

Correlations to Holt, Rinehart, and Winston, Algebra 1

| Correlated Lesson | Exploring Algebra 1 with The Geometer's Sketchpad | | |
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| | Unit | Activity | Description |
| 1.0 Expl | 2 | The Golden Rectangle and Ratio | Construct the ratio while building rectangles and spirals. |
| 1.1 | 1 | Raz's Magic Multiplying Machine | Explore features of multiplication with a continuous dynamic model. |
| 1.1 | 1 | Mystery Machines | Figure out where 0 and 1 are located on these machines, or what operations they perform. |
| 1.3 | 3 | Order of Operations | Explore how mathematical communication requires agreement on certain rules. |
| 1.4 | 5 | Coordinates: The Fly on the Ceiling | Measure coordinates and plot points with the help of a fly on Descartes' ceiling. |
| 1.4 | 5 | The Origin: Center of the World | Work with the origin and negative coordinates, identify the quadrants, and draw figures. |
| 1.4 | 5 | Points Lining Up in the Plane | Find points that satisfy algebraic rules and write rules to describe sets of points. |
| 1.5 | 5 | Points Lining Up in the Plane | Find points that satisfy algebraic rules and write rules to describe sets of points. |
| 1.6 | 6 | Lines of Fit | Approximate a line of best fit to a number of data points, and use the line to make an estimate. |
| 2.2 | 1 | Adding Integers | Add positive and negative integers using a visual model. |
| 2.2 | 1 | Identity Elements and Inverses | Determine which operations have identity elements and inverses and which do not. |
| 2.2 | 1 | Exploring Properties of Operations | Verify or disprove various properties, some common and some obscure. |
| 2.3 | 1 | Subtracting Integers | Subtract positive and negative integers using a visual model. |
| 2.3 | 1 | Exploring Properties of Operations | Verify or disprove various properties, some common and some obscure. |
| 2.4 | 1 | Raz's Magic Multiplying Machine | Explore features of multiplication with a continuous dynamic model. |
| 2.4 | 1 | Multiple Models of Multiplication | Look at multiplication in four very different ways. |
| 2.4 | 1 | Dividing Real Numbers | See how division works by switching a model from multiplication to division. |
| 2.4 | 1 | Identity Elements and Inverses | Determine which operations have identity elements and inverses and which do not. |
| 2.4 | 1 | Exploring Properties of Operations | Verify or disprove various properties, some common and some obscure. |
| 2.5 | 1 | Multiple Models of Multiplication | Look at multiplication in four very different ways. |
| 2.5 | 1 | The Commutative Property | Use a dynamic model to determine which algebraic operations are commutative. |
| 2.5 | 1 | The Associative Property | Use a dynamic model to determine which algebraic operations are associative. |

Legend: Expl = Exploration

| Correlated Lesson | Exploring Algebra 1 with The Geometer's Sketchpad | | |
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| | Unit | Activity | Description |
| 2.5 | 1 | Exploring Properties of Operations | Verify or disprove various properties, some common and some obscure. |
| 2.5 | 3 | The Distributive Property: A Painting Dilemma | A Student Activities Committee project leads to a mathematical principle. |
| 2.5 | 3 | The Distributive Property | A visual model brings the distributive property to life. |
| 2.6 | 3 | Algebra Tiles | Model algebraic quantities with the dimensions and area of dynamic tiles. |
| 2.7 | 3 | Algebra Tiles | Model algebraic quantities with the dimensions and area of dynamic tiles. |
| 3.0 | 4 | Approximating Solutions to Equations | Substitute many values quickly and easily to find approximate solutions. |
| 3.0 | 4 | Undoing Operations | Use inverse operations in a visual model to undo an algebraic expression. |
| 3.0 | 4 | Solving Linear Equations by Balancing | Manipulate a balance model and use it to solve equations. |
| 3.0 | 4 | Solving Linear Equations by Undoing | Use a visual model and inverse operations to solve equations. |
| 3.0 | 4 | Solving Linear Equations by Jumping | Use distances and rates to write and solve equations of the form $a + bx = c + dx$. |
| 3.1 | 3 | Equivalent Expressions | Compare expressions to determine which are equivalent. |
| 3.1 | 3 | Equivalent Expressions: The Border Problem | Invent a variety of equivalent expressions for a real-world problem. |
| 3.5 | 3 | The Distributive Property: A Painting Dilemma | A Student Activities Committee project leads to a mathematical principle. |
| 3.5 | 3 | The Distributive Property | A visual model brings the distributive property to life. |
| 4.1 | 2 | Ratio and Proportion | Explore ratios and proportions involving side lengths of rectangles. |
| 4.1 | 2 | Proportions in Similar Triangles | Use ratio and proportion in triangles to determine inaccessible distances. |
| 4.1 | 2 | Rates and Ratios | Work with a Sketchpad pasta machine to better understand rates and ratios. |
| 4.1 | 2 | The Golden Rectangle and Ratio | Construct the ratio while building rectangles and spirals. |
| 5.1 | 2 | Rates and Ratios | Work with a Sketchpad pasta machine to better understand rates and ratios. |
| 5.2 | 5 | The Slope of a Line | Explore the relationship between the slope of a line and the points that determine the line. |
| 5.2 | 5 | The Slope Game | Construct and play a game involving lines and slope measurements. |
| 5.2 | 5 | More Slope Games | Acquire an intuitive feel for slope by playing four different games involving slopes. |
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| | Unit | Activity | Description |
| 5.3 | 2 | Rates and Ratios | Work with a Sketchpad pasta machine to better understand rates and ratios. |
| 5.3 | 6 | Direct Variation | Build a geometric model to study direct variation. |
| 5.4 | 5 | How Slope Is Measured | Connect an intuitive sense of slope to specific calculations based on coordinates. |
| 5.4 | 6 | The Slope-Intercept Form of a Line | Plot points determined by $y = mx + b$ and construct the resulting line and families of lines. This activity is also available in the Supplemental Activities folder using the form $y = a + bx$. |
| 5.5 | 6 | The Point-Slope Form of a Line | Examine the effect of each constant on the graph of an equation in the form $y = m(x - h) + k$. This activity is also available in the Supplemental Activities folder using the form $y = y_1 + b(x - x_1)$. |
| 5.5 | 6 | The Standard Form of a Line | Explore the effects of a , b , and c on the graph of a line expressed in the form $a + by = c$. |
| 5.6 | 5 | Slopes of Parallel and Perpendicular Lines | Experiment and draw conclusions about the slopes of parallel and perpendicular lines. |
| 6.1 | 4 | Properties of Inequality | Investigate arithmetic properties of inequality using a visual model. |
| 6.1 | 4 | Solving Inequalities by Substitution | Substitute many values quickly to find the solution set of an inequality. |
| 6.1 | 4 | Solving Inequalities by Balancing | Use a balance model to solve equations. |
| 6.2 | 4 | Properties of Inequality | Investigate arithmetic properties of inequality using a visual model. |
| 6.2 | 4 | Solving Inequalities by Substitution | Substitute many values quickly to find the solution set of an inequality. |
| 6.2 | 4 | Solving Inequalities by Balancing | Use a balance model to solve equations. |
| 6.3 | 4 | Properties of Inequality | Investigate arithmetic properties of inequality using a visual model. |
| 6.3 | 4 | Solving Inequalities by Substitution | Substitute many values quickly to find the solution set of an inequality. |
| 6.3 | 4 | Solving Inequalities by Balancing | Use a balance model to solve equations. |
| 6.3 | 4 | Solving Compound Inequalities | Substitute many values quickly to solve compound inequalities. |
| 6.5 | 4 | Properties of Inequality | Investigate arithmetic properties of inequality using a visual model. |
| 6.5 | 4 | Solving Inequalities by Substitution | Substitute many values quickly to find the solution set of an inequality. |
| 6.5 | 4 | Solving Inequalities by Balancing | Use a balance model to solve equations. |
| 7.5 | 4 | Properties of Inequality | Investigate arithmetic properties of inequality using a visual model. |
| 7.5 | 4 | Solving Inequalities by Substitution | Substitute many values quickly to find the solution set of an inequality. |

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| | Unit | Activity | Description |
| 8.1 | 2 | Exponents | Learn principles of exponents by experimenting with repeated multiplication. |
| 8.2 | 2 | Exponents | Learn principles of exponents by experimenting with repeated multiplication. |
| 8.3 | 2 | Exponents | Learn principles of exponents by experimenting with repeated multiplication. |
| 8.4 | 2 | Zero and Negative Exponents | Use a visual model to understand the behavior of negative exponents. |
| 9.1 | 3 | Algebra Tiles | Model algebraic quantities with the dimensions and area of dynamic tiles. |
| 9.2 | 3 | Algebra Tiles | Model algebraic quantities with the dimensions and area of dynamic tiles. |
| 9.2 | 3 | The Product of Two Binomials | Use tiles to model multiplication of binomials. |
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| 9.3 | 3 | The Product of Two Binomials | Use tiles to model multiplication of binomials. |
| 9.4 | 3 | Algebra Tiles | Model algebraic quantities with the dimensions and area of dynamic tiles. |
| 9.5 | 3 | Algebra Tiles | Model algebraic quantities with the dimensions and area of dynamic tiles. |
| 9.6 | 3 | Algebra Tiles | Model algebraic quantities with the dimensions and area of dynamic tiles. |
| 9.6 | 3 | Squaring Binomials | Use dynamic algebra tiles to connect algebraic and geometric squares. |
| 9.7 | 7 | Factoring Trinomials | Factor trinomials using algebra tiles and investigate the role of the coefficients. |
| 9.8 | 7 | Factoring Trinomials | Factor trinomials using algebra tiles and investigate the role of the coefficients. |
| 10.1 | 7 | Modeling with Quadratic Equations: Where Are the Giant Ants? | Explore issues of scale to better understand quadratic and linear relationships. |
| 10.1 | 7 | Graphing Quadratic Functions | Plot the graph of $y = ax^2 + bx + c$ and study the effects of changing the parameters. |
| 10.1 | 7 | Graphing Factored Quadratics | Graph a function in the form $f(x) = a(x - r_1)(x - r_2)$, and investigate the role of the parameters. |
| 10.2 | 3 | Squares and Square Roots | Explore squares and square roots using virtual dot paper. |
| 10.3 | 3 | Algebra Tiles | Model algebraic quantities with the dimensions and area of dynamic tiles. |
| 10.6 | 4 | Properties of Inequality | Investigate arithmetic properties of inequality using a visual model. |
| 10.6 | 4 | Solving Inequalities by Substitution | Substitute many values quickly to find the solution set of an inequality. |
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| | Unit | Activity | Description |
| 11.1 | 6 | Inverse Variation | Plot (x, y) points representing an inverse relationship, and then plot a family of curves. |
| 12.1 | 3 | Squares and Square Roots | Explore squares and square roots using virtual dot paper. |
| 12.2 | 3 | Squares and Square Roots | Explore squares and square roots using virtual dot paper. |
| 12.3 | 3 | Squares and Square Roots | Explore squares and square roots using virtual dot paper. |
| 12.3 | 5 | The Pythagorean Theorem | Verify the Pythagorean theorem using coordinates and develop the distance formula. |
| 12.4 | 3 | Squares and Square Roots | Explore squares and square roots using virtual dot paper. |
| 12.4 | 5 | The Pythagorean Theorem | Verify the Pythagorean theorem using coordinates and develop the distance formula. |
| 12.6 | 2 | Proportions in Similar Triangles | Use ratio and proportion in triangles to determine inaccessible distances. |
| 12.7 | 2 | Proportions in Similar Triangles | Use ratio and proportion in triangles to determine inaccessible distances. |
| 12.7 | 2 | The Golden Rectangle and Ratio | Construct the ratio while building rectangles and spirals. |
| 14.0 Expl | 2 | The Chaos Game | Produce striking results by randomly applying ratios. |
| 14.1 | 1 | Mystery Machines | Figure out where 0 and 1 are located on these machines, or what operations they perform. |
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