

6th Grade MAP Year at a Glance 2019-2020

1 st Grading Period	2 nd Grading Period
<p>Real Numbers</p> <ul style="list-style-type: none"> • <u>Rational Number Operations</u> (review operations w/o calculator) 7.3A add, subtract, multiply, and divide rational numbers fluently; 7.3B apply/extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers • <u>Scientific Notation</u> 8.2C (1 day exponent skills) convert between standard decimal notation and scientific notation • <u>Relationships between sets, approximating, & ordering real numbers</u> 7.2A extend previous knowledge of sets & subsets using a visual representation to describe relationships between sets of rational 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 & square roots of numbers less than 225, & locate that rational number approximate number line; 8.2D order set of real numbers arising from mathematical & real-world contexts <p>Solving Equations and Inequalities</p> <ul style="list-style-type: none"> • <u>Review One Step Equations, Combining Like Terms, Distributive Property</u> • <u>Model and Solve one variable two step equations</u> 7.10B represent solutions for one-variable, two-step equations and inequalities on number lines; 7.11A model and solve one-variable, two-step equations and inequalities • <u>Model and Solve one variable equations with variables on both sides</u> 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 • <u>Write one variable equations/inequalities</u> 7.10A write one-variable, two-step equations/inequalities to represent constraints/conditions within problems 7.10C write a corresponding real-world problem given a one-variable, two-step equation or inequality; 8.8A write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients & 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 • <u>Determine if values make inequalities and equations true</u> 7.11B determine if the given value(s) make(s) one-variable, two-step equations and inequalities true <p>Constant Rate of Change/Slope</p> <ul style="list-style-type: none"> • <u>Unit Rates</u> 7.4B calculate unit rates from rates in mathematical and real-world problems; 7.4D solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems 7.4E convert between measurement systems, including the use of proportions and the use of unit rates • <u>Develop slope and graph proportional situations</u> 7.7A represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$ 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, $(y_2 - y_1)/(x_2 - x_1)$, is the same for any two points (x_1, y_1) and (x_2, y_2) on the same line; 8.4B graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship • <u>Direct Variation & represent linear proportional situations</u> 7.4C determine the constant of proportionality ($k = y/x$) within mathematical & real-world problems; 8.5E solve problems involving direct variation; 8.5A represent linear proportional situations w/ tables, graphs, & equations in the form of $y = kx$ 	<p>Bivariate Data/Functions</p> <ul style="list-style-type: none"> • <u>Bivariate Data</u> 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 • <u>Determine slope</u> 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 • <u>Represent linear relationships and Write an Equation ($y=mx+b$) using Verbal, Numerical, Tables & Graphs</u> 7.4A represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$ 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 $b \neq 0$ • <u>Proportional vs Non-Proportional (should be done throughout the entire unit)</u> 8.5F distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form $y = kx$ or $y = mx + b$, where $b \neq 0$ 8.5H identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems • <u>Identify, Represent Functions using Ordered Pairs, Tables, Graphs, & Mappings</u> 8.5G identify functions using sets of ordered pairs, tables, mappings, and graphs • <u>Intersection of Two Linear Equations Graphs</u> 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 <p>Percent Application with Financial Literacy</p> <ul style="list-style-type: none"> • <u>Percent Increase and Percent Decrease</u> 7.4D solve problems with ratios, rates, and percents, including multi-step problems involving percent increase/percent decrease, & financial literacy problems • <u>Calculate/Compare Simple and Compound Interest</u> 8.12D calculate and compare simple interest and compound interest earnings • <u>Financial Decisions</u> 7.13A; 7.13B; 7.13C; 7.13D; 7.13E and 7.13F 8.12A solve real-world problems comparing how interest rate and loan length affect the cost of credit; 8.12B calculate the total cost of repaying a loan, including credit cards and easy access loans, under various rates of interest and over different periods using an online calculator; 8.12C explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time; 8.12E identify and explain the advantages and disadvantages of different payment methods; 8.12F analyze situations to determine if they represent financially responsible decisions and identify the benefits of financial responsibility and the costs of financial irresponsibility; 8.12G 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. • <u>Mean Absolute Deviation</u> 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 • <u>Random Sampling</u> 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 it was selected <p>Semester Exams and Review</p> <ul style="list-style-type: none"> • Review for semester exams and take semester exams



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3rd Grading Period

Transformations

- Similar Figures and Dilations

7.5A generalize the critical attributes of similarity, including ratios within and between similar shapes;

7.5C solve mathematical and real-world problems involving similar shape and scale drawings

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 & congruence of rotations, reflections, translations, & 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

2D Geometry

- Angles and Similarity

7.11C write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships

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

- Circumference, Composite Figures, and π

7.5B describe π as the ratio of the circumference of a circle to its diameter

7.9B determine the circumference and area of circles

7.9C determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles

3D Geometry

- Volume of cylinders, cones, and spheres

7.9A solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids

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

7.9D solve problems involving the lateral and total surface area of a rectangular prism, rectangular pyramid, triangular prism, and triangular pyramid by determining the area of the shape's net

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

4th Grading Period

Finish 3-D Geometry

Probability and Graphing

- Solve problems using qualitative and quantitative predictions and comparisons using simple experiments (7.6H)

- Experimental and Theoretical probabilities related to simple and compound events using data and sample spaces (7.6B, 7.6I)

- Make predictions and determine solutions using probability for simple and compound events and its complement (7.6C, 7.6D, 7.6E)

- Represent sample spaces for simple and compound events using lists and tree diagrams (7.6A)

- Problem solving using different forms of graphs/ comparisons and equivalents. (7.6G)

- Comparing two groups of numerical data dot plots/ box plots(7.12A)

- Random sample data to make inferences (population) (7.6F, 7.12B)

- Comparing two populations using random samples to make inferences (7.12C)

