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| **8th Grade Math – 3rd Quarter** |
| **Strand** | Cluster | **Standard** | **Learning Targets** | **Resources** | **Module** | **Module Unit Name** |
| Expressions and Equations | 8.EE.7b Analyze and solve linear equations and pairs of simultaneous linear equations. | 8.EE.7b **Analyze and solve linear equations and pairs of simultaneous linear equations.**  7. Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. | * I can use the properties of real numbers to determine the solution of a linear equation.
* I can simplify a linear equation by using the distributive property and/or combining like terms.
* I can give examples of linear equations with one solution, infinitely many solutions, and no solution.
 |  | **4** | **Linear Equations** |
| Expressions and Equations | 8.EE.8a Analyze and solve linear equations and pairs of simultaneous linear equations. | 8.EE.8a **Analyze and solve linear equations and pairs of simultaneous linear equations.** 8. Analyze and solve pairs of simultaneous linear equations. a. 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. | * I can explain how a line represents the infinite number of solutions to a linear equation with two variables.
* I can explain how the point(s) of intersection of two graphs will represent the solution to the system of two linear equations because that/those point(s) are solutions to both equations.
* I can use algebraic reasoning (simple substitution) and the properties of real numbers to solve a system of linear equations.
* I can use the graphs of two linear equations to estimate the solution of the system.
* I can use mathematical reasoning to solve simple systems of linear equations.
* I can solve real-world problems and mathematical problems dealing with systems of linear equations and interpret the solution in the context of the problem.
 |  | **4** | **Linear Equations** |
| Expressions and Equations | 8.EE.8b Analyze and solve linear equations and pairs of simultaneous linear equations. | 8.EE.8b **Analyze and solve linear equations and pairs of simultaneous linear equations.** 8. Analyze and solve pairs of simultaneous linear equations. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6. | * I can explain how a line represents the infinite number of solutions to a linear equation with two variables.
* I can explain how the point(s) of intersection of two graphs will represent the solution to the system of two linear equations because that/those point(s) are solutions to both equations.
* I can use algebraic reasoning (simple substitution) and the properties of real numbers to solve a system of linear equations.
* I can use the graphs of two linear equations to estimate the solution of the system.
* I can use mathematical reasoning to solve simple systems of linear equations.
* I can solve real-world problems and mathematical problems dealing with systems of linear equations and interpret the solution in the context of the problem.
 |  | **4** | **Linear Equations** |
| Expressions and Equations | 8.EE.8c Analyze and solve linear equations and pairs of simultaneous linear equations. | 8.EE.8c **Analyze and solve linear equations and pairs of simultaneous linear equations.** 8. Analyze and solve pairs of simultaneous linear equations. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair. | * I can explain how a line represents the infinite number of solutions to a linear equation with two variables.
* I can explain how the point(s) of intersection of two graphs will represent the solution to the system of two linear equations because that/those point(s) are solutions to both equations.
* I can use algebraic reasoning (simple substitution) and the properties of real numbers to solve a system of linear equations.
* I can use the graphs of two linear equations to estimate the solution of the system.
* I can use mathematical reasoning to solve simple systems of linear equations.
* I can solve real-world problems and mathematical problems dealing with systems of linear equations and interpret the solution in the context of the problem.
 |  | **4** | **Linear Equations** |
| Functions | 8.F.1 Define, evaluate, and compare functions. | 8.F.1 **Define, evaluate, and compare functions.** 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. | * I can explain that a function represents a relationship between an input and an output where the output depends on the input; therefore, there can be only one output for each input.
* I can show the relationship between the inputs and outputs of a function by graphing them as ordered pairs on a coordinate grid.
 |  | **5** | **Examples of Functions from Geometry** |
| 8.F.2 Define, evaluate, and compare functions. | 8.F.2 **Define, evaluate, and compare functions.** 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 a linear function represented by an algebraic expression, determine which function has the greater rate of change. | * I can determine the properties of a function written in algebraic form (e.g., rate of change, meaning on y-intercept, linear, non-linear).
* I can determine the properties of a function when given the inputs and outputs in a table.
* I can determine the properties of a function represented as a graph.
* I can determine the properties of a function when given the situation verbally.
* I can compare the properties of two functions that are represented differently (e.g., as an equation, in a table, graphically or a verbal representation).
 |  | **5** |
| Functions | 8.F.3 Define, evaluate, and compare functions. | 8.F.3 **Define, evaluate, and compare functions.** 3. 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. | * I can explain why the equation y = mx + b represents a linear function and interpret the slope and y-intercept in relation to the function.
* I can give examples of relationships that are non-linear functions.
* I can analyze the rate of change between input and output values to determine if function is linear or non-linear.
* I can create a table of values that can be defined as a non-linear function.
 |  | **5** | **Examples of Functions from Geometry** |
| 8.F.4 Use functions to model relationships between quantities. | 8.F.4 **Use functions to model relationships between quantities.** 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. | * I can write a linear function that models a given situation given verbally as a table of x- and y- values or as a graph.
* I can define the initial value of the function in relation to the situation.
* I can define the rate of change in relation to the situation.
* I can define the y-intercept in relation to the situation.
* I can explain any constraints on the domain in relation to the situation.
 |  | **6** | **Linear Functions** |
| 8.F.5 Use functions to model relationships between quantities. | 8.F.5 **Use functions to model relationships between quantities.** 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. | * I can match the graph of function to a given situation.
* I can write a story that describes the functional relationship between two variables depicted on a graph.
* I can create a graph of function that describes the relationship between two variables.
 |  | **6** | **Linear Functions** |
| Statistics & Probability | 8.SP.1 Investigate patterns of association in bivariate data. | 8.SP.1 **Investigate patterns of association in bivariate data.** 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. | * I can plot ordered pairs on a coordinate grid representing the relationship between two data sets.
* I can describe patterns in the plotted points such as clustering, outliers, positive or negative association, and linear or nonlinear association and describe the pattern in the context of the measurement data.
* I can interpret the patterns of association in the context of the data sample.
 |  | **6** |
| Statistics & Probability | 8.SP.2 Investigate patterns of association in bivariate data. | 8.SP.2 **Investigate patterns of association in bivariate data.** 2. Know that straight lines are widely used to model 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. | * I can recognize whether or not data plotted on a scatter plot have a linear association.
* I can draw a straight trend line to approximate the linear relationship between the plotted points of two data sets.
* I can make inferences regarding the reliability of the trend line by noting the closeness of the data points in the line.
 |  | **6** |
| 8.SP.3 Investigate patterns of association in bivariate data. | 8.SP.3 **Investigate patterns of association in bivariate data.** 3. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. 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. | * I can determine the equation of a trend line that approximates the linear relationship between the plotted points of two data sets.
* I can interpret the y-intercept of the equation in the context of the collected data.
* I can interpret the slope of the equation in the context of the collected data.
* I can use the equation of the trend line to summarize the given data and make predictions regarding additional data points.
 |  | **6** | **Linear Functions** |
| Statistics & Probability | 8.SP.4 Investigate patterns of association in bivariate data. | 8.SP.4 **Investigate patterns of association in bivariate data.** 4. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores? | * I can create a two-way table to record the frequencies of bivariate categorical values.
* I can determine the relative frequencies for rows and/or columns of a two-way table.
* I can use the relative frequencies and context of the problem to describe possible associations between the two sets of data.
 |  | **6** |