

8th Grade Algebra A ~Curriculum Map ~ Quarter 1

(Chapters 0-3)

Chunk 1 ~ Real Numbers

Chapter	Grade/ Standard	Indicator
0, 1	9NSO	2. Compare, order, and determine equivalent forms for rational and irrational numbers including perfect and non-perfect squares.
0, 1	9NSO	3. Explain the effects of operations such as multiplication or division, and of computing powers and roots on the magnitude of quantities.
1	8NSO	7. Find the square root of perfect squares, and approximate the square root of non-perfect squares as consecutive integers between which the root lies; e.g., $\sqrt{130}$ is between 11 and 12.
1	8NSO	2. Recognize that natural numbers, whole numbers, integers, rational numbers, and irrational numbers are subsets of the real numbers system.
1,2,3	9NSO	1. Identify and justify whether properties (closure, identity, inverse commutative, and associative) hold for a given set and operations; e.g., even integers and multiplication.
1,7	8NSO	3. Apply order of operations to simplify expressions and perform computations involving integer exponents and radicals.
Supplement	8NSO	1. Use scientific notation to express large numbers and small numbers between 0 and 1.
Supplement	8NSO	8. Add, subtract, multiply, divide, and compare numbers written in scientific notation.

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(Chapters 0-3)

Chunk 2 ~ Solving Equations

Chapter	Grade/Standard	Indicator
1	8NSO	4. Explain and use the inverse and identity properties and use inverse relationships (addition/subtraction, multiplication/division, squaring/square roots) in problem solving situations.
2,3	9PFA	3. Describe and solve problem situation (linear and non-linear) by using tabular, graphical, and symbolic representations. (ONLY DO LINEAR HERE)
2	10PFA	3. Solve equations and formulas for a specified variable; e.g., express the base of a triangle in terms of the area and height.
2,3	10PFA	6. Solve linear equations and inequalities having rational expressions as coefficients and solutions using graphs and symbols.

Chunk 3 ~ ratios and Proportions

Chapter	Grade/Standard	Indicator
0, throughout	8NSO	5. Determine when an estimate is sufficient and when an exact answer is needed in problem situations, and evaluate estimates in relation to actual answers; e.g., very close, less than, greater than.
0, throughout	8NSO	6. Estimate, compute, and solve problems involving rational numbers, including ratio, proportion, and percent, and judge the reasonableness of solutions.
2	8GSS	3. Use proportions in several forms to solve problems involving similar figures (part-to-part, part-to-whole, corresponding sides between figures).
2	9ME	2. Use unit analysis to check computations involving measurement.
2	9ME	1. Convert rates (velocity, density) within the same measurement system; e.g., miles per hour to feet per second; kilometers per hour to meters per second.
Supplement	8ME	1. Compare and use the relative size of common U.S. customary units and metric units; e.g., miles and kilometer, gallon and liter, pound and kilogram.
Supplement	8ME	2. Use proportional relationships and formulas to convert units from one measurement system to another; e.g., degrees Fahrenheit to degrees Celsius.

8th Grade Algebra A ~Curriculum Map ~ Quarter 2

(Chapters 4-5)

Chunk 4 ~ Linear Equations

Chapter	Grade/ Standard	Indicator
4	8PFA	2. Generalize patterns and sequences by describing how to find the n^{th} term.
4	8PFA	4. Extend the uses of variables to include covariants where y depends on x .
4,5	8PFA	6. Describe the relationship between the graph of a line and its equation, including being able to explain the meaning of slope as a constant rate of change and y -intercept in real-world problems.
4,5,9,11	9PFA	2. Generalize linear patterns using functions or relationships and freely translate among tabular, graphical, and symbolic representations.
4,5,9	9PFA	15. Describe how a change in the value of a constant in a linear equation affects the related graphs.
5,12	8PFA	13. Compute and interpret slope, midpoint, and distance given a set of ordered pairs.
5	9PFA	6. Write and use equivalent forms of equations and inequalities in problem situation; e.g., changing a linear equation to the slope-intercept form.
5	9PFA	8. Find linear equation that represent lines that pass through a given set of ordered pairs, and find linear equations that represent lines parallel or perpendicular to a given line through a specific point.
5	9PFA	14. Describe and compare the relationship between the slope and the graph of a direct and inverse variation and a continuous and non-continuous variation.
5,12	9PFA	13. Model and solve problems involving direct and inverse variation using proportional reasoning.
5	10PFA	9. Recognize and explain that the slopes of parallel lines are equal and the slopes of perpendicular lines are negative reciprocals.

8th Grade Algebra A ~Curriculum Map ~ Quarter 3
(Chapters 10 & Supplements)

Chunk 5 ~ Geometry

NOTE: All areas below are weak in the HOLT ALGEBRA Series.

Supplemental materials will be most useful. The chapters/pages indicated provide minimal support.

Chapter	Grade/ Standard	Indicator
Supplement	8ME	3. Use appropriate levels of precision when calculating with measurements.
7, Supplement	8ME	4. Derive formulas for surface area and volume and justify them using geometric models and common materials. For example, find: a. The surface area of a cylinder as a function of its height and radius. b. That the volume of a pyramid (or cone) is one-third of the volume of a prism (or cylinder) with the same base area and height.
7, Supplement	8ME	5. Determine surface area for pyramids by analyzing their parts.
S57, Supplement	8ME	8. Find the sum of the interior and exterior angles of regular convex polygons with and without measuring the angles with a protractor
1, Supplement	8ME	9. Demonstrate understanding of the concepts of perimeter, circumference, and area by using established formulas for triangles, quadrilaterals, and circles to determine the surface area and volume of prisms, pyramids, cylinders, spheres, and cones. (Note: Only volume should be calculated for spheres and cones.)
S66, S67, 7, Supplement	8ME	10. Use conventional formulas to find the surface area and volume of prisms, pyramids, and cylinders and the volume of spheres and cones to a specified level of precision.
Supplement	8GSS	1. Make and test conjectures about characteristics and properties (e.g., sides, angles, symmetry) of two-dimensional figures and three-dimensional objects.
S67, 12, Supplement	8GSS	6. Draw nets for a variety of prisms, pyramids, cylinders, and cones.

8th Grade Algebra A ~Curriculum Map ~ Quarter 3

(Chapters 10 & Supplements)

Chunk 6 ~ Coordinate Geometry

NOTE: All areas below are weak in the HOLT ALGEBRA Series.

Supplemental materials will be most useful. The chapters/pages indicated provide minimal support.

Chapter	Grade/ Standard	Indicator
S56, Supplement	8GSS	2. Recognize the angles formed and the relationship formed between the angles when two lines intersect and when parallel lines are cut by a transversal.
5, 9, Supplement	8GSS	4. represent and analyze shapes using coordinate geometry; e.g., given three vertices and the type of quadrilateral, find the coordinates of the fourth vertex.
S69, S70, Supplement	8GSS	5. Draw the results of translation, reflections, rotations, and dilations of objects in the coordinate plane, and determine properties that remain fixed; e.g., lengths of sides remain the same under translations.

Chunk 7 ~ Probability

Chapter	Grade/ Standard	Indicator
10	8DAP	10. Calculate the number of possible outcomes for a situation, recognizing and accounting for when items may occur more than once or when order is important.
10	8DAP	11. Demonstrate an understanding that the probability of either of two disjoint events occurring can be found by adding the probabilities for each and that the probability of one independent event following another can be found by multiplying the probabilities.

8th Grade Algebra A ~Curriculum Map ~ Quarter 4
(Chapters 7, 10)

Chunk 8 ~ Data Analysis

Chapter	Grade/ Standard	Indicator
Supplement	8DAP	2. Evaluate different graphical representations of the same data to determine which is the most appropriate representation for an identified purpose; e.g., line graph for change over time, circle graph for part-to-whole comparison, scatterplot for relationship between two variants.
Supplement	8DAP	4. compare two sets of data using measures of center (mean, mode, median_ and measures of spread (range, quartiles, interquartile range, percentiles).
10	8DAP	5. Explain the mean's sensitivity to extremes and its use in comparison with the median and mode.
4	8DAP	3. Differentiate between discrete and continuous data and appropriate ways to represent each.
10	8DAP	7. Identify different ways of selecting samples, such as survey response, random sample, representative sample, and convenience sample.
S73, Supplement	8DAP	8. Describe how the relative size of a sample compared to the target population affects the validity of predictions.
10	8DAP	9. Construct convincing arguments based on analysis of data and interpretation of graphs.
4	9DAP	2. Create a scatterplot for a set of bivariate data, sketch the line of best fit, and interpret the slope of the line of best fit.
10	9DAP	1. Classify data as univariate (single variable) or bivariate (two variables) and as quantitative (measurement) or qualitative (categorical) data.
10	9DAP	6. Make inferences about relationships in bivariate data, and recognize the difference between evidence of relationship (correlation) and causation.
Supplement	10DAP	1. Describe measures of center (mean, mode, median) and the range (quartiles, interquartiles) verbally, graphically, and algebraically.
Supplement	10DAP	2. Represent and analyze bivariate data using appropriate graphical displays (scatterplots, parallel box-and-whisker plots, histograms with more than one set of data, tables, charts, spreadsheets) with and without technology.

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(Chapters 7, 10)

Supplement	10DAP	11. Identify outliers on a data display; e.g., use interquartile range to identify outliers on a box-and-whisker plot.
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8th Grade Algebra A ~Curriculum Map ~ Quarter 4
(Chapters 7, 10)

Chunk 9 ~ Polynomials and Functions

Chapter	Grade/ Standard	Indicator
4	9PFA	1. Define function with ordered pairs in which each domain element is assigned exactly one range element.
5	8PFA	16. Use graphing calculators or computers to analyze change; e.g., interest compounded over time as a nonlinear growth pattern.
6	8PFA	10. Solve 2 by 2 systems of linear equations graphically and by simple substitution.
6	8PFA	11. Interpret the meaning of the solution of a 2 by 2 systems of equations; i.e., point, line, no solution.
7,9	8PFA	5. Use physical models to add and subtract monomials and polynomials, and to multiply a polynomial by a monomial.
9	8PFA	12. Solve simple quadratic equations graphically; e.g., $y = x^2 - 16$
10	9PFA	3. Describe and solve problem situation(linear and non-linear) by using tabular, graphical, and symbolic representations.
Supplement	10PFA	4. Use algebraic representations and functions to describe and generalize geometric properties and relationships.
4, Supplement	10PFA	1. Define function formally and with $f(x)$ notations