Correlations to Pearson Prentice Hall, Algebra 1

This table shows Sketchpad and Fathom activities you can use with many of the lessons in your textbook. The activities listed come from these activity books: *Exploring Algebra 1 with The Geometer's Sketchpad* (EA1G), *Exploring Algebra 2 with The Geometer's Sketchpad* (EA2G), and *Exploring Algebra 1 with Fathom* (EA1F).

Textbook Lesson	Related Sketchpad or Fathom Activity			
	Book	**Unit**	**Title**	**Description**
B1	EA1F	7	Probability—Dice Games	Use Fathom to simulate a game based on a historical question that led to probability as a branch of mathematics.
B2	EA1F	7	Probability—Euchre Deck	Create simulations to answer probability questions; contrast sampling with and without replacement; understand difference between independent and dependent events.
B3	EA1F	7	Simulation—Stick or Switch	Make sense of probability; learn about conditional probability; create probability simulations.
B5	EA1F	1	Histograms—Ontario Communities	Interpret data on geographic location and income; explore how changes in bin width affect histograms.
B6	EA1F	1	Measures of Center—Aircraft Efficiency	Investigate mean and median and look at attributes that contribute to efficiency.
1.2	EA1G	2	Exponents	Learn principles of exponents by experimenting with repeated multiplication.
1.2	EA1G	3	Order of Operations	Explore how mathematical communication requires agreement on certain rules.
1.3	EA1G	4	Properties of Inequality	Investigate arithmetic properties of inequality using a visual model.
1.3	EA1G	4	Solving Inequalities by Substitution	Substitute many values quickly to find the solution set of an inequality.
1.4	EA1G	1	Adding Integers	Add positive and negative integers using a visual model.
1.4	EA1G	1	Exploring Properties of Operations	Verify or disprove various properties, some common and some obscure.
1.5	EA1G	1	Subtracting Integers	Subtract positive and negative integers using a visual model.
1.5	EA1G	1	Exploring Properties of Operations	Verify or disprove various properties, some common and some obscure.
1.5	EA1G	3	Algebra Tiles	Model algebraic quantities with the dimensions and area of dynamic tiles.
1.6	EA1G	1	Raz's Magic Multiplying Machine	Explore features of multiplication with a continuous dynamic model.
1.6	EA1G	1	Multiple Models of Multiplication	Look at multiplication in four very different ways.
1.6	EA1G	1	Dividing Real Numbers	See how division works by switching a model from multiplication to division.
1.6	EA1G	1	Exploring Properties of Operations	Verify or disprove various properties, some common and some obscure.
Legend: SA = Supplemental Activity				

Textbook Lesson	Related Sketchpad or Fathom Activity			
	Book	**Unit**	**Title**	**Description**
1.7	EA1G	3	The Distributive Property: A Painting Dilemma	A Student Activities Committee project leads to a mathematical principle.
1.7	EA1G	3	The Distributive Property	A visual model brings the distributive property to life.
1.7	EA1G	3	Algebra Tiles	Model algebraic quantities with the dimensions and area of dynamic tiles.
1.8	EA1G	1	Raz's Magic Multiplying Machine	Explore features of multiplication with a continuous dynamic model.
1.8	EA1G	1	The Commutative Property	Use a dynamic model to determine which algebraic operations are commutative.
1.8	EA1G	1	The Associative Property	Use a dynamic model to determine which algebraic operations are associative.
1.8	EA1G	1	Identity Elements and Inverses	Determine which operations have identity elements and inverses and which do not.
1.8	EA1G	1	Exploring Properties of Operations	Verify or disprove various properties, some common and some obscure.
1.8	EA1G	3	The Distributive Property: A Painting Dilemma	A Student Activities Committee project leads to a mathematical principle.
1.8	EA1G	3	The Distributive Property	A visual model brings the distributive property to life.
1.9	EA1F	1	Dimensional Analysis—Fastest Animals	Use unit ratios to convert units, make connections between ratios and measurement, and validate conversion factors.
1.9	EA1G	5	Coordinates: The Fly on the Ceiling	Measure coordinates and plot points with the help of a fly on Descartes' ceiling.
1.9	EA1G	5	The Origin: Center of the World	Work with the origin and negative coordinates, identify the quadrants, and draw figures.
1.9	EA1G	5	Points Lining Up in the Plane	Find points that satisfy algebraic rules and write rules to describe sets of points.
1.9	EA1G	6	Lines of Fit	Approximate a line of best fit to a number of data points, and use the line to make an estimate.
Chapter 2	EA1G	4	Solving Linear Equations by Balancing	Manipulate a balance model and use it to solve equations.
Chapter 2	EA1G	4	Solving Linear Equations by Undoing	Use a visual model and inverse operations to solve equations.
Chapter 2	EA1G	4	Solving Linear Equations by Jumping	Use distances and rates to write and solve equations of the form $a + bx = c + dx$.
2.1	EA1G	3	Equivalent Expressions	Compare expressions to determine which are equivalent.
2.1	EA1G	3	Equivalent Expressions: The Border Problem	Invent a variety of equivalent expressions for a real-world problem.
2.1	EA1G	4	Approximating Solutions to Equations	Substitute many values quickly and easily to find approximate solutions.
Legend: SA = Supplemental Activity				

| Textbook Lesson | Related Sketchpad or Fathom Activity | | | |
	Book	Unit	Title	Description
2.1	EA1G	4	Undoing Operations	Use inverse operations in a visual model to undo an algebraic expression.
2.2	EA1G	3	Algebra Tiles	Model algebraic quantities with the dimensions and area of dynamic tiles.
2.2	EA1G	4	Approximating Solutions to Equations	Substitute many values quickly and easily to find approximate solutions.
2.2	EA1G	4	Undoing Operations	Use inverse operations in a visual model to undo an algebraic expression.
2.3	EA1G	3	The Distributive Property: A Painting Dilemma	A Student Activities Committee project leads to a mathematical principle.
2.3	EA1G	3	The Distributive Property	A visual model brings the distributive property to life.
2.3	EA1G	4	Approximating Solutions to Equations	Substitute many values quickly and easily to find approximate solutions.
2.3	EA1G	4	Undoing Operations	Use inverse operations in a visual model to undo an algebraic expression.
2.4	EA1G	3	Algebra Tiles	Model algebraic quantities with the dimensions and area of dynamic tiles.
2.4–2.5	EA1G	4	Approximating Solutions to Equations	Substitute many values quickly and easily to find approximate solutions.
2.5	EA1G	4	Undoing Operations	Use inverse operations in a visual model to undo an algebraic expression.
Chapter 3	EA1G	4	Properties of Inequality	Investigate arithmetic properties of inequality using a visual model.
Chapter 3	EA1G	4	Solving Inequalities by Substitution	Substitute many values quickly to find the solution set of an inequality.
Chapter 3	EA1G	4	Solving Inequalities by Balancing	Use a balance model to solve equations.
3.3	EA1F	2	Equation Solving—Cryptography	Practice undoing a linear expression as a way to solve an equation.
3.5	EA1G	4	Solving Compound Inequalities	Substitute many values quickly to solve compound inequalities.
3.9	EA1F	1	Ratios—Surveys	Examine ways to represent ratios; use different ratios to solve proportions for unknowns.
3.9	EA1F	1	Weighted Average—Swimmers	Explore ratios used to calculate weighted average; use sliders to determine weights.
3.9	EA1F	1	Proportions—Veterans	Set up and solve proportions using census microdata and compare statistics between U.S. states.
3.9	EA1F	1	Proportions—Squirrel Population	Simulate several capture-recapture scenarios; set up and solve proportions.
Chapter 4	EA1G	2	Ratio and Proportion	Explore ratios and proportions involving side lengths of rectangles.
4.1	EA1G	2	Rates and Ratios	Work with a Sketchpad pasta machine to better understand rates and ratios.
Legend: SA = Supplemental Activity				

Textbook Lesson	Related Sketchpad or Fathom Activity			
	Book	Unit	Title	Description
4.1	EA1F	3	Inequalities—Strange Diet	Translate inequality statements from context to symbols; solve inequalities; interpret a solution in context.
4.2	EA1G	2	Proportions in Similar Triangles	Use ratio and proportion in triangles to determine inaccessible distances.
4.4	EA1G	2	Rates and Ratios	Work with a Sketchpad pasta machine to better understand rates and ratios.
5.1	EA2G	1	Introducing Dynagraphs	Students explore dynagraphs to develop a feel for functional relationships.
5.1	EA2G	1	From Dynagraphs to Cartesian Graphs	Students make connections between symbolic, Cartesian, and dynagraph representations of functions.
5.1	EA2G	1	Functions Again and Again	Students define an iterated coordinate transformation on a point, and observe and draw conclusions from the orbit.
5.1	EA2G	2	The Circumference Function	Students measure, graph, and analyze the function that connects a circle's diameter and circumference.
5.1	EA2G	2	Radius and Arc Length	Students explore the relationship between the radius of a circle and the arc length of a semicircle.
5.1	EA2G	2	Functions in a Triangle	Students measure constructions in a triangle and investigate the relations and their graphs.
5.1	EA2G	2	Functional Geometry	Students explore relations defined by geometric measurements and create graphs, explaining how they decided on the independent variable.
5.1	EA1F	4	Inverse Variation—Boyle's Law	Model inversely proportional quantities, and investigate the change in one variable as the other doubles.
5.1	EA1F	4	Exponents—Moore's Law	See the same data modeled two ways and discover the multiplication property of exponents.
5.1	EA1F	6	Binomial Expansion—Flipping Coins	Explore how patterns in binomial expansions relate to flipping coins.
5.2	EA2G	1	Introducing Dynagraphs	Students explore dynagraphs to develop a feel for functional relationships.
5.2	EA2G	1	From Dynagraphs to Cartesian Graphs	Students make connections between symbolic, Cartesian, and dynagraph representations of functions.
5.2	EA2G	1	Domain and Range	Students explore domain and range of functions, including those with restricted domain or range, using dynagraphs and Cartesian graphs.
5.2	EA1G	1	Mystery Machines	Figure out where 0 and 1 are located on these machines, or what operations they perform.
5.2	EA2G	2	Relations and Functions	Students explore the definitions of relation and function, and develop a vertical line test for functions.
5.2	EA2G	2	Functions in a Triangle	Students measure constructions in a triangle and investigate the relations and their graphs.
5.2	EA2G	2	Functional Geometry	Students explore relations defined by geometric measurements and create graphs, explaining how they decided on the independent variable.
5.2	EA1F	4	Power Properties—Base e	See that continuous compounding of an investment at rate r for one year is modeled by the exponential equation $y = e^r$.
5.2	EA1F	4	Power Properties—Radiation	Investigate an exponential decay model and see $(c^a)^x = c^{ax}$.
Legend: SA = Supplemental Activity				

Correlations to Pearson Prentice Hall, Algebra 1

continued

Textbook Lesson	Related Sketchpad or Fathom Activity			
	Book	Unit	Title	Description
5.3	EA2G	1	Introducing Dynagraphs	Students explore dynagraphs to develop a feel for functional relationships.
5.3	EA2G	1	From Dynagraphs to Cartesian Graphs	Students make connections between symbolic, Cartesian, and dynagraph representations of functions.
5.3	EA2G	2	Relations and Functions	Students explore the definitions of relation and function, and develop a vertical line test for functions.
5.3	EA2G	2	Functions in a Triangle	Students measure constructions in a triangle and investigate the relations and their graphs.
5.3	EA2G	2	Functional Geometry	Students explore relations defined by geometric measurements and create graphs, explaining how they decided on the independent variable.
5.3	EA1G	5	Points Lining Up in the Plane	Find points that satisfy algebraic rules and write rules to describe sets of points.
5.4	EA2G	1	Introducing Dynagraphs	Students explore dynagraphs to develop a feel for functional relationships.
5.4	EA2G	1	From Dynagraphs to Cartesian Graphs	Students make connections between symbolic, Cartesian, and dynagraph representations of functions.
5.4	EA2G	2	Relations and Functions	Students explore the definitions of relation and function, and develop a vertical line test for functions.
5.4	EA2G	2	Functions in a Triangle	Students measure constructions in a triangle and investigate the relations and their graphs.
5.4	EA2G	2	Functional Geometry	Students explore relations defined by geometric measurements and create graphs, explaining how they decided on the independent variable.
5.4	EA1G	5	Points Lining Up in the Plane	Find points that satisfy algebraic rules and write rules to describe sets of points.
5.4	EA2G	8	Fitting Functions to Data	Students transform functions to fit data and use a least-squares calculation to judge how good the fit is.
5.5	EA2G	2	Relations and Functions	Students explore the definitions of relation and function, and develop a vertical line test for functions.
5.5	EA1G	6	Direct Variation	Build a geometric model to study direct variation.
5.6	EA1G	1	Mystery Machines	Figure out where 0 and 1 are located on these machines, or what operations they perform.
5.9	EA1F	6	Binomial Products— Sales and Profits	Explore how linear models can give both graphical and symbolic information about the quadratic model that is their product.
6.1	EA1G	2	Rates and Ratios	Work with a Sketchpad pasta machine to better understand rates and ratios.
6.1	EA1G	5	The Slope of a Line	Explore the relationship between the slope of a line and the points that determine the line.
6.1	EA1G	5	The Slope Game	Construct and play a game involving lines and slope measurements.
6.1	EA1G	5	More Slope Games	Acquire an intuitive feel for slope by playing four different games involving slopes.
6.1	EA1G	5	How Slope Is Measured	Connect an intuitive sense of slope to specific calculations based on coordinates.
Legend: SA = Supplemental Activity				

Textbook Lesson	Related Sketchpad or Fathom Activity			
	Book	**Unit**	**Title**	**Description**
6.1	EA1F	6	Common Factor—Acceleration	Use factoring to find a quadratic model for real-world data involving motion on an incline.
6.2	EA1G	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 $y = a + bx$.
6.3	EA1G	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 $ax + by = c$.
6.4	EA2G	6	Absolute Value Functions	Students graph and explore the absolute value function, reviewing the point-slope form of linear functions.
6.4	EA1G	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 $y = y_1 + b(x - x_1)$.
6.5	EA1G	5	Slopes of Parallel and Perpendicular Lines	Experiment and draw conclusions about the slopes of parallel and perpendicular lines.
6.6	EA1G	6	Lines of Fit	Approximate a line of best fit to a number of data points, and use the line to make an estimate.
6.6	EA2G	8	Fitting Functions to Data	Students transform functions to fit data and use a least-squares calculation to judge how good the fit is.
6.7	EA2G	6	Absolute Value Functions	Students graph and explore the absolute value function, reviewing the point-slope form of linear functions.
6.7	EA1F	6	Polynomial Factoring—Maximum Area	Use factoring as a process to model polynomials; learn about relationships between intercepts, zeros, and factors.
6.7	EA2G	SA	Function Transformation Game	Students match the graph of a mystery function by choosing a parent function and applying transformations to it.
7.1–7.2	EA2G	3	Solving Systems of Equations	Students use rate information from two companies to find out which is cheaper for various moves.
7.2	EA1G	3	Algebra Tiles	Model algebraic quantities with the dimensions and area of dynamic tiles.
7.3	EA1F	2	Slope—Runners	Understand the slope of a line as a constant rate; calculate the slope of a line by dividing vertical change by horizontal change.
7.3	EA2G	3	Solving Systems of Equations	Students use rate information from two companies to find out which is cheaper for various moves.
7.4	EA1F	2	Lines of Fit—Women's High Jump	Use movable lines to identify a line of fit between two points and find its slope.
7.4	EA2G	3	Solving Systems of Equations	Students use rate information from two companies to find out which is cheaper for various moves.
7.5	EA1F	2	Intercept Form—Hot Dogs	Understand slope as the rate of change and recognize it as the coefficient in the linear equation.
7.5	EA2G	3	Graphing Inequalities in Two Variables	Students use a prepared sketch to graph various inequalities in x and y.
7.5	EA1G	4	Properties of Inequality	Investigate arithmetic properties of inequality using a visual model.
7.5	EA1G	4	Solving Inequalities by Substitution	Substitute many values quickly to find the solution set of an inequality.
Legend: SA = Supplemental Activity				

Textbook Lesson	Related Sketchpad or Fathom Activity			
	Book	**Unit**	**Title**	**Description**
7.5	EA1G	4	Solving Inequalities by Balancing	Use a balance model to solve equations.
7.6	EA1F	2	Point-Slope Form—Men's High Jump	Use a movable line and new attributes to write the equation of a line in point-slope form.
7.6	EA1F	2	Point-Slope Form—Life Expectancy	Develop and use the point-slope form for the equation of a line.
7.6	EA2G	3	Graphing Inequalities in Two Variables	Students use a prepared sketch to graph various inequalities in x and y.
7.6	EA2G	3	Graphing Systems of Inequalities	Students use a prepared sketch to solve systems of two and three inequalities.
7.6	EA1G	4	Properties of Inequality	Investigate arithmetic properties of inequality using a visual model.
7.6	EA1G	4	Solving Inequalities by Substitution	Substitute many values quickly to find the solution set of an inequality.
7.7	EA1F	2	Linear Modeling—Dissolved Oxygen	Understand the need to develop a method for finding lines of fit; use quartile points to find a line of fit.
Chapter 8	EA1G	2	Exponents	Learn principles of exponents by experimenting with repeated multiplication.
8.1	EA1G	2	Zero and Negative Exponents	Use a visual model to understand the behavior of negative exponents.
8.1	EA1F	3	Linear Systems—The Road Trip	Use graphs of linear systems of equations to model and solve real-world problems.
8.2	EA1F	3	Systems Solving—High Jump Records	Use substitution to solve a system of linear equations modeling a real-world problem; interpret results.
8.3	EA1F	3	Elimination—Package Charges	Discover that the sum of two linear equations in a system is a linear equation whose solutions include the solution of the system; visualize what the elimination method represents graphically.
8.7	EA2G	1	Domain and Range	Students explore domain and range of functions, including those with restricted domain or range, using dynagraphs and Cartesian graphs.
8.8	EA2G	6	Exponential Functions	Students graph exponential functions, examine their properties, and use them to model real-world applications.
9.1	EA2G	1	Odd and Even Functions	Students explore odd and even functions using dynagraphs and transformations.
9.3	EA1G	3	Algebra Tiles	Model algebraic quantities with the dimensions and area of dynamic tiles.
9.3	EA1G	3	The Product of Two Binomials	Use tiles to model multiplication of binomials.
9.3–9.8	EA2G	4	Parabolas in Vertex Form	Students graph parabolas using the vertex form.
9.3–9.8	EA2G	4	Exploring Parabolas in Vertex Form	Students graph parabolas using the vertex form (open-ended).
9.3–9.8	EA2G	4	Parabolas in Factored Form	Students investigate the relationship between the factored form of a quadratic function and its graph.
9.3–9.8	EA2G	4	Parabolas in Standard Form	Students use the standard form to identify the behavior of the graph when a, b, and c are changed.
Legend: SA = Supplemental Activity				

Textbook Lesson	Related Sketchpad or Fathom Activity			
	Book	**Unit**	**Title**	**Description**
9.3–9.8	EA2G	4	Changing Quadratic Function Forms	Students change quadratic functions between standard, vertex, and factored forms.
9.3–9.8	EA2G	4	The Discriminant	Students calculate and explore the discriminant of a quadratic function.
9.3–9.8	EA2G	4	Parabolas: A Geometric Approach	Students construct a parabola geometrically.
9.3–9.8	EA2G	4	Parabolas in Headlights and Satellite Dishes	Students construct and explore a two-dimensional model of a parabolic reflector.
9.3–9.8	EA2G	4	Conic Reflections	Students explore reflective properties of ellipses and hyperbolas.
9.3–9.8	EA2G	4	Modeling Projectile Motion	Students make a Sketchpad model of a basketball's flight, and make the ball go through a basket.
9.4	EA1F	3	Absolute Value—Radio Contact	Solve inequalities with absolute values; understand solution sets and the logical meanings of *and* and *or*.
9.4	EA1G	3	The Product of Two Binomials	Use tiles to model multiplication of binomials.
9.4	EA1G	3	Squaring Binomials	Use dynamic algebra tiles to connect algebraic and geometric squares.
9.5	EA1F	3	Two-Variable Inequalities—The Quest	Solve linear inequalities with two variables; graph inequalities using shading.
9.5	EA1G	3	Algebra Tiles	Model algebraic quantities with the dimensions and area of dynamic tiles.
9.5–9.7	EA1G	7	Factoring Trinomials	Factor trinomials using algebra tiles and investigate the role of the coefficients.
10.1	EA1G	7	Graphing Quadratic Functions	Plot the graph of $y = ax^2 + bx + c$ and study the effects of changing the parameters.
10.1	EA1G	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.
10.1–10.9	EA2G	4	Parabolas in Vertex Form	Students graph parabolas using the vertex form.
10.1–10.9	EA2G	4	Exploring Parabolas in Vertex Form	Students graph parabolas using the vertex form (open-ended).
10.1–10.9	EA2G	4	Parabolas in Factored Form	Students investigate the relationship between the factored form of a quadratic function and its graph.
10.1–10.9	EA2G	4	Parabolas in Standard Form	Students use the standard form to identify the behavior of the graph when a, b, and c are changed.
10.1–10.9	EA2G	4	Changing Quadratic Function Forms	Students change quadratic functions between standard, vertex, and factored forms.
10.1–10.9	EA2G	4	The Discriminant	Students calculate and explore the discriminant of a quadratic function.
10.1–10.9	EA2G	4	Parabolas: A Geometric Approach	Students construct a parabola geometrically.
10.1–10.9	EA2G	4	Parabolas in Headlights and Satellite Dishes	Students construct and explore a two-dimensional model of a parabolic reflector.
Legend: SA = Supplemental Activity				

Textbook Lesson	Related Sketchpad or Fathom Activity			
	Book	**Unit**	**Title**	**Description**
10.1–10.9	EA2G	4	Conic Reflections	Students explore reflective properties of ellipses and hyperbolas.
10.1–10.9	EA2G	4	Modeling Projectile Motion	Students make a Sketchpad model of a basketball's flight, and make the ball go through a basket.
10.2	EA2G	3	Graphing Inequalities in Two Variables	Students use a prepared sketch to graph various inequalities in x and y.
10.2	EA2G	4	Parabolas in Standard Form	Students use the standard form to identify the behavior of the graph when a, b, and c are changed.
10.2	EA1G	4	Properties of Inequality	Investigate arithmetic properties of inequality using a visual model.
10.2	EA1G	4	Solving Inequalities by Substitution	Substitute many values quickly to find the solution set of an inequality.
10.2	EA1G	7	Graphing Quadratic Functions	Plot the graph of $y = ax^2 + bx + c$ and study the effects of changing the parameters.
10.2	EA1G	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.
10.3	EA1G	3	Squares and Square Roots	Explore squares and square roots using virtual dot paper.
10.4	EA1G	7	Modeling with Quadratic Equations: Where Are the Giant Ants?	Explore issues of scale to better understand quadratic and linear relationships.
10.5	EA2G	4	Parabolas in Factored Form	Students investigate the relationship between the factored form of a quadratic function and its graph.
10.6	EA1G	3	Algebra Tiles	Model algebraic quantities with the dimensions and area of dynamic tiles.
10.6	EA2G	4	Parabolas in Vertex Form	Students graph parabolas using the vertex form.
10.6	EA2G	4	Exploring Parabolas in Vertex Form	Students graph parabolas using the vertex form (open-ended).
10.7–10.8	EA2G	4	The Discriminant	Students calculate and explore the discriminant of a quadratic function.
10.9	EA1G	7	Modeling with Quadratic Equations: Where Are the Giant Ants?	Explore issues of scale to better understand quadratic and linear relationships.
10.9	EA2G	8	Fitting Functions to Data	Students transform functions to fit data and use a least-squares calculation to judge how good the fit is.
Chapter 10 Extension	EA2G	SA	Quadratic Intercepts	Students derive a quadratic function from the y-intercept and the two x-intercepts.
11.1–11.2	EA1G	3	Squares and Square Roots	Explore squares and square roots using virtual dot paper.
11.2	EA1G	5	The Pythagorean Theorem	Verify the Pythagorean theorem using coordinates and develop the distance formula.
Legend: SA = Supplemental Activity				

Textbook Lesson	Related Sketchpad or Fathom Activity			
	Book	Unit	Title	Description
11.3	EA1G	3	Squares and Square Roots	Explore squares and square roots using virtual dot paper.
11.3	EA1G	5	The Pythagorean Theorem	Verify the Pythagorean theorem using coordinates and develop the distance formula.
11.4	EA1G	2	The Golden Rectangle and Ratio	Construct the ratio while building rectangles and spirals.
11.6	EA2G	1	Domain and Range	Students explore domain and range of functions, including those with restricted domain or range, using dynagraphs and Cartesian graphs.
11.6	EA2G	6	Square Root Functions	Students explore the square root function and think about the conditions under which inverse relations are also inverse functions.
11.6	EA2G	SA	Function Transformation Game	Students match the graph of a mystery function by choosing a parent function and applying transformations to it.
11.7	EA1G	2	Proportions in Similar Triangles	Use ratio and proportion in triangles to determine inaccessible distances.
11.7	EA2G	7	Right Triangle Functions	Students calculate ratios for right triangles, plotting the values to reveal the graphs of the trigonometric functions.
12.1	EA1F	5	Functions—Model Rockets	Understand that a function has no more than one output for each input but may have more than one input with the same output; learn and apply *independent* and *dependent variable, domain, range.*
12.1	EA1G	6	Direct Variation	Build a geometric model to study direct variation.
12.1–12.2	EA2G	6	Rational Functions	Students explore rational functions as transformations of $y = 1/x$.
12.2	EA2G	SA	Function Transformation Game	Students match the graph of a mystery function by choosing a parent function and applying transformations to it.
12.3	EA2G	1	Domain and Range	Students explore domain and range of functions, including those with restricted domain or range, using dynagraphs and Cartesian graphs.
12.8–12.9	EA2G	8	Permutation and Combination	Students explore permutations and combinations of given set of objects.
13.1	EA1F	6	General Form Quadratic—Escape Ramp	Solve a real-world problem and dynamically explore how a graph of the general form of a quadratic is determined by its coefficients.
13.1	EA1F	6	Factored Form Quadratic—Gravity	See relationships among the coefficients of a quadratic equation in general form, the factored form of the equation, and the function's zeros; use sliders to discover how the factored form relates to the graph.
13.4	EA1F	6	The Quadratic Formula	Explore roles of coefficients of quadratic functions in locations of zeros, as given by the quadratic formula, and in the location of x-intercepts of the function's graph.
13.4	EA1F	6	Parabola—Solar Oven	Use a quadratic equation to model a solar oven; discover relationships between the quadratic formula and the graph.
Skills Handbook	EA2G	5	Translating Coordinates	Students translate points in and make connections between the coordinates of a point and its translated image.
Skills Handbook	EA2G	5	Rotating Coordinates	Students explore coordinate rotation of figures about the origin by multiples of 90°.
Skills Handbook	EA2G	5	Reflecting in Geometry and Algebra	Students explore algebraic associations between the coordinates of a point and its reflected image.
Legend: SA = Supplemental Activity				

Textbook Lesson	Related Sketchpad or Fathom Activity			
	Book	Unit	Title	Description
Skills Handbook	EA2G	8	Box and Whiskers	Students change data and explore the effects on a box-and-whiskers plot.
Skills Handbook	EA2G	SA	Function Transformation Game	Students match the graph of a mystery function by choosing a parent function and applying transformations to it.
Legend: SA = Supplemental Activity				