Texas
8th GRADE MATH
2021-2022 Pacing Guide
CASE Assessments

Note: The Texas Essential Knowledge and Skills for Mathematics Standards describe the mathematical process standards educators should seek to develop in their students. While they are not specifically stated in this pacing guide, students should be developing these skills throughout the school year.

Unit	Major Topics/Concepts
Value and Magnitude of Rational Numbers 8.2.A 8.2.C 8.2.D	The student applies mathematical process standards to represent and use real numbers in a variety of forms. The student is expected to: ✓ extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers; ✓ convert between standard decimal notation and scientific notation; ✓ order a set of real numbers arising from mathematical and real-world contexts.
Statistics with Univariate Data 8.11.B	The student applies mathematical process standards to use statistical procedures to describe data. The student is expected to: ✓ determine the mean absolute deviation and use this quantity as a measure of the average distance data are from the mean using a data set of no more than 10 data points.
One-Variable Equations, Inequalities, and Their Applications 8.8.A 8.8.B 8.8.C 8.12.A 8.12.D	The student applies mathematical process standards to use one-variable equations or inequalities in problem situations. The student is expected to: ✓ write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants; ✓ write a corresponding real-world problem when given a one-variable equation or inequality with variables on both sides of the equal sign using rational number coefficients and constants; ✓ model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to: ✓ solve real-world problems comparing how interest rate and loan length affect the cost of credit; ✓ calculate and compare simple interest and compound interest earnings.
Developing an Understanding of Slope and *y*-Intercept 8.4.A 8.4.C	The student applies mathematical process standards to explain proportional and non-proportional relationships involving slope. The student is expected to: ✓ use similar right triangles to develop an understanding that slope, m, given as the rate comparing the change in y-values to the change in x-values, $(y_2 - y_1)/(x_2 - x_1)$, is the same for any two points (x_1, y_1) and (x_2, y_2) on the same line; ✓ use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems.

Unit	Major Topics/Concepts
Proportional and Non-Proportional Functions 8.4.B 8.5.A 8.5.B 8.5.E 8.5.F 8.5.G 8.5.H 8.9.A 8.12.C 8.12.G	The student applies mathematical process standards to explain proportional and non-proportional relationships involving slope. The student is expected to: ✓ graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship. The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions. The student is expected to: ✓ represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$; ✓ represent linear non-proportional situations with tables, graphs, and equations in the form of $y = mx + b$, where $b \neq 0$; ✓ solve problems involving direct variation; ✓ distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form $y = kx$ or $y = mx + b$, where $b \neq 0$; ✓ identify functions using sets of ordered pairs, tables, mappings, and graphs; ✓ identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems. The student applies mathematical process standards to use multiple representations to develop foundational concepts of simultaneous linear equations. The student is expected to: ✓ identify and verify the values of x and y that simultaneously satisfy two linear equations in the form $y = mx + b$ from the intersections of the graphed equations. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to: ✓ explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time; ✓ estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college.
1st Cumulative Assessment (covering all content to this point)	
Statistics with Bivariate Data 8.4.B 8.5.A 8.5.B 8.5.C 8.5.D 8.5.I 8.11.A	The student applies mathematical process standards to explain proportional and non-proportional relationships involving slope. The student is expected to: ✓ graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship. The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions. The student is expected to: ✓ represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$; ✓ represent linear non-proportional situations with tables, graphs, and equations in the form of $y = mx + b$, where $b \neq 0$;

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	✓ contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not suggest a linear relationship from a graphical representation; ✓ use a trend line that approximates the linear relationship between bivariate sets of data to make predictions; ✓ write an equation in the form $y = mx + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations. The student applies mathematical process standards to use statistical procedures to describe data. The student is expected to: ✓ construct a scatter plot and describe the observed data to address questions of association such as linear, nonlinear, and no association between bivariate data.
Transformational Geometry 8.3.A 8.3.B 8.3.C 8.10.A 8.10.B 8.10.C 8.10.D	The student applies mathematical process standards to use proportional relationships to describe dilations. The student is expected to: ✓ generalize that the ratios of corresponding sides of similar shapes are proportional, including a shape and its dilation; ✓ compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane; ✓ use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation. The student applies mathematical process standards to develop transformational geometry concepts. The student is expected to: ✓ generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane; ✓ differentiate between transformations that preserve congruence and those that do not; ✓ explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation; ✓ model the effect on linear and area measurements of dilated two-dimensional shapes.
2nd Cumulative Assessment (covering all content to this point)	
Angles and Triangle Relationships Involving Real Numbers 8.2.A 8.2.B 8.2.D 8.6.C 8.7.C 8.7.D 8.8.D	The student applies mathematical process standards to represent and use real numbers in a variety of forms. The student is expected to: ✓ extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers; ✓ approximate the value of an irrational number, including π and square roots of numbers less than 225, and locate that rational number approximation on a number line; ✓ order a set of real numbers arising from mathematical and real-world contexts. The student applies mathematical process standards to develop mathematical relationships and make connections to geometric formulas. The student is expected to: ✓ use models and diagrams to explain the Pythagorean Theorem.

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	The student applies mathematical process standards to use geometry to solve problems. The student is expected to: ✓ use the Pythagorean Theorem and its converse to solve problems; ✓ determine the distance between two points on a coordinate plane using the Pythagorean Theorem. The student applies mathematical process standards to use one-variable equations or inequalities in problem situations. The student is expected to: ✓ use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.
Measurement of Three-Dimensional Figures 8.6.A 8.7.A 8.7.B	The student applies mathematical process standards to develop mathematical relationships and make connections to geometric formulas. The student is expected to: ✓ describe the volume formula $V = Bh$ of a cylinder in terms of its base area and its height. The student applies mathematical process standards to use geometry to solve problems. The student is expected to: ✓ solve problems involving the volume of cylinders, cones, and spheres; ✓ use previous knowledge of surface area to make connections to the formulas for lateral and total surface area and determine solutions for problems involving rectangular prisms, triangular prisms, and cylinders.
Making Connections 8.3.C 8.4.B 8.4.C 8.5.D 8.5.G 8.5.I 8.7.C 8.8.C 8.10.C 8.12.D	The student applies mathematical process standards to use proportional relationships to describe dilations. The student is expected to: ✓ use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation. The student applies mathematical process standards to explain proportional and non-proportional relationships involving slope. The student is expected to: ✓ graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship; ✓ use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems. The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions. The student is expected to: ✓ use a trend line that approximates the linear relationship between bivariate sets of data to make predictions; ✓ identify functions using sets of ordered pairs, tables, mappings, and graphs; ✓ write an equation in the form $y = mx + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations. The student applies mathematical process standards to use geometry to solve problems. The student is expected to: ✓ use the Pythagorean Theorem and its converse to solve problems.

Unit	Major Topics/Concepts
	The student applies mathematical process standards to use one-variable equations or inequalities in problem situations. The student is expected to: ✓ model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants. The student applies mathematical process standards to develop transformational geometry concepts. The student is expected to: ✓ explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation. The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to: ✓ calculate and compare simple interest and compound interest earnings.
Financial Planning 8.12.A 8.12.C 8.12.D 8.12.G	The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor. The student is expected to: ✓ solve real-world problems comparing how interest rate and loan length affect the cost of credit; ✓ explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time; ✓ calculate and compare simple interest and compound interest earnings; ✓ estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college.
Essential Understandings of Algebra 8.4.B 8.5.A 8.5.B 8.5.C 8.5.D 8.5.I 8.9.A 8.11.A	The student applies mathematical process standards to explain proportional and non-proportional relationships involving slope. The student is expected to: ✓ graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship. The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions. The student is expected to: ✓ represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$; ✓ represent linear non-proportional situations with tables, graphs, and equations in the form of $y = mx + b$, where $b \neq 0$; ✓ contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not suggest a linear relationship from a graphical representation; ✓ use a trend line that approximates the linear relationship between bivariate sets of data to make predictions; ✓ write an equation in the form $y = mx + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations. The student applies mathematical process standards to use multiple representations to develop foundational concepts of simultaneous linear equations. The student is expected to:

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	✓ identify and verify the values of x and y that simultaneously satisfy two linear equations in the form $y = mx + b$ from the intersections of the graphed equations. The student applies mathematical process standards to use statistical procedures to describe data. The student is expected to: ✓ construct a scatter plot and describe the observed data to address questions of association such as linear, nonlinear, and no association between bivariate data.
Final Comprehensive Assessment (covering all content)	