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SuccessMaker®

# Florida B.E.S.T. Standards for Mathematics 2020
# Benchmarks for Excellent Student Thinking
# Grade 8

## Alignments to SuccessMaker
## Providing rigorous intervention
## for K-8 learners with unparalleled precision

| Florida B.E.S.T. Standards' Code | Florida B.E.S.T. Standards for Mathematics Grade 8 | SuccessMaker Item Descriptions | Item IDs |
|---|---|---|---|
| MA.8.NSO | Number Sense and Operations | | |
| MA.8.NSO.1 | Solve problems involving rational numbers, including numbers in scientific notation, and extend the understanding of rational numbers to irrational numbers. | Student do operations on scientific notation to compare the speed of planes. | SMMA_LO_02515 |
| MA.8.NSO.1.1 | Extend previous understanding of rational numbers to define irrational numbers within the real number system. Locate an approximate value of a numerical expression involving irrational numbers on a number line. | Drag rational and irrational values to their correct positions on a number line. | SMMA_LO_02141 |
| | | Identify irrational numbers. | SMMA_LO_02178 |
| MA.8.NSO.1.2 | Plot, order and compare rational and irrational numbers, represented in various forms. | Drag rational and irrational values to their correct positions on a number line. | SMMA_LO_02141 |
| | | Compare two expressions using the additive inverse property. | SMMA_LO_00120 |
| | | Complete statements of order for rational numbers in real-world contexts. | SMMA_LO_02110 |
| | | Compare rational numbers in real-world contexts. | SMMA_LO_02109 |
| | | Ratios and Equations Targeted Lesson 4: Understanding Positive and Negative Numbers | |
| MA.8.NSO.1.3 | Extend previous understanding of the Laws of Exponents to include integer exponents. Apply the Laws of Exponents to evaluate numerical expressions and generate equivalent numerical expressions, limited to integer exponents and rational number bases, with procedural fluency. | Find the missing exponent in a multiplication or division number sentence. | SMMA_LO_01111 |
| | | Match expressions with repeated factors to numbers in exponential form to create equations. | SMMA_LO_01100 |
| | | Multiply or divide two numbers with exponents (same base, exponents less than 18). | SMMA_LO_01104 |

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| MA.8.NSO.1.4 | Express numbers in scientific notation to represent and approximate very large or very small quantities. Determine how many times larger or smaller one number is compared to a second number. | Write very small numbers in scientific notation. | SMMA_LO_02070 |
| | | Student do operations on scientific notation to compare the speed of planes. | SMMA_LO_02515 |
| | | Write very large numbers in scientific notation. | SMMA_LO_02071 |
| MA.8.NSO.1.5 | Add, subtract, multiply and divide numbers expressed in scientific notation with procedural fluency. | Student do operations on scientific notation to compare the speed of planes. | SMMA_LO_02515 |
| MA.8.NSO.1.6 | Solve real-world problems involving operations with numbers expressed in scientific notation. | Student do operations on scientific notation to compare the speed of planes. | SMMA_LO_02515 |
| MA.8.NSO.1.7 | Solve multi-step mathematical and real-world problems involving the order of operations with rational numbers including exponents and radicals. | Find three consecutive integers when given their sum. | SMMA_LO_01639 |
| | | Students use calculations on rational numbers to figure out the speed at which James Cameron descended into Mariana Trench. | SMMA_LO_02514 |
| | | Ratios and Equations Targeted Lesson 19: Parentheses and Order of Operations | |
| MA.8.AR | Algebraic Reasoning | | |
| MA.8.AR.1 | Generate equivalent algebraic expressions. | Apply the properties of operations to generate equivalent expressions. | SMMA_LO_02059 |
| | | Rewrite an expression from context by factoring and combining like terms. | SMMA_LO_02150 |
| | | Ratios and Equations Targeted Lesson 19: Parentheses and Order of Operations | |

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| MA.8.AR.1.1 | Apply the Laws of Exponents to generate equivalent algebraic expressions, limited to integer exponents and monomial bases. | Match expressions with repeated factors to numbers in exponential form to create equations. | SMMA_LO_01100 |
| | | Multiply or divide two numbers with exponents (same base, exponents less than 18). | SMMA_LO_01104 |
| MA.8.AR.1.3 | Rewrite the sum of two algebraic expressions having a common monomial factor as a common factor multiplied by the sum of two algebraic expressions. | Rewrite an expression from context by factoring and combining like terms. | SMMA_LO_02150 |
| MA.8.AR.2 | Solve multi-step one-variable equations and inequalities. | | |
| MA.8.AR.2.1 | Solve multi-step linear equations in one variable, with rational number coefficients. Include equations with variables on both sides. | Generate and solve an equation with variables on both sides of the equal sign in a real-world context. | SMMA_LO_02145 |
| MA.8.AR.2.2 | Solve two-step linear inequalities in one variable and represent solutions algebraically and graphically. | Ratios and Equations Targeted Lesson 28: Solving Inequalities | |
| MA.8.AR.3 | Extend understanding of proportional relationships to two-variable linear equations. | | |
| MA.8.AR.3.1 | Determine if a linear relationship is also a proportional relationship. | Derive the equation y = mx for a line through the origin, and y = mx + b for a line intercepting the vertical axis at b. | SMMA_LO_02076 |
| MA.8.AR.3.2 | Given a table, graph or written description of a linear relationship, determine the slope. | Students use linear functions to solve a problem surrounding manufacturing stock decay. | SMMA_LO_02517 |
| | | Identify the rate of change and the y-intercept of two linear functions, one represented in a table, and one represented either algebraically or in a verbal description. | SMMA_LO_02103 |
| | | Identify the rate of change and the y-intercept of two linear functions, one represented in a verbal description, and one represented either graphically or algebraically. | SMMA_LO_02102 |

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| | | Identify the rate of change and the y-intercept of two linear functions, one represented graphically, and one represented either algebraically or in a table. | SMMA_LO_02101 |
| MA.8.AR.3.5 | Given a real-world context, determine and interpret the slope and $y$-intercept of a two-variable linear equation from a written description, a table, a graph or an equation in slope-intercept form. | Students use linear functions to solve a problem surrounding manufacturing stock decay. | SMMA_LO_02517 |
| | | Identify the rate of change and the y-intercept of two linear functions, one represented in a table, and one represented either algebraically or in a verbal description. | SMMA_LO_02103 |
| | | Identify the rate of change and the y-intercept of two linear functions, one represented in a verbal description, and one represented either graphically or algebraically. | SMMA_LO_02102 |
| | | Identify the rate of change and the y-intercept of two linear functions, one represented graphically, and one represented either algebraically or in a table. | SMMA_LO_02101 |
| | | Determine the slope and intercept of a linear equation in context. | SMMA_LO_02180 |
| MA.8.AR.4 | Develop an understanding of two-variable systems of equations. | Model a real-world problem with a system of linear equations. Then solve it by locating the intersection point of the graphs of the two equations. | SMMA_LO_02134 |
| | | Identify the solution to a system of linear equations by locating the point of intersection on its graph. | SMMA_LO_02080 |

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| MA.8.AR.4.1 | Given a system of two linear equations and a specified set of possible solutions, determine which ordered pairs satisfy the system of linear equations. | Model a real-world problem with a system of linear equations. Then solve it by locating the intersection point of the graphs of the two equations. | SMMA_LO_02134 |
| | | Identify the solution to a system of linear equations by locating the point of intersection on its graph. | SMMA_LO_02080 |
| MA.8.AR.4.2 | Given a system of two linear equations represented graphically on the same coordinate plane, determine whether there is one solution, no solution or infinitely many solutions. | If a system of linear equations has 0 or infinitely many solutions, solve it by inspection. If it has 1 solution, solve it either algebraically or by graphing. | SMMA_LO_02133 |
| MA.8.AR.4.3 | Given a mathematical or real-world context, solve systems of two linear equations by graphing. | Model a real-world problem with a system of linear equations. Then solve it by locating the intersection point of the graphs of the two equations. | SMMA_LO_02134 |
| | | If a system of linear equations has 0 or infinitely many solutions, solve it by inspection. If it has 1 solution, solve it either algebraically or by graphing. | SMMA_LO_02133 |
| | | Identify the solution to a system of linear equations by locating the point of intersection on its graph. | SMMA_LO_02080 |
| MA.8.F | Functions | | |
| MA.8.F.1 | Define, evaluate and compare functions. | Identify if an equation is a linear or quadratic function. | SMMA_LO_01829 |
| | | Identify if an equation is a linear or nonlinear function. | SMMA_LO_01833 |
| | | Identify the rate of change and the y-intercept of two linear functions, one represented in a table, and one represented either algebraically or in a verbal description. | SMMA_LO_02103 |
| | | Identify the rate of change and the y-intercept of two linear functions, one represented in a verbal description, and one represented either graphically or algebraically. | SMMA_LO_02102 |

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| | | Derive the equation y = mx for a line through the origin, and y = mx + b for a line intercepting the vertical axis at b. | SMMA_LO_02076 |
| | | Identify if an equation is a linear or exponential function. | SMMA_LO_01828 |
| | | Identify the rate of change and the y-intercept of two linear functions, one represented graphically, and one represented either algebraically or in a table. | SMMA_LO_02101 |
| MA.8.F.1.1 | Given a set of ordered pairs, a table, a graph or mapping diagram, determine whether the relationship is a function. Identify the domain and range of the relation. | Given a set of graphs of relations, identify which graphs represent functions. | SMMA_LO_01835 |
| | | Given a graph of a relation, identify two ordered pairs on the graph that show the relation is not a function. | SMMA_LO_01812 |
| | | Given a list of ordered pairs of a relation, identify two ordered pairs that show the relation is not a function. | SMMA_LO_01811 |
| MA.8.F.1.2 | Given a function defined by a graph or an equation, determine whether the function is a linear function. Given an input-output table, determine whether it could represent a linear function. | Determine if a table values represents a linear or nonlinear function. | SMMA_LO_01834 |
| | | Identify the function that is represented by a table of values (linear and nonlinear). | SMMA_LO_01883 |
| | | Identify if an equation is a linear or nonlinear function. | SMMA_LO_01833 |
| | | Identify whether graphs are linear or nonlinear. | SMMA_LO_01832 |
| MA.8.GR | Geometric Reasoning | | |

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|---|---|---|---|
| MA.8.GR.1 | Develop an understanding of the Pythagorean Theorem and angle relationships involving triangles. | Given two points on a coordinate grid, draw a right triangle whose hypotenuse connects the two points. Then use the Pythagorean Theorem to find the distance between the two points. | SMMA_LO_02100 |
| MA.8.GR.1.1 | Apply the Pythagorean Theorem to solve mathematical and real-world problems involving unknown side lengths in right triangles. | Find the measurement of the hypotenuse using the Pythagorean theorem. (2D) | SMMA_LO_01854 |
| MA.8.GR.1.2 | Apply the Pythagorean Theorem to solve mathematical and real-world problems involving the distance between two points in a coordinate plane. | Given two points on a coordinate grid, draw a right triangle whose hypotenuse connects the two points. Then use the Pythagorean Theorem to find the distance between the two points. | SMMA_LO_02100 |
| MA.8.GR.1.3 | Use the Triangle Inequality Theorem to determine if a triangle can be formed from a given set of sides. Use the converse of the Pythagorean Theorem to determine if a right triangle can be formed from a given set of sides. | Determine if triangles can be constructed with given sides and angles. | SMMA_LO_02176 |
| MA.8.GR.1.6 | Develop and use formulas for the sums of the interior angles of regular polygons by decomposing them into triangles. | Establish that alternate interior angles are congruent for parallel lines. | SMMA_LO_00672 |
| MA.8.GR.2 | Understand similarity and congruence using models and transformations. | | |
| MA.8.GR.2.1 | Given a preimage and image generated by a single transformation, identify the transformation that describes the relationship. | Determine the missing coordinate of a vertex of a triangle in a transformation. | SMMA_LO_01736 |
| MA.8.GR.2.2 | Given a preimage and image generated by a single dilation, identify the scale factor that describes the relationship. | Ratios and Equations Targeted Lesson 15: Similar Shapes | |
| MA.8.GR.2.3 | Describe and apply the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane. | Determine the missing coordinate of a vertex of a triangle in a transformation. | SMMA_LO_01736 |

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|---|---|---|---|
| MA.8.GR.2.4 | Solve mathematical and real-world problems involving proportional relationships between similar triangles. | Match the corresponding sides or angles of two similar figures. | SMMA_LO_00673 |
| MA.8.DP | Data Analysis and Probability | | |
| MA.8.DP.2 | Represent and find probabilities of repeated experiments. | Using a graphical representation of an urn and a set of balls of two colors, modify a random experiment so that the qualitative probability of getting one color is greater than that of getting the other color. | SMMA_LO_01161 |
| | | Determine theoretical and experimental probabilities. | SMMA_LO_02204 |
| MA.8.DP.2.1 | Determine the sample space for a repeated experiment. | In the context of randomly selecting a card that has a certain me on it, compute the probability of each me being selected from a set of cards. | SMMA_LO_01215 |
| MA.8.DP.2.2 | Find the theoretical probability of an event related to a repeated experiment. | Determine whether a chronological event is certain or impossible. | SMMA_LO_01137 |
| | | Determine theoretical and experimental probabilities. | SMMA_LO_02204 |
| MA.8.DP.2.3 | Solve real-world problems involving probabilities related to single or repeated experiments, including making predictions based on theoretical probability. | Determine whether a chronological event is certain or impossible. | SMMA_LO_01137 |