FLORIDA STANDARDS TO BOOK CORRELATION

After a standard is introduced, it is revisited many times in subsequent activities, lessons, and exercises.

Domain: The Number System

Standards (MAFS)

8.NS.1.1 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.

- **Section 7.4** Approximating Square Roots
- **Extension 7.4** Repeating Decimals

8.NS.1.2 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.

- **Section 7.4** Approximating Square Roots

Domain: Expressions and Equations

Standards (MAFS)

8.EE.1.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.

- **Section 10.1** Exponents
- **Section 10.2** Product of Powers Property
- **Section 10.3** Quotient of Powers Property
- **Section 10.4** Zero and Negative Exponents

8.EE.1.2 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.

- **Section 7.1** Finding Square Roots
- **Section 7.2** Finding Cube Roots
- **Section 7.3** The Pythagorean Theorem
- **Section 7.4** Approximating Square Roots
- **Section 7.5** Using the Pythagorean Theorem

8.EE.1.3 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.

- **Section 10.5** Reading Scientific Notation
- **Section 10.6** Writing Scientific Notation
- **Section 10.7** Operations in Scientific Notation

8.EE.1.4 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. Interpret scientific notation that has been generated by technology.

- **Section 10.5** Reading Scientific Notation
- **Section 10.6** Writing Scientific Notation
- **Section 10.7** Operations in Scientific Notation

8.EE.2.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.

- **Section 4.1** Graphing Linear Equations
- **Section 4.3** Graphing Proportional Relationships

8.EE.2.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.

- **Section 4.2** Slope of a Line
- **Extension 4.2** Slopes of Parallel and Perpendicular Lines
- **Section 4.3** Graphing Proportional Relationships
- **Section 4.4** Graphing Linear Equations in Slope-Intercept Form
- **Section 4.5** Graphing Linear Equations in Standard Form

8.EE.3.7 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 $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).

- **Section 1.1** Solving Simple Equations
- **Section 1.2** Solving Multi-Step Equations
- **Section 1.3** Solving Equations with Variables on Both Sides
- **Section 1.4** Rewriting Equations and Formulas
- **Extension 5.4** Solving Linear Equations by Graphing

b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

- **Section 1.1** Solving Simple Equations
- **Section 1.2** Solving Multi-Step Equations
- **Section 1.3** Solving Equations with Variables on Both Sides
- **Section 1.4** Rewriting Equations and Formulas
- **Extension 5.4** Solving Linear Equations by Graphing

8.EE.3.8 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.

- **Section 5.1** Solving Systems of Linear Equations by Graphing
- **Section 5.4** Solving Special Systems of Linear Equations
- **Extension 5.4** Solving Linear Equations by Graphing

b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.

- **Section 5.1** Solving Systems of Linear Equations by Graphing
- **Section 5.2** Solving Systems of Linear Equations by Substitution
- **Section 5.3** Solving Systems of Linear Equations by Elimination
- **Section 5.4** Solving Special Systems of Linear Equations
- **Extension 5.4** Solving Linear Equations by Graphing

c. Solve real-world and mathematical problems leading to two linear equations in two variables.

- **Section 5.1** Solving Systems of Linear Equations by Graphing
- **Section 5.2** Solving Systems of Linear Equations by Substitution
- **Section 5.3** Solving Systems of Linear Equations by Elimination
- **Section 5.4** Solving Special Systems of Linear Equations
- **Extension 5.4** Solving Linear Equations by Graphing

Domain: Functions

Standards (MAFS)

8.F.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.

- **Section 6.1** Relations and Functions
- **Section 6.2** Representations of Functions

8.F.1.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).

- **Section 6.3** Linear Functions

8.F.1.3 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.

- **Section 6.3** Linear Functions
- **Section 6.4** Comparing Linear and Nonlinear Functions

8.F.2.4 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.

- **Section 4.6** Writing Equations in Slope-Intercept Form
- **Section 4.7** Writing Equations in Point-Slope Form
- **Section 6.3** Linear Functions

8.F.2.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph. Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

- **Section 6.5** Analyzing and Sketching Graphs

Domain: Geometry

Standards (MAFS)

8.G.1.1 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.

- **Section 2.2** Translations
- **Section 2.3** Reflections
- **Section 2.4** Rotations

b. Angles are taken to angles of the same measure.

- **Section 2.2** Translations
- **Section 2.3** Reflections
- **Section 2.4** Rotations

c. Parallel lines are taken to parallel lines.

- **Section 2.2** Translations
- **Section 2.3** Reflections
- **Section 2.4** Rotations

8.G.1.2 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.

- **Section 2.1** Congruent Figures
- **Section 2.2** Translations
- **Section 2.3** Reflections
- **Section 2.4** Rotations

8.G.1.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.

- **Section 2.2** Translations
- **Section 2.3** Reflections
- **Section 2.4** Rotations
- **Section 2.7** Dilations

8.G.1.4 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.

- **Section 2.5** Similar Figures
- **Section 2.6** Perimeters and Areas of Similar Figures
- **Section 2.7** Dilations

8.G.1.5 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.

- **Section 3.1** Parallel Lines and Transversals
- **Section 3.2** Angles of Triangles
- **Section 3.3** Angles of Polygons
- **Section 3.4** Using Similar Triangles

8.G.2.6 Explain a proof of the Pythagorean Theorem and its converse.

- **Section 7.3** The Pythagorean Theorem
- **Section 7.5** Using the Pythagorean Theorem

8.G.2.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.

- **Section 7.3** The Pythagorean Theorem
- **Section 7.5** Using the Pythagorean Theorem

8.G.2.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.

- **Section 7.3** The Pythagorean Theorem
- **Section 7.5** Using the Pythagorean Theorem

8.G.3.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

- **Section 8.1** Volumes of Cylinders
- **Section 8.2** Volumes of Cones
- **Section 8.3** Volumes of Spheres
- **Section 8.4** Surface Areas and Volumes of Similar Solids

Domain: Statistics and Probability

Standards (MAFS)

8.SP.1.1 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.

- **Section 9.1** Scatter Plots
- **Section 9.2** Lines of Fit
- **Section 9.4** Choosing a Data Display

8.SP.1.2 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.

- **Section 9.2** Lines of Fit

8.SP.1.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.

- **Section 9.2** Lines of Fit

8.SP.1.4 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.

- **Section 9.3** Two-Way Tables