Florida Tutorials are designed specifically for the New Florida Standards for Math and English Language Arts and the Next Generation Sunshine State Standards (NGSSS) for science and social studies to prepare students for the Florida Standards Assessments and the NGSSS End-of-Course (EOC) exams.

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.

1. THE NUMBER SYSTEM

- **RATIONAL AND IRRATIONAL NUMBERS**
  - **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.*

- **APPROXIMATING IRRATIONAL NUMBERS**
  - **MA.8.NSO.1.2** *Plot, order and compare rational and irrational numbers, represented in various forms.*
  - **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.*

2. EXPONENTS

- **PROPERTIES OF EXPONENTS**
  - **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.*
  - **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.*

- **POWERS OF 10**
  - **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.*
  - **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.*
  - **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.*
  - **MA.8.NSO.1.5** *Add, subtract, multiply and divide numbers expressed in scientific notation with procedural fluency.*
  - **MA.8.NSO.1.6** *Solve real-world problems involving operations with numbers expressed in scientific notation.*

- **MA.8.NSO.1.2** *Plot, order and compare rational and irrational numbers, represented in various forms.*

- **SCIENTIFIC NOTATION**
  - **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.*
  - **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.*
  - **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.*
  - **MA.8.NSO.1.5** *Add, subtract, multiply and divide numbers expressed in scientific notation with procedural fluency.*
  - **MA.8.NSO.1.6** *Solve real-world problems involving operations with numbers expressed in scientific notation.*

3. PROPORTIONAL REASONING AND SLOPE

- **SLOPE**
  - **MA.8.AR.3.2** *Given a table, graph or written description of a linear relationship, determine the slope.*
  - **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.*
  - **MA.8.AR.3.3** *Given a table, graph or written description of a linear relationship, write an equation in slope-intercept form.*
  - **MA.8.AR.3.1** *Determine if a linear relationship is also a proportional relationship.*
  - **MA.8.GR.2.4** *Solve mathematical and real-world problems involving proportional relationships between similar triangles.*

- **MULTIPLE REPRESENTATIONS OF PROPORTIONS**
  - **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.*
  - **MA.8.AR.3.2** *Given a table, graph or written description of a linear relationship, determine the slope.*
  - **MA.8.AR.3.1** *Determine if a linear relationship is also a proportional relationship.*
  - **MA.8.AR.3.4** *Given a mathematical or real-world context, graph a two-variable linear equation from a written description, a table or an equation in slope-intercept form.*

4. FUNCTIONS

- **RELATIONS AND FUNCTIONS**
  - **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.*

- **COMPARING FUNCTIONS**
  - **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.*
  - **MA.8.AR.3.4** *Given a mathematical or real-world context, graph a two-variable linear equation from a written description, a table or an equation in slope-intercept form.*
  - **MA.8.AR.3.2** *Given a table, graph or written description of a linear relationship, determine the slope.*
  - **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.*
  - **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.*

- **GRAPHS OF FUNCTIONS**
  - **MA.8.AR.3.4** *Given a mathematical or real-world context, graph a two-variable linear equation from a written description, a table or an equation in slope-intercept form.*

- **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.*
- **MA.8.F.1.3** *Analyze a real-world written description or graphical representation of a functional relationship between two quantities and identify where the function is increasing, decreasing or constant.*

5. LINEAR FUNCTIONS

- **SLOPE-INTERCEPT FORM**
  - **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.*
  - **MA.8.AR.3.2** *Given a table, graph or written description of a linear relationship, determine the slope.*
  - **MA.8.AR.3.3** *Given a table, graph or written description of a linear relationship, write an equation in slope-intercept form.*
  - **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.*
  - **MA.8.AR.3.4** *Given a mathematical or real-world context, graph a two-variable linear equation from a written description, a table or an equation in slope-intercept form.*

- **WRITING LINEAR FUNCTIONS**
  - **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.*
  - **MA.8.AR.3.2** *Given a table, graph or written description of a linear relationship, determine the slope.*
  - **MA.8.AR.3.3** *Given a table, graph or written description of a linear relationship, write an equation in slope-intercept form.*

6. SOLVING EQUATIONS AND INEQUALITIES

- **SOLVING LINEAR EQUATIONS**
  - **MA.8.AR.2.1** *Solve multi-step linear equations in one variable, with rational number coefficients. Include equations with variables on both sides.*

- **SOLVING LINEAR INEQUALITIES**
  - **MA.8.AR.2.2** *Solve two-step linear inequalities in one variable and represent solutions algebraically and graphically.*

- **SOLVING SYSTEMS OF LINEAR EQUATIONS**
  - **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.*
  - **MA.8.AR.4.3** *Given a mathematical or real-world context, solve systems of two linear equations by graphing.*
  - **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.*

- **SOLVING EQUATIONS USING ROOTS**
  - **MA.8.AR.2.3** *Given an equation in the form of $x^2 = p$ and $x^3 = q$, where p is a whole number and q is an integer, determine the real solutions.*

7. THE PYTHAGOREAN THEOREM AND DISTANCE FORMULA

- **THE PYTHAGOREAN THEOREM**
  - **MA.8.GR.1.1** *Apply the Pythagorean Theorem to solve mathematical and real-world problems involving unknown side lengths in right triangles.*

- **THE CONVERSE OF THE PYTHAGOREAN THEOREM**
  - **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.

- **MA.8.GR.1.1** *Apply the Pythagorean Theorem to solve mathematical and real-world problems involving unknown side lengths in right triangles.*

- **DISTANCE ON THE COORDINATE PLANE**
  - **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.*
  - **MA.8.GR.1.1** *Apply the Pythagorean Theorem to solve mathematical and real-world problems involving unknown side lengths in right triangles.*
  - **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.*

8. TRANSFORMATIONS, CONGRUENCE, AND SIMILARITY

- **BASICS OF TRANSFORMATIONS**
  - **MA.8.GR.2.1** *Given a preimage and image generated by a single transformation, identify the transformation that describes the relationship.*
  - **MA.8.GR.2.3** *Describe and apply the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane.*

- **TRANSFORMATIONS AND CONGRUENCE**
  - **MA.8.GR.2.3** *Describe and apply the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane.*
  - **MA.8.GR.2.1** *Given a preimage and image generated by a single transformation, identify the transformation that describes the relationship.*

- **TRANSFORMATIONS IN THE COORDINATE PLANE**
  - **MA.8.GR.2.3** *Describe and apply the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane.*
  - **MA.8.GR.2.2** *Given a preimage and image generated by a single dilation, identify the scale factor that describes the relationship.*
  - **MA.8.GR.2.1** *Given a preimage and image generated by a single transformation, identify the transformation that describes the relationship.*

- **SIMILARITY AND DILATIONS**
  - **MA.8.GR.2.1** *Given a preimage and image generated by a single transformation, identify the transformation that describes the relationship.*
  - **MA.8.GR.2.2** *Given a preimage and image generated by a single dilation, identify the scale factor that describes the relationship.*
  - **MA.8.GR.2.4** *Solve mathematical and real-world problems involving proportional relationships between similar triangles.*
  - **MA.8.GR.2.3** *Describe and apply the effect of a single transformation on two-dimensional figures using coordinates and the coordinate plane.*
  - **MA.8.GR.1.1** *Apply the Pythagorean Theorem to solve mathematical and real-world problems involving unknown side lengths in right triangles.*

9. ANGLES AND ANGLE RELATIONSHIPS

- **PARALLEL LINES AND ANGLE RELATIONSHIPS**
  - **MA.8.GR.1.4** *Solve mathematical problems involving the relationships between supplementary, complementary, vertical or adjacent angles.*

- **ANGLE RELATIONSHIPS IN TRIANGLES**

- **MA.8.GR.1.5** *Solve problems involving the relationships of interior and exterior angles of a triangle.*

10. DATA AND STATISTICS

- **SCATTERPLOTS**
  - **MA.8.DP.1.1** *Given a set of real-world bivariate numerical data, construct a scatter plot or a line graph as appropriate for the context.*
  - **MA.8.DP.1.3** *Given a scatter plot with a linear association, informally fit a straight line.*
  - **MA.8.DP.1.2** *Given a scatter plot within a real-world context, describe patterns of association.*

- **LINEAR MODELS IN DATA**
  - **MA.8.DP.1.3** *Given a scatter plot with a linear association, informally fit a straight line.*
  - **MA.8.DP.1.2** *Given a scatter plot within a real-world context, describe patterns of association.*
  - **MA.8.DP.1.1** *Given a set of real-world bivariate numerical data, construct a scatter plot or a line graph as appropriate for the context.*

11. PROBABILITY

- **PROBABILITY**
  - **MA.8.DP.2.3** *Solve real-world problems involving probabilities related to single or repeated experiments, including making predictions based on theoretical probability.*

- **CALCULATING PROBABILITY**
  - **MA.8.DP.2.3** *Solve real-world problems involving probabilities related to single or repeated experiments, including making predictions based on theoretical probability.*

- **PROBABILITY OF COMPOUND EVENTS**
  - **MA.8.DP.2.2** *Find the theoretical probability of an event related to a repeated experiment.*
  - **MA.8.DP.2.1** *Determine the sample space for a repeated experiment.*

- **SIMULATIONS**
  - **MA.8.DP.2.1** *Determine the sample space for a repeated experiment.*
  - **MA.8.DP.2.3** *Solve real-world problems involving probabilities related to single or repeated experiments, including making predictions based on theoretical probability.*
  - **MA.8.DP.2.2** *Find the theoretical probability of an event related to a repeated experiment.*