MCAP EOC Tutorials for Maryland are designed specifically for the Maryland College and Career Ready Standards to prepare students for the Maryland Comprehensive Assessment Program (MCAP). EOC Categories are at the heart of MCAP EOC Tutorial structure – bringing category-based learning to the student experience, and category-based performance and progress tracking to the teacher experience.

Math Tutorials offer targeted instruction, practice and review designed to develop computational fluency, deepen conceptual understanding, and apply mathematical practices. They automatically identify and address learning gaps down to elementary-level content, using adaptive remediation to bring students to grade-level no matter where they start. Students engage with the content in an interactive, feedback-rich environment as they progress through standards-aligned modules. By constantly honing the ability to apply their knowledge in abstract and real world scenarios, students build the depth of knowledge and higher order skills required to demonstrate their mastery when put to the test.

In each module, the Learn It and Try It make complex ideas accessible to students through focused content, modeled logic and process, multi-modal representations, and personalized feedback as students reason through increasingly challenging problems. The Review It offers a high impact summary of key concepts and relates those concepts to students' lives. The Test It assesses students' mastery of the module's concepts, providing granular performance data to students and teachers after each attempt. To help students focus on the content most relevant to them, unit-level pretests and posttests can quickly identify where students are strong and where they're still learning.

Test-Taking Strategies for EOC Tutorials allow students to practice and apply learning approaches that will hone their test-taking skills and focus them for success on the day of their EOC test.

Unit 1: The Number System

- **RATIONAL AND IRRATIONAL NUMBERS**
  - 8.NS.A.1: Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
  - 8.EE.A.2: Use square root and cube root symbols to represent solutions to equations of the form = and = , where is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that 2 is irrational.
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- **APPROXIMATING IRRATIONAL NUMBERS**

- 8.NS.A.2: Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g.,). 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.
- 8.NS.A.1: Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
- 8.EE.A.2: Use square root and cube root symbols to represent solutions to equations of the form = and = , where is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that 2 is irrational.
- 8.NS.A.2: Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g.,). 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.
- 8.EE.A.2: Use square root and cube root symbols to represent solutions to equations of the form = and = , where is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that 2 is irrational.
- 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- 8.NS.A.2: Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g.,). 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.
- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
- 8.EE.A.2: Use square root and cube root symbols to represent solutions to equations of the form = and = , where is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that 2 is irrational.

Unit 2: Exponents

- **PROPERTIES OF EXPONENTS**
  - 8.EE.A.1: Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 3 3 = 3 = 1/3 = 1/27.

- 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- 8.EE.A.1: Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 3 3 = 3 = 1/3 = 1/27.

- **POWERS OF 10**
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 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 times 10 and the population of the world as 7 times 10, and determine that the world population is more than 20 times larger.
  - 8.EE.A.4-2: Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. 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). Interpret scientific notation that has been generated by technology.
  - 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 times 10 and the population of the world as 7 times 10, and determine that the world population is more than 20 times larger.
  - 8.EE.A.4-1: Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. 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). Interpret scientific notation that has been generated by technology.
  - 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 times 10 and the population of the world as 7 times 10, and determine that the world population is more than 20 times larger.
- **SCIENTIFIC NOTATION**
  - 8.EE.A.4-2: Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. 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). Interpret scientific notation that has been generated by technology.

- 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 times 10 and the population of the world as 7 times 10, and determine that the world population is more than 20 times larger.
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- 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.
- 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.
- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
- 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.
- 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.

- 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 times 10 and the population of the world as 7 times 10, and determine that the world population is more than 20 times larger.

Unit 3: Proportional Reasoning and Slope

- **SLOPE**
  - 8.F.B.5-1: 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.
  - 8.F.B.5-2: 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.
  - 8.R.1e.a: Apply geometric reasoning in a coordinate setting and use coordinates to draw geometric conclusions.
  - 8.EE.B.5-1: 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.
  - 8.EE.B.5-2: 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.
  - 8.R.1e.b: Demonstrate reasoning and understanding regarding the necessary conditions under which two segments have the same slope.
  - 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 (,) 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.
  - 8.EE.B.6-1: 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 = for a line through the origin and the equation = + for a line intercepting the vertical axis at .
  - 8.EE.B.6-2: 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 = for a line through the origin and the equation = + for a line intercepting the vertical axis at .

- 8.R.1a.a: Base reasoning on the principle that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane.
- 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 (,) 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.
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- 8.EE.B.6-2: 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 = for a line through the origin and the equation = + for a line intercepting the vertical axis at .
- 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.
- 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.
- 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.
- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.

- **MULTIPLE REPRESENTATIONS OF PROPORTIONS**
  - 8.F.B.5-1: 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.
  - 8.F.B.5-2: 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.

- 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.
- 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 (,) 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.
- 8.R.1a.a: Base reasoning on the principle that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane.
- 8.EE.B.5-1: 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.
- 8.EE.B.5-2: 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.
- 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.
- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
- 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 (,) 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.
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Unit 4: Functions

- **FUNCTIONS AND RELATIONS**
  - 8.F.A.1-2: 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.
  - 8.F.A.1-1: 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.
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.
- **COMPARING FUNCTIONS**
  - 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 a linear function represented by an algebraic expression, determine which function has the greater rate of change.
  - 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.

- 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.
- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
- 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 (,) 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.

- **GRAPHS OF FUNCTIONS**
  - 8.F.B.5-1: 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.
  - 8.F.B.5-2: 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.
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.
  - 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.
  - 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 (,) 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.

- 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 (,) 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.
- 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.
- 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.
- 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 (,) 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.

Unit 5: Linear Functions

- **SLOPE-INTERCEPT FORM**
  - 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 (,) 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.
  - 8.R.1e.a: Apply geometric reasoning in a coordinate setting and use coordinates to draw geometric conclusions.
  - 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.
  - 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.
  - 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 (,) 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.

- 8.R.1a.a: Base reasoning on the principle that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane.
- 8.F.A.3-2: Interpret the equation = + as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function = 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.
- 8.R.2a.a: Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.
- 8.F.A.3-1: Interpret the equation = + as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function = 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.
- 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 (,) 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.
- 8.F.A.3-2: Interpret the equation = + as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function = 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.
- 8.F.A.3-1: Interpret the equation = + as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function = 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.
- 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- 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 (,) 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.
- 8.EE.B.6-1: 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 = for a line through the origin and the equation = + for a line intercepting the vertical axis at .
- 8.EE.B.6-2: 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 = for a line through the origin and the equation = + for a line intercepting the vertical axis at .

- 8.R.1e.b: Demonstrate reasoning and understanding regarding the necessary conditions under which two segments have the same slope.

- **WRITING LINEAR FUNCTIONS**
  - 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 (,) 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.
  - 8.R.1e.a: Apply geometric reasoning in a coordinate setting and use coordinates to draw geometric conclusions.
  - 8.EE.B.6-1: 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 = for a line through the origin and the equation = + for a line intercepting the vertical axis at .
  - 8.EE.B.6-2: 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 = for a line through the origin and the equation = + for a line intercepting the vertical axis at .
  - 8.R.1a.a: Base reasoning on the principle that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane.
  - 8.R.1e.b: Demonstrate reasoning and understanding regarding the necessary conditions under which two segments have the same slope.
  - 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.
  - 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 (,) 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.
  - 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 (,) 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.
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and

draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.

- 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 (,) 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.
- 8.F.A.3-2: Interpret the equation = + as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function = 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.
- 8.R.2a.a: Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.
- 8.F.A.3-1: Interpret the equation = + as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function = 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.
- 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 (,) 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.
- 8.F.A.3-2: Interpret the equation = + as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function = 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.
- 8.F.A.3-1: Interpret the equation = + as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function = 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.

Unit 6: Solving Equations

- **SOLVING LINEAR EQUATIONS**
  - 8.EE.C.7b: 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.
  - 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.

- 8.R.1c.a: Given an equation or system of equations, present the solution steps as a logical argument that concludes with the set of solutions, if any.
- 8.EE.C.7a: Solve linear equations in one variable. a. 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 = , = , or = results (where and are different numbers).
- 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.
- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
- 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.
- 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.

- **SOLVING SYSTEMS OF LINEAR EQUATIONS**
  - 8.EE.C.8b-1: Analyze and solve pairs of simultaneous linear equations. b-1. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.
  - 8.EE.C.8b-2: Analyze and solve pairs of simultaneous linear equations. b-2. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.
  - 8.EE.C.8b-3: Analyze and solve pairs of simultaneous linear equations. b-3. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.

- 8.EE.C.8a: 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 intersections of their graphs, because points of intersection satisfy both equations simultaneously.
- 8.R.1b.a: Base reasoning on the principle that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane.
- 8.R.1c.a: Given an equation or system of equations, present the solution steps as a logical argument that concludes with the set of solutions, if any.
- 8.EE.C.8b-1: Analyze and solve pairs of simultaneous linear equations. b-1. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.
- 8.EE.C.8b-2: Analyze and solve pairs of simultaneous linear equations. b-2. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.
- 8.EE.C.8b-3: Analyze and solve pairs of simultaneous linear equations. b-3. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.
- 8.R.1d.a: Present or validate solutions to multistep problems in the form of valid chains of reasoning, adhering to precision.
- 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.
- 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.
- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
- 8.EE.C.8c: 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.

- 8.EE.C.8b-1: Analyze and solve pairs of simultaneous linear equations. b-1. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.
- 8.EE.C.8b-2: Analyze and solve pairs of simultaneous linear equations. b-2. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.
- 8.EE.C.8b-3: Analyze and solve pairs of simultaneous linear equations. b-3. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.
- 8.EE.C.8b-1: Analyze and solve pairs of simultaneous linear equations. b-1. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.
- 8.EE.C.8b-2: Analyze and solve pairs of simultaneous linear equations. b-2. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.
- 8.EE.C.8b-3: Analyze and solve pairs of simultaneous linear equations. b-3. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3 + 2 = 5 and 3 + 2 = 6 have no solution because 3 + 2 cannot simultaneously be 5 and 6.
- 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.

Unit 7: Solving Equations Using Roots

- **SOLVING EQUATIONS USING ROOTS**
  - 8.EE.A.2: Use square root and cube root symbols to represent solutions to equations of the form = and = , where is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that 2 is irrational.
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.

- 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.
- 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.
- 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.
- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
- 8.EE.A.2: Use square root and cube root symbols to represent solutions to equations of the form = and = , where is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that 2 is irrational.

Unit 8: The Pythagorean Theorem and Distance Formula

- **THE PYTHAGOREAN THEOREM**
  - 8.R.3d.a: Apply geometric reasoning in a coordinate setting and use coordinates to draw geometric conclusions.
  - 8.G.B.6: Explain a proof of the Pythagorean Theorem and its converse.
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.G.B.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.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
  - 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.

- 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.
- 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.

- **THE CONVERSE OF THE PYTHAGOREAN THEOREM**
  - 8.R.3d.a: Apply geometric reasoning in a coordinate setting and use coordinates to draw geometric conclusions.
  - 8.G.B.6: Explain a proof of the Pythagorean Theorem and its converse.
  - 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.
  - 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.
  - 8.G.B.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.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.
- **DISTANCE ON THE COORDINATE PLANE**
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.

- 8.G.B.8: Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
- 8.R.3d.a: Apply geometric reasoning in a coordinate setting and use coordinates to draw geometric conclusions.
- 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.

Unit 9: Transformations, Congruence, and Similarity

- **BASICS OF TRANSFORMATIONS**
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.G.A.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
  - 8.G.A.3: Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
  - 8.G.A.1b: Verify experimentally the properties of rotations, reflections, and translations: b. Angles are taken to angles of the same measure.
  - 8.G.A.1a: Verify experimentally the properties of rotations, reflections, and translations: a. Lines are taken to lines, and line segments to line segments of the same length.
  - 8.G.A.1c: Verify experimentally the properties of rotations, reflections, and translations: c. Parallel lines are taken to parallel lines.
  - 8.R.3a.a: Form chains of reasoning that will justify or refute propositions or conjectures.
  - 8.R.3c.a: Apply geometric reasoning in a coordinate setting and use coordinates to draw geometric conclusions.
- **TRANSFORMATIONS AND CONGRUENCE**
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.G.A.2: Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
  - 8.R.3a.a: Form chains of reasoning that will justify or refute propositions or conjectures.

- 8.R.3c.a: Apply geometric reasoning in a coordinate setting and use coordinates to draw geometric conclusions.

- **TRANSFORMATIONS ON THE COORDINATE PLANE**
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.G.A.3: Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
  - 8.R.3a.a: Form chains of reasoning that will justify or refute propositions or conjectures.
  - 8.R.3c.a: Apply geometric reasoning in a coordinate setting and use coordinates to draw geometric conclusions.
- **SIMILARITY AND DILATIONS**
  - 8.G.A.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
  - 8.G.A.3: Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.R.3a.a: Form chains of reasoning that will justify or refute propositions or conjectures.
  - 8.R.3d.a: Apply geometric reasoning in a coordinate setting and use coordinates to draw geometric conclusions.
  - 8.R.3c.a: Apply geometric reasoning in a coordinate setting and use coordinates to draw geometric conclusions.
  - 8.G.B.7: Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

Unit 10: Angle Relationships

- **PARALLEL LINES AND ANGLE RELATIONSHIPS**
  - 8.G.A.5: 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. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.
  - 8.R.3b.a: Form chains of reasoning that will justify or refute propositions or conjectures.

- 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
- 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.

- **ANGLE RELATIONSHIPS IN TRIANGLES**
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
  - 8.G.A.5: 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. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.
  - 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.
  - 8.R.3b.a: Form chains of reasoning that will justify or refute propositions or conjectures.

Unit 11: Data and Statistics

- **SCATTERPLOTS**
  - 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.
  - 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.

- 8.SP.A.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.
- 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.
- 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- 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 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.
- 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.
- 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.
- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.

- **LINEAR MODELS IN DATA**
  - 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
  - 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 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.
  - 8.SP.A.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.

- 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.
- 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.
- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
- 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.
- 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.
- 8.M.1a: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. a. Given a real-world situation, identify the problem that needs to be solved, make necessary assumptions, and identify important information.

- **FREQUENCY TABLES**
  - 8.M.1d: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. d. Given a real-world situation, interpret what a solution means within the context of the situation.
  - 8.M.1e: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. e. Given a real-world situation, evaluate and/or validate a partial or complete solution.
  - 8.SP.A.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

- 8.M.1: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions.
- 8.M.1b: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. b. Given a real-world situation, formulate a mathematical representation of the problem.
- 8.SP.A.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
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- 8.M.1c: Choose and produce appropriate mathematics to model quantities and mathematical relationships in order to analyze situations, make predictions, solve multi-step problems, and draw conclusions. c. Given a real-world situation, use mathematical models to compute and draw conclusions.
- 8.SP.A.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
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Unit 12: Test-Taking Strategies