8th Grade Year at a Glance

2019-2020

1st Grading Period	2nd Grading Period
Real Numbers • *Calculator Skills and Operations* (review operations without calculator first) • *Scientific Notation* 8.2C (1 day exponent skills) convert between standard decimal notation and scientific notation • *Relationships between sets, approximating, and ordering real numbers* 8.2A extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers 8.2B 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 **8.2D order a set of real numbers arising from mathematical and real-world contexts**	**Finish Bivariate Data and Constant Rate of Change/Slope Functions** • *Determine slope* **8.4C use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems** • Represent linear relationships and W*rite an Equation (y=mx+b) using Verbal, Numerical, Tables & Graphs* **8.5I write an equation in the form y = mx + b to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations** 8.5B represent linear non-proportional situations with tables, graphs, and equations in the form of y = mx + b, where b ≠ 0 • Proportional vs Non-Proportional 8.5F distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form y = kx or y = mx + b, where b ≠ 0 8.5H identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems • *Identify, Represent Functions using Ordered Pairs, Tables, Graphs, and Mappings* **8.5G identify functions using sets of ordered pairs, tables, mappings, and graphs** • *Intersection of Two Linear Equations Graphs* 8.9A 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
Equations and Inequalities • *Review one and two step equations, combining like terms, distributive property, multi-step equations* • *Model and Solve one variable equations with variables on both sides* **8.8C 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** • *Write one variable equations and inequalities* 8.8A write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants 8.8B 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	**Financial Literacy** • *Mean Absolute Deviation* 8.11B 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 • *Simulate Random Sampling* 8.11C simulate generating random samples of same size from a population with known characteristics to develop the notion of a random sample being representative of the population from which is was selected • *Calculate/Compare Simple and Compound Interest* **8.12D calculate and compare simple interest and compound interest earnings** Financial Decisions (8.12A – 8.12G)
Bivariate Data and Constant Rate of Change/Slope • *Bivariate Data* 8.5C 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 **8.5D use a trend line that approximates the linear relationship between bivariate sets of data to make predictions** 8.11A construct a scatterplot and describe the observed data to address questions of association such as linear, non-linear, and no association between bivariate data • *Direct Variation and represent linear proportional situations* 8.5E solve problems involving direct variation 8.5A represent linear proportional situations with tables, graphs, and equations in the form of y = kx • *Develop slope and graph proportional situations* 8.4A 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, (y2 – y1)/(x2 – x1), is the same for any two points (x1, y1) and (x2, y2) on the same line **8.4B graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship**	**Final Exams**

8th Grade Year at a Glance

2019-2020

3rd Grading Period	4th Grading Period
Transformations • *Similar Figures and Dilations* 8.3A generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation 8.3B compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane **8.3C 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** 8.10D model the effect on linear and area measurements of dilated two-dimensional shapes • *Transformations* 8.10A generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane 8.10B differentiate between transformations that preserve congruence and those that do not **8.10C 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**	**Finish 3-D Figures** **Readiness Standards Review** **Preparing for Algebra** **More in depth:** • **Slope** • **Linear Equations** • **Solving Equations**
2D Figures • *Angles and Similarity* 8.8D 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 • *Pythagorean Theorem* 8.6C use models and diagrams to explain the Pythagorean theorem **8.7C use the Pythagorean theorem and its converse to solve problems** 8.7D determine the distance between two points on a coordinate plane using the Pythagorean theorem	
3D Figures • *Volume of cylinders, cones, and spheres* 8.6B model the relationship between the volume of a cylinder and a cone having both congruent bases and heights and connect that relationship to the formulas 8.6A describe the volume formula V = Bh of a cylinder in terms of its base area and its height **8.7A solve problems involving the volume of cylinders, cones, and spheres** • *Surface Area of rectangular and triangular prisms and cylinders* **8.7B 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**	