers. ➔ Plot rational numbers on the number line. ➔ Compare rational numbers using the number line. ➔ Order rational numbers using the number line. ➔ Make comparative statements about the size of rational numbers. ➔ Evaluate numerical expressions containing rational numbers. ➔ Write the decimal approximation of irrational numbers.	➔ Estimate the value of irrational numbers using rational approximations. ➔ Compare real numbers using the number line. ➔ Plot real numbers on the number line using their estimated values. ➔ Order real numbers using the number line ➔ Make comparative statements about the size of irrational numbers. ➔ Estimate the value of irrational expressions.	➔ Explain how to arrive at a more precise approximation when given an approximation of an irrational number

MODULE 3 | SOLVE EQUATIONS with VARIABLES on EACH SIDE

Approximately 16 Days | September 21 - October 19

Module 3 : Students will write and solve linear equations with variables on each side.

TN Reveal Lessons: 3.1, 3.2, 3.3, 3.4, 3.5

LESSON	STANDARD	MODULE 3 INSTRUCTIONAL FOCUS		
		APPROACHING UNDERSTANDING (1-2)	GRADE-LEVEL UNDERSTANDING (3)	EXTENSIVE UNDERSTANDING (4)
3.1 3.2 3.3 3.4 3.5	**8.EE.C.7** **Solve linear equations in one variable.** **8.EE.C.7a Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).** **8.EE.C.7b Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and combining like terms**	➔ Solve linear equations in the form x + q =r or px = r ➔ Determine if a given linear equation in one variable has no solution, one solution, or infinitely many solutions. ➔ Solve linear equations in the form px + q = r or p(x + q) = r.	➔ Give examples of linear equations in one variable having one solution, infinitely many solutions, or no solution. ➔ Solve linear equations with rational coefficients whose solutions require expanding expressions using the distributive property and collecting like terms.	➔ Explain why a linear equation has no or infinitely many solutions. ➔ Solve linear equations with rational coefficients whose solutions require expanding expressions using the distributive property and collecting like terms and explain the operations used in each approach.

MODULE 4 | LINEAR RELATIONSHIPS and SLOPE

Approximately 21 Days |October 20 - November 21

Module 4 : Students will graph and write equations to represent linear relationships.

TN Reveal Lessons: 4.1, 4.2, 4.3, 4.4, 4.5, 4.6

LESSON	STANDARD	MODULE 4 INSTRUCTIONAL FOCUS		
		APPROACHING UNDERSTANDING (1-2)	GRADE-LEVEL UNDERSTANDING (3)	EXTENSIVE UNDERSTANDING (4)
4.1 4.4	**8.EE.B.5** **Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.***	➔ Choose a graph that represents a given proportional relationship. ➔ Identify the unit rate as the slope in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	➔ Graph a given proportional relationship. ➔ Identify the slope from a provided graph of a proportional relationship and connect it to the unit rate. ➔ Compare two different proportional relationships represented in different ways.	➔ Compare two proportional relationships generated from different contexts in terms of the contexts they represent ➔ Identify the context of the unit rate from the graph of a proportional relationship generated from a contextual problem.
4.1 4.3 4.4 4.5 4.6	**8.EE.B.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; know and apply the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.**	➔ Identify the y-intercept of a given graph ➔ Choose an equation in the form y = mx + b or y = mx to represent a line graphed on a coordinate plane. ➔ Find the slope of a line, given two points on the line.	➔ Give an equation in the form y = mx + b or y = mx to represent a line graphed on a coordinate plane. ➔ Explain that the slope is the same between any two points on a line using similar triangles. ➔ Choose a representation demonstrating that the slope is the same between any two points on a line using similar triangles.	➔ Derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.

MODULE 5 | FUNCTIONS

Approximately 15 Days | November 27 - December 15

Module 5 : Students will identify, construct, and compare linear and nonlinear functions.

TN Reveal Lessons: 5.1, 5.2, 5.3, 5.4, 5.5, 5.6

LESSON	STANDARD	MODULE 5 INSTRUCTIONAL FOCUS		
		APPROACHING UNDERSTANDING (1-2)	GRADE-LEVEL UNDERSTANDING (3)	EXTENSIVE UNDERSTANDING (4)
5.1 5.2	**8.F.A.1** **Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in 8th grade.)**	➔ Determine that a relation is a function or not a function given a set of ordered pairs or a table. ➔ Explain that a function is a rule that assigns to each input exactly one output and justify their thinking using either a set of ordered pairs, a table of values, or a graph. ➔ Determine that a relation is a function or not a function given a graph.	➔ Explain that a function is a rule that assigns to each input exactly one output and justify their thinking using a set of ordered pairs, a table of values, and a graph. ➔ Determine that a relation is a function or not a function.	➔ Explain why a relation sometimes is and sometimes is not a function. ➔ Create a function or non-functional relationship and provide justification. ➔ Make connections between functions and non-functional relationships.
5.3 5.5	**8.F.A.3** **Know and interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.** ***For example, the function A = s2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1, 1), (2, 4) and (3, 9), which are not on a straight line.***	➔ Determine if a function is linear when a graph is provided. ➔ Determine if a function is nonlinear when a graph is provided. ➔ Determine if a function is linear when an equation is provided. ➔ Determine if a function is nonlinear when an equation is provided.	➔ Distinguish between a linear function in the form y = mx + b and a nonlinear function. ➔ Provide examples of linear and nonlinear functions.	➔ Explain why a function is linear or nonlinear. ➔ Explain the similarities and differences between linear and nonlinear functions in both verbal and written form providing examples of both to justify their thinking. ➔ Rewrite the equation in slope – intercept form and identify that it is a linear function and subsequently graph as a

				straight line when given a linear equation not in slope intercept form
5.3	**8.F.B.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.**	➔ Determine the rate of change and initial value when given the equation of a linear function in the form y = mx + b. ➔ Choose a function that models a linear relationship when provided a graph. ➔ Interpret the rate of change and initial value in terms of a situation when given the equation of a linear function in the form y = mx + b ➔ Determine the rate of change of a linear function when given a graph. ➔ Determine the rate of change of a linear function when given two (x, y) values. ➔ Determine the initial value of a linear function from a table or graph that contains the initial value.	➔ Construct a function to model a linear relationship between two quantities. ➔ Determine the rate of change and initial value of a linear function when given a table. ➔ Determine the rate of change and initial value of a linear function when given a graph. ➔ Determine the rate of change and initial value of a linear function when given two (x, y) values. ➔ Interpret the rate of change and initial value of a linear function in terms of the situation it models.	➔ Create a function to model a linear relationship representing a contextual situation and interpret the rate of change and initial value in terms of the situation it models. ➔ Make connections about the rate of change when a function is represented in a table, graph, algebraic form, or by verbal descriptions. ➔ Create a real-world problem which can be modeled by a linear relationship whose solution requires either an interpretation of the rate of change or initial value in terms of the situation it models.
5.4	**8.F.A.2** **Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and another linear function represented by an algebraic expression, determine which function has the greater rate of change.**	➔ Determine which function has the greater rate of change, given two linear functions both represented graphically. ➔ Determine the intercepts of each function given tables and graphs. ➔ Compare properties (rate of change and intercepts) of two functions, each represented in the same way algebraically, graphically or numerically in tables. ➔ Determine which function has the greater rate of change, given two linear functions both represented algebraically in slope-intercept	➔ Compare properties (rate of change and intercepts) of two functions, each represented in different ways algebraically, graphically, numerically in tables, or by verbal descriptions.	➔ Compare properties of two functions, each represented in different ways, when the functions are embedded in a contextual problem. ➔ Compare properties of multiple functions, each represented in different ways algebraically, graphically, numerically in tables, or by verbal descriptions, and flexibly move between representations to determine key features. ➔ Given a contextual situation, write a function and interpret

		form.		the rate of change and intercepts in terms of the context. ➔ Create contextual situations that involve comparing the properties of two functions each represented in different ways and use precise mathematical language to describe the comparisons.
5.6	**8.F.B.5** **Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.**	➔ Determine if a functional relationship is linear or nonlinear, given a graph. ➔ Determine if a linear function is increasing or decreasing, given a graph.	➔ Qualitatively describe the functional relationship existing between two quantities when given a linear or nonlinear graph. ➔ Sketch a graph that represents a function given a written or verbal description, and label the axes appropriately.	➔ Create contextual situations that models a relationship between two quantities and describe qualitatively the functional relationship between the two quantities. Sketch the graph, labeling the axes appropriately. ➔ Determine the functional relationships that exist for each piece, given a piecewise graph (i.e., which portions of the graph represent a linear relationship, which represent a non-linear relationship, which are increasing, and/or which are decreasing).

MODULE 6 | SYSTEMS of LINEAR EQUATIONS

Approximately 16 Days | January 4 - January 26

Module 6 : Students will write and solve systems of linear equations.

TN Reveal Lessons: 6.1, 6.2, 6.3, 6.4, 6.5, 6.6

LESSON	STANDARD	MODULE 6 INSTRUCTIONAL FOCUS		
		APPROACHING UNDERSTANDING (1-2)	GRADE-LEVEL UNDERSTANDING (3)	EXTENSIVE UNDERSTANDING (4)
6.1 6.2 6.3 6.4 6.5 6.6	**8,EE.C.8** **Analyze and solve systems of two linear equations graphically.** **8.EE.C.8a Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.** **8.EE.C.8b Estimate solutions by graphing a system of two linear equations in two variables. Identify solutions by inspecting graphs.**	➔ Graph linear equations in two variables on the coordinate plane. ➔ Identify points on a line as solutions to their corresponding equation. ➔ Graph a line on the coordinate plane when given a pair of coordinates. ➔ Determine if a linear system of equations has one solution, infinitely many solutions, or no solution when given a graph. ➔ Determine the slope and y-intercept when given a linear equation.	➔ Analyze a system of linear equations to determine if there is one solution, no solution or infinitely many solutions. ➔ Estimate solutions to a system of equations by graphing. ➔ Identify solutions to a system of linear equations by inspecting graphs.	➔ Explain characteristics of systems that have one solution, no solution or infinitely many solutions using precise mathematical vocabulary. ➔ Justify the reasonableness of the solution to a system of equation in context by inspecting graphs.
6.2	**8.EE.C.9** **By graphing on the coordinate plane or by analyzing a given graph, determine the solution set of a linear inequality in one or two variables.**	➔ Identify if a point on a number line is a solution to a linear inequality in one variable ➔ Identify if a point on a coordinate plane is a solution to a linear inequality in two variables. ➔ Choose a number line graph that represents the solution set for an inequality in one variable. ➔ Choose the graphical representation of the solution to a linear inequality in two variables.	➔ Determine the solution set to a linear inequality in one variable by graphing on a number line. ➔ Determine the solution set to a linear inequality in two variables by graphing on the coordinate plane. ➔ Analyze a given graph to determine linear inequality solution sets.	➔ Justify whether coordinate points are or are not solutions to the linear inequality in two variables using precise mathematical vocabulary.

MODULE 7 | TRIANGLES and the PYTHAGOREAN THEOREM

Approximately 15 Days | January 29 - February 20

Module 7: Students will examine angle relationships with triangles and parallel lines and use the Pythagorean Theorem.

TN Reveal Lessons: 7.1, 7.2, 7.3, 7.4, 7.5

LESSON	STANDARD	MODULE 7 INSTRUCTIONAL FOCUS		
		APPROACHING UNDERSTANDING (1-2)	GRADE-LEVEL UNDERSTANDING (3)	EXTENSIVE UNDERSTANDING (4)
7.1 7.2	**8.G.A.2** **Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.**	➔ Recognize vertical, adjacent, and supplementary angles. ➔ Identify the exterior angles of a triangle ➔ Find the measure of a missing angle in a pair of vertical angles or adjacent supplementary angles when given one angle measure. ➔ Identify parallel lines and the intersection of a transversal. ➔ Know that the sum of the angles in a triangle is always 180 degrees. ➔ Identify the relationship between an interior and an exterior angle of a triangle as supplementary. ➔ Use facts about angle relationships to find a missing interior angle measure of a triangle. ➔ Define similar figures.	➔ Informally explain the triangle sum theorem using a strategy. ➔ Give informal arguments to establish facts about exterior angles of triangles. ➔ Find and justify missing interior and exterior angle measures of a triangle using facts about angle relationships. ➔ Informally explain the relationship of angles created by parallel lines cut by a transversal. ➔ Identify pairs of congruent angles and pairs of supplementary angles formed by parallel lines cut by a transversal. ➔ Use informal arguments to establish facts about the angle angle criterion for similarity of triangles. ➔ Recognize that if two triangles have two pairs of corresponding congruent angles, then they are similar.	➔ Justify mathematically the relationships of lines and angles created by parallel lines cut by a transversal. ➔ Create and solve a real-world contextual problem involving triangles. ➔ Create and solve a real-world contextual problem involving angles formed by a pair of parallel lines cut by a transversal.

7.3 7.4	**8.G.B.3** **Explain a model of the Pythagorean Theorem and its converse.**	➔ Recognize and define right triangles ➔ Identify the hypotenuse and legs of a right triangle. ➔ Represent a number squared using a geometric representation of a square. ➔ Determine if a triangle is a right triangle using the length of the sides. ➔ Identify which variables represent the legs and hypotenuse in the formula a2 + b2 = c2. ➔ Identify which variables represent the legs and hypotenuse in the formula a2 + b2 = c2.	➔ Use a model to explain the Pythagorean Theorem. ➔ Determine if a triangle is a right triangle using the converse of the Pythagorean Theorem, given a model or side lengths.	➔ Critique the work of others in justifying the Pythagorean Theorem. ➔ Critique the work of others in justifying the converse of the Pythagorean Theorem ➔ Create examples of triangles and explain why they are or are not right triangles using the Pythagorean Theorem or its converse.
7.3	**8.G.B.4** **Know and apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.**	➔ Identify which side of a given right triangle is the hypotenuse and which two sides are the legs. ➔ Identify which variables represent the legs and hypotenuse in the formula a2 + b2 = c2. ➔ Use the Pythagorean Theorem to determine the length of the hypotenuse of a right triangle when a visual representation is provided.	➔ Know and apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world or mathematical problems in two dimensions. ➔ Know and apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world or mathematical problems in three dimensions.	➔ Apply the Pythagorean Theorem to solve real-world or mathematical problems in three dimensions when a visual model is not provided. ➔ Apply the Pythagorean Theorem to real-world and mathematical problems in two and three dimensions from increasingly complex situations.
7.3	**8.EE.A.2** **Use square root and cube root symbols to represent solutions to equations of the form $xx2 = pp$ and $xx3 = pp$, where pp is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes.**	➔ Recognize that a positive rational perfect square number is the product of two identical factors that can be written using a power of 2. ➔ Recognize that a positive rational perfect cube number is the product of three identical factors that can be written using a power of 3. ➔ Determine if a number is rational or irrational.	➔ Identify the square root of a non perfect square as irrational. ➔ Identify the cube root of a non perfect cube as irrational. ➔ Evaluate square roots of small perfect square numbers. ➔ Evaluate cube roots of small, perfect cube numbers. ➔ Solve equations that require	➔ Solve real-world problems that involve evaluating square roots and cube roots. ➔ Solve real-world problems that involve equations of the form $xx2 = pp$ or $xx3 = pp$, where pp is a positive rational number. ➔ Create contextual problems that represent an equation of the form of $xx2 = pp$ or $xx3 =$

		➔ Identify the relationship between raising a number to second power (squaring a number) and taking the square root of a number as inverse operations. ➔ Identify the relationship between raising a number to the third power (cubing a number) and taking the cube root of a number as inverse operations. ➔ Know that the solution to the equation $xx2 = pp$ can be a positive or negative value (x = ±�pp).	finding the square root of a number of the form, $xx2 = pp$, where pp is a positive rational small perfect square number. ➔ Solve equations that require finding the cube root of a number of the form, $xx3 = pp$, where pp is a positive rational small perfect cube number.	pp, where pp is a positive rational number. ➔ Explain why the square root of a non-perfect square or cube root of a non-perfect cube is irrational using precise mathematical language.
7.5	**8.G.B.5** **Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.**	➔ Identify the legs and the hypotenuse for any right triangle on a coordinate plane. ➔ Evaluate the square root of perfect squares. ➔ Create a right triangle from two given points on the coordinate plane such that the two points are the endpoints of the hypotenuse and the legs lie horizontally or vertically ➔ Approximate the value of non perfect square roots using a calculator or by estimating what two whole numbers it would lie between. ➔ Determine the measure of each leg for any right triangle on a coordinate plane.	➔ Find the length of a line segment drawn on a coordinate plane using the Pythagorean Theorem. ➔ Find the distance between two points given as coordinates using the Pythagorean Theorem.	➔ Create and solve a real-world problem that involves using the Pythagorean Theorem and the coordinate plane. ➔ Explain solution strategies using precise mathematical vocabulary. ➔ Find the distance between two coordinates using the Pythagorean Theorem without graphing.

MODULES 8 and 9 |

Approximately 11 Days | February 21 - March 13

Modules 8 and 9 : Students will analyze translations, rotations, reflections, and dilations. Next, students will analyze and use similar and congruent figures using transformations.

TN Reveal Lessons: 8.1, 8.2, 8.3, 8.4, 9.1, 9.2, 9.3, 9.4, 9.5

LESSON	STANDARD	MODULES 8 & 9 INSTRUCTIONAL FOCUS		
		APPROACHING UNDERSTANDING (1-2)	GRADE-LEVEL UNDERSTANDING (3)	EXTENSIVE UNDERSTANDING (4)
8.1 8.2 8.3 8.4 9.1 9,2	**8.G.A.1** **Describe the effect of translations, rotations, reflections, and dilations on two-dimensional figures using coordinates.** **8.G.A.1a. Verify informally that lines are taken to lines and determine when line segments are taken to line segments of the same length.** **8.G.A.1b. Verify informally that angles are taken to angles of the same measure.** **8.G.A.1c. Verify informally that parallel lines are taken to parallel lines.** **8.G.A.1d. Make connections between dilations and scale factors.**	➔ Generate figures using coordinates on the coordinate plane. ➔ Accurately measure angles and line segments. ➔ Informally define translation, rotation, reflection, and dilation. ➔ Identify when figures are congruent, similar, or neither. ➔ Identify if an image and a pre-image represent a translation, rotation, reflection, or dilation. ➔ Identify which points, lines, and angles in the pre-image map onto which points, lines, and angles in the image after a transformation. ➔ Translate, rotate, reflect, and dilate a line segment on a coordinate plane. ➔ Identify when transformations maintain congruence or result in a similarity.	➔ Transform a two-dimensional figure on the coordinate plane using translations, rotations, reflections, and dilations. ➔ Describe the effect of translations, rotations, reflections, and dilations on two-dimensional figures using coordinates. ➔ Informally verify the transformation used when mapping one figure onto another on the coordinate plane. ➔ Informally verify that line segments remain congruent after translations, rotations, and reflections, but change length after dilations. ➔ Informally verify that angle measures remain the same after translations, rotations, reflections, and dilations ➔ Informally verify that parallel lines remain parallel after translations, rotations, reflections, and dilations ➔ Describe the effect a dilation	➔ Verify and explain the effects of rigid and non-rigid transformations using coordinates and precise mathematical language. ➔ Compare and contrast the transformations: rotation, reflection, translation, and dilation using precise mathematical vocabulary.

			➔ will have on an image and its coordinates when given the scale factor. ➔ Use the correct notation when labeling the preimage and image and when describing a transformed figure.	
9.4 9.5	**8.G.A.2** **Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.**	➔ Recognize vertical, adjacent, and supplementary angles. ➔ Identify the exterior angles of a triangle ➔ Find the measure of a missing angle in a pair of vertical angles or adjacent supplementary angles when given one angle measure. ➔ Identify parallel lines and the intersection of a transversal. ➔ Know that the sum of the angles in a triangle is always 180 degrees. ➔ Identify the relationship between an interior and an exterior angle of a triangle as supplementary ➔ Use facts about angle relationships to find a missing interior angle measure of a triangle. ➔ Define similar figures.	➔ Informally explain the triangle sum theorem using a strategy ➔ Give informal arguments to establish facts about exterior angles of triangles. ➔ Find and justify missing interior and exterior angle measures of a triangle using facts about angle relationships. ➔ Informally explain the relationship of angles created by parallel lines cut by a transversal. ➔ Identify pairs of congruent angles and pairs of supplementary angles formed by parallel lines cut by a transversal. ➔ Use informal arguments to establish facts about the angle-angle criterion for similarity of triangles. ➔ Recognize that if two triangles have two pairs of corresponding congruent angles, then they are similar.	➔ Justify mathematically the relationships of lines and angles created by parallel lines ➔ Create and solve a real-world contextual problem involving triangles.es cut by a transversal. ➔ Create and solve a real-world contextual problem involving angles formed by a pair of parallel lines cut by a transversal.

MODULE 10 | VOLUME

Approximately 12 Days | March 14 - April 1

Module 10 : Students will find and use volumes of cylinders, cones, spheres, and composite figures.

TN Reveal Lessons: 10.1, 10.2, 10.3, 10.4, 10.5

LESSON	STANDARD	MODULE 10 INSTRUCTIONAL FOCUS		
		APPROACHING UNDERSTANDING (1-2)	GRADE-LEVEL UNDERSTANDING (3)	EXTENSIVE UNDERSTANDING (4)
10.1 10.2 10.3 10.4 10.5	**8.G.C.6** **Apply the formulas for the volumes of cones, cylinders, and spheres to solve real-world and mathematical problems.**	➔ Identify a cone, cylinder, and sphere. ➔ Define volume as the number of unit cubes that will fill a three dimensional object. ➔ Find the area of a circle. ➔ Find the volume of a right prism. ➔ Identify the key dimensions (i.e., radius, height, circumference and diameter) of cones, cylinders, and spheres.	➔ Find the volume of cones, cylinders, and spheres. ➔ Apply volume formulas to solve real-world or mathematical problems involving cones, cylinders, and spheres	➔ Explain how the volume formulas for a cylinder and a right prism are related. ➔ Explain how the volume formulas for a cone and a pyramid are related. ➔ Justify the relationships between the volume of a cylinder, a cone, and a sphere.
10.4	**8.EE.A.2** **Use square root and cube root symbols to represent solutions to equations of the form $xx2 = pp$ and $xx3 = pp$, where pp is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes.**	➔ Recognize that a positive rational perfect square number is the product of two identical factors that can be written using a power of 2. ➔ Recognize that a positive rational perfect cube number is the product of three identical factors that can be written using a power of 3. ➔ Determine if a number is rational or irrational. ➔ Identify the relationship between raising a number to second power (squaring a number) and taking the	➔ Identify the square root of a non perfect square as irrational. ➔ Identify the cube root of a non perfect cube as irrational. ➔ Evaluate square roots of small perfect square numbers. ➔ Evaluate cube roots of small, perfect cube numbers. ➔ Solve equations that require finding the square root of a number of the form, $xx2 = pp$, where pp is a positive rational	➔ Solve real-world problems that involve evaluating square roots and cube roots. ➔ Solve real-world problems that involve equations of the form $xx2 = pp$ or $xx3 = pp$, where pp is a positive rational number. ➔ Create contextual problems that represent an equation of the form of $xx2 = pp$ or $xx3 = pp$, where pp is a positive rational number.

		square root of a number as inverse operations. ➔ Identify the relationship between raising a number to the third power (cubing a number) and taking the cube root of a number as inverse operations. ➔ Know that the solution to the equation $x^2 = p$ can be a positive or negative value ($x = \pm\sqrt{p}$).	small perfect square number. ➔ Solve equations that require finding the cube root of a number of the form, $x^3 = p$, where p is a positive rational small perfect cube number.	➔ Explain why the square root of a non-perfect square or cube root of a non-perfect cube is irrational using precise mathematical language.

MODULE 11 | SCATTER P;OTS and TWO - WAY TABLES

Approximately 14 Days \| April 2 - April 19

Module 11 : Students will create scatter plots and two-way tables and use lines of fit and relative frequencies to identify and use association.

TN Reveal Lessons: 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7

LESSON	STANDARD	MODULE 11 INSTRUCTIONAL FOCUS		
		APPROACHING UNDERSTANDING (1-2)	GRADE-LEVEL UNDERSTANDING (3)	EXTENSIVE UNDERSTANDING (4)
11.1	**8.SP.A.1** **Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.**	➔ Identify any clusters and extreme values represented on the graph when given a scatter plot. ➔ Identify positive or negative association represented on the graph when given a scatter plot. ➔ Explain the meaning of the values of a given ordered pair in a context. ➔ Determine if a scatter plot has	➔ Construct scatter plots using two variable data sets. ➔ Describe patterns of association for two-variable data sets represented in scatter plots. ➔ Identify the relationship of the two quantities being represented by a scatter plot in a given context.	➔ Create a context to describe bivariate data from a given scatter plot. ➔ Interpret a scatter plot and make predictions based on the patterns of association using precise mathematical language. ➔ Describe what clusters and outliers reveal about the

		linear, nonlinear, or no association. ➔ Identify clusters extreme values and gaps in data in a given scatter plot. ➔ Define "bivariate measurement".		data from a scatter plot.
11.2	**8.SP.A.2** **Know that straight lines are widely used to model linear relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line and informally assess the model fit by judging the closeness of the data points to the line.**	➔ Identify features of a linear relationship. ➔ Determine if a scatter plot has linear association. ➔ Determine if a scatter plot has positive, negative, or no relationship between two quantities. ➔ Draw a straight line that closely fits the data points on a scatter plot.	➔ Construct a table of values, plot points, and draw a straight line that closely fits the data points to model linear relationships in context. ➔ Determine which line most closely models the association of the data when given a scatter plot with various possible lines of fit. ➔ Determine the accuracy of a line of fit based on the closeness of the data points to the line.	➔ Determine the mean of the x-values and y-values on a scatter plot to identify the centroid point on the estimated model line of fit ➔ Explain the meaning of the line of fit and its properties using precise mathematical language in terms of the context. ➔ Critique the accuracy of a line of fit to a data set represented in a scatterplot.
11.3	**8.SP.A.3** **Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercepts. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.***	➔ Determine the slope and the y intercept for a line that is graphed on a coordinate plane. ➔ Describe the relationship between variables on a graph in context. ➔ Write the equation of a line given the slope and y-intercept. ➔ Draw a line of fit for bivariate measurement data ➔ Write an equation for the line of fit on a scatter plot	➔ Use a linear model to solve contextual problems. ➔ Interpret the slope of a linear model in context of bivariate measurement data. ➔ Interpret the y-intercept of a linear model in context of bivariate measurement data.	➔ Make predictions using a linear model and describe the accuracy of the predictions in the given context ➔ Conduct an experiment to gather, graph, and write a linear equation for bivariate data. ➔ Assess the reasonableness of using the point on a linear graph in the context of the situation.
11.3	**8.F.B.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**	➔ Determine the rate of change and initial value when given the equation of a linear function in the form y = mx + b ➔ Choose a function that models a	➔ Construct a function to model a linear relationship between two quantities. ➔ Determine the rate of change and initial value of a linear	➔ Create a function to model a linear relationship representing a contextual situation and interpret the rate of change and initial value in terms of the situation

	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.	linear relationship when provided a graph. ➔ Interpret the rate of change and initial value in terms of a situation when given the equation of a linear function in the form y = mx + b. ➔ Determine the rate of change of a linear function when given a graph. ➔ Determine the rate of change of a linear function when given two (x, y) values. ➔ Determine the initial value of a linear function from a table or graph that contains the initial value.	function when given a table. ➔ Determine the rate of change and initial value of a linear function when given a graph. ➔ Determine the rate of change and initial value of a linear function when given two (x, y) values. ➔ Interpret the rate of change and initial value of a linear function in terms of the situation it models.	it models. ➔ Make connections about the rate of change when a function is represented in a table, graph, algebraic form, or by verbal descriptions. ➔ Create a real-world problem which can be modeled by a linear relationship whose solution requires either an interpretation of the rate of change or initial value in terms of the situation it models.
11.6 **11.7**	**8.SP.B.4** **Find probabilities of and represent sample spaces for compound events using organized lists, tables, tree diagrams, and simulation.** **8.SP.B.4.a Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.** **8.SP.B.4.b Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.**	➔ Determine the probability of a simple event. ➔ Understand that a probability is between 0 and 1, and that something unlikely to happen has a probability closer to 0, something likely to happen has a probability closer to 1, and something equally likely to happen is halfway between 0 and 1. ➔ Express the probability of a single event using the appropriate terms impossible, unlikely, equally likely, likely, or certain. ➔ Express probability of a simple event as a fraction, decimal and/or percent. ➔ Differentiate between simple events and compound events. ➔ Differentiate between theoretical and experimental probability. ➔ Estimate the probability of an event by collecting data and observing its	➔ .Determine the sample space of a compound event. ➔ Use probabilities to make decisions in real-world situations. ➔ Determine the probability of a compound event from a sample space. ➔ Recognize that the number of possible outcomes for a compound event is determined by multiplying the number of outcomes for each individual event. ➔ Determine the probability of compound events using lists, tables, tree diagrams, and simulations. ➔ Compare compound probabilities that are based on theoretical models with experimental probability simulations.	➔ Determine whether or not a given probability model is plausible and justify your explanation. ➔ Explain how a given contextual situation models a compound event and how the probability can be approximated. ➔ Design a simulation and use the results to estimate a probability.

		long-run frequency.	➔ Express the probability of a compound event as a fraction, decimal, and/or percent.	