

6th Grade Advanced Math - Year at a Glance

1st 9 Weeks

Unit 1: Rational Numbers/Coordinate Plane

- 6.2(A) – classify whole numbers, integers, and rational numbers using a visual representation to describe relationships between sets of numbers
- 6.2(B) – identify a number, its opposite, and its absolute value
- 6.2(C) - locate, compare, and order integers and rational numbers using a number line
- 6.2(D) - order a set of rational numbers
- 6.2(E) – understand that a division problem can be represented as a/b and as $a \div b$
- 6.4(G) – generate equivalent forms of fractions decimals, & percents
- 6.5(C) – use equivalent frac., decimals, & percents to show equal parts of same whole
- 6.11(A) - graph points in all four quadrants using ordered pairs of rational numbers

Unit 2: Integer Operations

- 6.3(C) - represent integer operations with concrete models
- 6.3(D) – add, subtract, multiply, & divide integers

Unit 3: Rational Number Operations

- 6.3(E) – Multiply and divide positive fractions and decimals
- 7.3(B) apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers

2nd 9 Weeks

Unit 3: Rational Number Operations

- 6.3(A) – recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent value
- 6.3(B) – determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than 1
- 6.3(E) – Multiply and divide positive fractions and decimals

Unit 4: Ratios and Rates

- 6.4(B) – apply qualitative & quantitative reasoning to solve problems involving ratios and rates
- 6.4(C) – give examples of ratios as multiplicative comparisons of two quantities
- 6.4(D) – give examples of rates as the comparison by division of two quantities including rates as quotients
- 6.4(E) - represent ratios and percents with concrete models, fractions, and decimals
- 6.4(H) – convert units within a measurement system, including the use of proportions and unit rates
- 6.5(A) – represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions
- 7.4(B) - calculate unit rates from rates in mathematical and real-world problems \textcircled{S}
- 7.4(E) – convert between measurement systems, including the use of proportions and the use of unit rates \textcircled{S}
- 7.5(C) - solve mathematical and real-world problems involving similar shape and scale drawings. \textcircled{R}

Unit 5: Percents

- 6.4(E) – represent ratios and percents with concrete models, fractions, and decimals
- 6.4(F) – Represent benchmark fractions & percents using 10 by 10 grids, strip diagram number lines, & numbers
- 6.4(G) – Generate equivalent forms of fractions, decimals, & percents
- 6.5(B) – find the whole given a part & the percent, find the part given the whole & the percent, & find the percent given the part & the whole
- 7.4(D) – solve problems involving ratios, rates, and percents, including percent increase and percent decrease.

3rd 9 Weeks**Unit 6: Expressions**

- 6.7(A) – generate equivalent numerical expressions using order of operations, including whole number exponents, & prime factorization $\text{\textcircled{R}}$
- 6.7(C) – determine if 2 expressions are equivalent using concrete models, pictorial models, & algebraic representations $\text{\textcircled{S}}$
- 6.7(D) – generate equivalent expressions using the properties of operations inverse, identity, commutative, associative, & distributive properties $\text{\textcircled{R}}$

Unit 7: Equations and Inequalities

- 6.7(B) – distinguish between expressions & equations verbally, numerically, and algebraically $\text{\textcircled{S}}$
- 6.9(A) – write one-variable, one-step equations and inequalities to represent constraints or conditions within problems $\text{\textcircled{S}}$
- 6.9(B) – represent solutions for 1-variable, 1-step equations & inequalities on number lines $\text{\textcircled{S}}$
- 6.10(A) – model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts $\text{\textcircled{R}}$
- 6.10(B) – determine if the given value(s) make(s) one-variable, one-step equations or inequalities true $\text{\textcircled{S}}$
- 7.11(A) - model and solve one-variable, two-step equations and inequalities. $\text{\textcircled{R}}$
- 7.11(B) - determine if the given value(s), makes one variable, two step equations true. $\text{\textcircled{S}}$
- 7.10(C) - write a corresponding real-world problem given a one-variable, two-step equation or inequality $\text{\textcircled{S}}$

Unit 8: Algebraic Representations

- 6.4(A) – compare two rules verbally, numerically, graphically, & symbolically in the form of $y=ax$ or $y=x + a$ in order to differentiate between add. & multiplicative relationships $\text{\textcircled{S}}$
- 6.6(A) – identify independent and dependent quantities from tables and graphs
- 6.6(B) – write an equation that represents the relationship between independent and dependent quantities from a table
- 6.6(C) – represent a given situation using verbal descriptions, tables, graphs, and equations
- 7.4(A) - represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d=rt$ $\text{\textcircled{R}}$
- 7.7(A) - represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$ $\text{\textcircled{R}}$

Unit 9: Geometry

- 6.8(A) extend previous knowledge of triangles & their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, & determining when three lengths form a triangle $\text{\textcircled{S}}$
- 6.8(C) write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers

4th 9 Weeks**Unit 9: Geometry**

- 6.8(B) model area formulas for parallelograms, trapezoids, & triangles by decomposing and rearranging parts of these shapes $\text{\textcircled{S}}$
- 6.8(D) determine solutions for problems involving area of rectangles, parallelograms, trapezoids, & triangles & volume of right rectangular prisms when dimensions are positive rat'l num $\text{\textcircled{R}}$
- 6.10(A) – model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts $\text{\textcircled{R}}$
- 7.9 (B) - determine the circumference and area of circles
- 7.9(C) - determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles.
- 7.11(C) - write and solve equations using geometry concepts, including the sum of the angles in a triangle and angle relationships.

Unit 10: Data and Statistics

- 6.12(A) – represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots $\text{\textcircled{S}}$
- 6.12(B) – use the graphical representation of numeric data to describe the center, spread, and shape of the data distributions $\text{\textcircled{S}}$
- 6.12(C) – summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution $\text{\textcircled{R}}$
- 6.12(D) – summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution $\text{\textcircled{R}}$
- 6.13(A) – Interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots $\text{\textcircled{R}}$
- 6.13(B) – distinguish between situations that yield data with and without variability $\text{\textcircled{S}}$
- 7.12(A) - Compare two groups of numeric data using comparative dot plots, histograms, and box plots $\text{\textcircled{R}}$

***Financial Literacy (taught within unit 1-10)**

- 6.14(A) – compare the features and costs of a checking account and a debit card offered by different local financial institutions $\text{\textcircled{S}}$
- 6.14(B) – distinguish between debit cards and credit cards $\text{\textcircled{S}}$
- 6.14(C) – balance a check register that includes deposits, withdrawals, and transfers $\text{\textcircled{S}}$
- 6.14(D) – explain why it is important to establish a positive credit history
- 6.14(E) – describe the information in a credit report and how long it is retained $\text{\textcircled{S}}$
- 6.14(F) - describe the value of credit reports to borrowers & lenders $\text{\textcircled{S}}$
- 6.14(G) – explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study $\text{\textcircled{S}}$
- 6.14(H) - compare the annual salary of several occupations requiring various levels of post-secondary education or vocational training & calculate the effects of the different annual salaries on lifetime income

Unit 12: Step up to 7th Advanced

- 7.7(A) - represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form of $y = mx + b$ $\text{\textcircled{R}}$