

Correlations to McDougal Littell, Algebra 2

This table shows Sketchpad 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) and *Exploring Algebra 2 with The Geometer's Sketchpad* (EA2G).

Textbook Lesson	Related Sketchpad Activity			
	Book	Unit	Title	Description
1.1	EA1G	1	Exploring Properties of Operations	Verify or disprove various properties, some common and some obscure.
1.7	EA2G	6	Absolute Value Functions	Students graph and explore the absolute value function, reviewing the point-slope form of linear functions.
2.1	EA2G	1	Introducing Dynagraphs	Students explore dynagraphs to develop a feel for functional relationships.
2.1	EA2G	1	From Dynagraphs to Cartesian Graphs	Students make connections between symbolic, Cartesian, and dynagraph representations of functions.
2.1	EA2G	1	Domain and Range	Students explore domain and range of functions, including those with restricted domain or range, using dynagraphs and Cartesian graphs.
2.1	EA2G	1	Functions Again and Again	Students define an iterated coordinate transformation on a point, and observe and draw conclusions from the orbit.
2.1	EA2G	2	Relations and Functions	Students explore the definitions of relation and function, and develop a vertical line test for functions.
2.1	EA2G	2	The Circumference Function	Students measure, graph, and analyze the function that connects a circle's diameter and circumference.
2.1	EA2G	2	Radius and Arc Length	Students explore the relationship between the radius of a circle and the arc length of a semicircle.
2.1	EA2G	2	Functions in a Triangle	Students measure constructions in a triangle and investigate the relations and their graphs.
2.1	EA2G	2	Functional Geometry	Students explore relations defined by geometric measurements and create graphs, explaining how they decided on the independent variable.
2.3	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 $y = a + bx$.
2.3	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 $ax + by = c$.
2.4	EA2G	6	Absolute Value Functions	Students graph and explore the absolute value function, reviewing the point-slope form of linear functions.
2.5	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.
2.5	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.
2.6	EA2G	3	Graphing Inequalities in Two Variables	Students use a prepared sketch to graph various inequalities in x and y .
2.8	EA2G	6	Absolute Value Functions	Students graph and explore the absolute value function, reviewing the point-slope form of linear functions.
3.1–3.2	EA2G	3	Solving Systems of Equations	Students use rate information from two companies to find out which is cheaper for various moves.

Legend: SA = Supplemental Activity

Correlations to McDougal Littell, Algebra 2

continued

Textbook Lesson	Related Sketchpad Activity			
	Book	Unit	Title	Description
3.3	EA2G	3	Graphing Systems of Inequalities	Students use a prepared sketch to solve systems of two and three inequalities.
3.3	EA2G	3	Linear Programming: Swans and Giraffes	Students explore a linear programming problem, writing constraint equations, defining the feasible region, and maximizing a quantity.
3.4	EA2G	3	Graphing Inequalities in Two Variables	Students use a prepared sketch to graph various inequalities in x and y .
3.4	EA2G	3	Graphing Systems of Inequalities	Students use a prepared sketch to solve systems of two and three inequalities.
3.4	EA2G	3	Linear Programming: Swans and Giraffes	Students explore a linear programming problem, writing constraint equations, defining the feasible region, and maximizing a quantity.
3.6	EA2G	3	Solving Systems of Equations	Students use rate information from two companies to find out which is cheaper for various moves.
4.5	EA2G	9	Solving Systems Using Matrices	Students solve a system of equations expressed as a single matrix equation.
Chapter 5	EA2G	4	Parabolas in Vertex Form	Students graph parabolas using the vertex form.
Chapter 5	EA2G	4	Exploring Parabolas in Vertex Form	Students graph parabolas using the vertex form (open-ended).
Chapter 5	EA2G	4	Parabolas in Factored Form	Students investigate the relationship between the factored form of a quadratic function and its graph.
Chapter 5	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.
Chapter 5	EA2G	4	Changing Quadratic Function Forms	Students change quadratic functions between standard, vertex, and factored forms.
Chapter 5	EA2G	4	The Discriminant	Students calculate and explore the discriminant of a quadratic function.
Chapter 5	EA2G	4	Parabolas: A Geometric Approach	Students construct a parabola geometrically.
Chapter 5	EA2G	4	Parabolas in Headlights and Satellite Dishes	Students construct and explore a two-dimensional model of a parabolic reflector.
Chapter 5	EA2G	4	Conic Reflections	Students explore reflective properties of ellipses and hyperbolas.
Chapter 5	EA2G	4	Modeling Projectile Motion	Students make a Sketchpad model of a basketball's flight, and make the ball go through a basket.
5.1–5.2	EA2G	4	Parabolas in Vertex Form	Students graph parabolas using the vertex form.
5.1–5.2	EA2G	4	Exploring Parabolas in Vertex Form	Students graph parabolas using the vertex form (open-ended).
5.1–5.2	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.
5.1–5.2	EA2G	4	Changing Quadratic Function Forms	Students change quadratic functions between standard, vertex, and factored forms.
5.1	EA2G	4	Modeling Projectile Motion	Students make a Sketchpad model of a basketball's flight, and make the ball go through a basket.

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continued

Textbook Lesson	Related Sketchpad Activity			
	Book	Unit	Title	Description
5.1	EA2G	6	Absolute Value Functions	Students graph and explore the absolute value function, reviewing the point-slope form of linear functions.
5.1	EA1G	7	Modeling with Quadratic Equations: Where Are the Giant Ants?	Explore issues of scale to better understand quadratic and linear relationships.
5.1–5.2	EA2G	SA	Quadratic Intercepts	Students derive a quadratic function from the y -intercept and the two x -intercepts.
5.2	EA2G	4	Parabolas in Factored Form	Students investigate the relationship between the factored form of a quadratic function and its graph.
5.2	EA1G	7	Factoring Trinomials	Factor trinomials using algebra tiles and investigate the role of the coefficients.
5.5	EA2G	4	Parabolas in Vertex Form	Students graph parabolas using the vertex form.
5.5	EA2G	4	Exploring Parabolas in Vertex Form	Students graph parabolas using the vertex form (open-ended).
5.5	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.
5.5	EA2G	4	Changing Quadratic Function Forms	Students change quadratic functions between standard, vertex, and factored forms.
5.5	EA2G	SA	Quadratic Intercepts	Students derive a quadratic function from the y -intercept and the two x -intercepts.
5.6	EA2G	4	The Discriminant	Students calculate and explore the discriminant of a quadratic function.
5.7	EA2G	3	Graphing Inequalities in Two Variables	Students use a prepared sketch to graph various inequalities in x and y .
5.7	EA2G	3	Graphing Systems of Inequalities	Students use a prepared sketch to solve systems of two and three inequalities.
5.8	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.
6.5–6.9	EA2G	1	Odd and Even Functions	Students explore odd and even functions using dynagraphs and transformations.
6.9	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.
7.3	EA2G	1	Function Composition with Dynagraphs	Students use dynagraphs to model composite functions.
7.4	EA2G	1	Domain and Range	Students explore domain and range of functions, including those with restricted domain or range, using dynagraphs and Cartesian graphs.
7.4–7.5	EA2G	1	Inverse Functions	Students use linked dynagraphs to investigate inverse functions.
7.5–7.6	EA2G	6	Square Root Functions	Students explore the square root function and think about the conditions under which inverse relations are also inverse functions.
7.7	EA2G	8	Box and Whiskers	Students change data and explore the effects on a box-and-whiskers plot.

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Correlations to McDougal Littell, Algebra 2

continued

Textbook Lesson	Related Sketchpad Activity			
	Book	Unit	Title	Description
8.1–8.3	EA2G	6	Exponential Functions	Students graph exponential functions, examine their properties, and use them to model real-world applications.
8.4	EA2G	1	Inverse Functions	Students use linked dynagraphs to investigate inverse functions.
8.4–8.5	EA2G	6	Logarithmic Functions	Students explore the relationships between exponential and logarithmic functions.
8.7	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.
9.1	EA1G	6	Inverse Variation	Plot (x, y) points representing an inverse relationship, and then plot a family of curves.
9.2–9.3	EA2G	6	Rational Functions	Students explore rational functions as transformations of $y = 1/x$.
Chapter 10	EA2G	4	Parabolas in Vertex Form	Students graph parabolas using the vertex form.
Chapter 10	EA2G	4	Exploring Parabolas in Vertex Form	Students graph parabolas using the vertex form (open-ended).
Chapter 10	EA2G	4	Parabolas in Factored Form	Students investigate the relationship between the factored form of a quadratic function and its graph.
Chapter 10	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.
Chapter 10	EA2G	4	Changing Quadratic Function Forms	Students change quadratic functions between standard, vertex, and factored forms.
Chapter 10	EA2G	4	The Discriminant	Students calculate and explore the discriminant of a quadratic function.
Chapter 10	EA2G	4	Parabolas: A Geometric Approach	Students construct a parabola geometrically.
Chapter 10	EA2G	4	Parabolas in Headlights and Satellite Dishes	Students construct and explore a two-dimensional model of a parabolic reflector.
Chapter 10	EA2G	4	Conic Reflections	Students explore reflective properties of ellipses and hyperbolas.
Chapter 10	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	4	Parabolas: A Geometric Approach	Students construct a parabola geometrically.
10.2	EA2G	4	Parabolas in Headlights and Satellite Dishes	Students construct and explore a two-dimensional model of a parabolic reflector.
10.3–10.6	EA2G	4	Conic Reflections	Students explore reflective properties of ellipses and hyperbolas.
10.7	EA2G	3	Solving Systems of Equations	Students use rate information from two companies to find out which is cheaper for various moves.
11.5	EA2G	1	Functions Again and Again	Students define an iterated coordinate transformation on a point, and observe and draw conclusions from the orbit.
12.1–12.2	EA2G	8	Permutation and Combination	Students explore permutations and combinations of given set of objects.

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Correlations to McDougal Littell, Algebra 2

continued

Textbook Lesson	Related Sketchpad Activity			
	Book	Unit	Title	Description
12.7	EA2G	8	Normal Distribution	Students use a random distribution to explore the normal density curve.
13.1	EA2G	2	Functions in a Triangle	Students measure constructions in a triangle and investigate the relations and their graphs.
13.1	EA2G	7	Right Triangle Functions	Students calculate ratios for right triangles, plotting the values to reveal the graphs of the trigonometric functions.
13.1	EA2G	7	Unit Circle and Right Triangle Functions	Students compare the unit circle definitions and right triangle definitions of trigonometric functions.
13.2	EA2G	7	Radian Measure	Students explore the relationship between the length, radius, and central angle of an arc.
13.2	EA2G	7	Unit Circle Functions	Students use a unit circle to define the trigonometric functions.
13.2	EA2G	7	Unit Circle and Right Triangle Functions	Students compare the unit circle definitions and right triangle definitions of trigonometric functions.
13.3	EA2G	2	Functions in a Triangle	Students measure constructions in a triangle and investigate the relations and their graphs.
13.3	EA2G	7	Right Triangle Functions	Students calculate ratios for right triangles, plotting the values to reveal the graphs of the trigonometric functions.
13.3	EA2G	7	Unit Circle and Right Triangle Functions	Students compare the unit circle definitions and right triangle definitions of trigonometric functions.
13.4	EA2G	7	Right Triangle Functions	Students calculate ratios for right triangles, plotting the values to reveal the graphs of the trigonometric functions.
13.4	EA2G	7	Unit Circle and Right Triangle Functions	Students compare the unit circle definitions and right triangle definitions of trigonometric functions.
13.5	EA2G	7	Law of Sines	Students explore the Law of Sines and develop a proof.
13.6	EA2G	7	Law of Cosines	Students develop the Law of Cosines by exploring how the Pythagorean theorem fails for triangles without a right angle.
13.7	EA2G	4	Modeling Projectile Motion	Students make a Sketchpad model of a basketball's flight, and make the ball go through a basket.
13.7	EA2G	6	Modeling Linear Motion: An Ant's Progress	Students model linear motion using parametric equations.
14.2	EA2G	1	Odd and Even Functions	Students explore odd and even functions using dynagraphs and transformations.
14.2	EA2G	5	Translating Functions	Students translate function graphs vertically and horizontally by adding constants to x - and y -values.
14.2	EA2G	5	Reflecting Function Plots	Students reflect function plots across the axes and explore connections between algebraic and geometric transformations.
14.2	EA2G	5	Stretching and Shrinking Functions	Students stretch and shrink function graphs vertically and horizontally.
14.2	EA2G	5	Transforming Odd and Even Functions	Students explore the symmetry in odd and even functions.

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continued

Textbook Lesson	Related Sketchpad Activity			
	Book	Unit	Title	Description
14.2	EA2G	SA	Function Transformation Game	Students match the graph of a mystery function by choosing a parent function and applying transformations to it.
14.3–14.4	EA2G	7	Trigonometric Identities	Students use geometric relationships to justify trigonometric identities.
14.5	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.
14.6–14.7	EA2G	7	Trigonometric Identities	Students use geometric relationships to justify trigonometric identities.
Appendix 1	EA2G	5	Translating Coordinates	Students translate points in and make connections between the coordinates of a point and its translated image.
Appendix 1	EA2G	5	Translating Functions	Students translate function graphs vertically and horizontally by adding constants to x - and y -values.
Appendix 1	EA2G	5	Reflecting Function Plots	Students reflect function plots across the axes and explore connections between algebraic and geometric transformations.
Appendix 1	EA2G	5	Stretching and Shrinking Functions	Students stretch and shrink function graphs vertically and horizontally.
Appendix 1	EA2G	5	Transforming Odd and Even Functions	Students explore the symmetry in odd and even functions.
Appendix 1	EA2G	6	Absolute Value Functions	Students graph and explore the absolute value function, reviewing the point-slope form of linear functions.
Appendix 1	EA2G	6	Exponential Functions	Students graph exponential functions, examine their properties, and use them to model real-world applications.
Appendix 1	EA2G	6	Logarithmic Functions	Students explore the relationships between exponential and logarithmic functions.
Appendix 1	EA2G	6	Square Root Functions	Students explore the square root function and think about the conditions under which inverse relations are also inverse functions.
Appendix 1	EA2G	6	Rational Functions	Students explore rational functions as transformations of $y = 1/x$.
Appendix 1	EA2G	SA	Function Transformation Game	Students match the graph of a mystery function by choosing a parent function and applying transformations to it.
Appendix 1	EA2G	5	Translating Functions	Students translate function graphs vertically and horizontally by adding constants to x - and y -values.
Appendix 1	EA2G	5	Reflecting Function Plots	Students reflect function plots across the axes and explore connections between algebraic and geometric transformations.
Appendix 1	EA2G	5	Stretching and Shrinking Functions	Students stretch and shrink function graphs vertically and horizontally.
Appendix 4	EA2G	8	Box and Whiskers	Students change data and explore the effects on a box-and-whiskers plot.
Skills Review Handbook	EA2G	5	Translating Coordinates	Students translate points in and make connections between the coordinates of a point and its translated image.
Skills Review Handbook	EA2G	5	Rotating Coordinates	Students explore coordinate rotation of figures about the origin by multiples of 90° .
Skills Review Handbook	EA2G	5	Reflecting in Geometry and Algebra	Students explore algebraic associations between the coordinates of a point and its reflected image.

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continued

Textbook Lesson	Related Sketchpad Activity			
	Book	Unit	Title	Description
Skills Review Handbook	EA2G	5	Stretching and Shrinking Coordinates	Students investigate the behavior of polygons when the x - or y -values of the vertices are multiplied by various constants.
Skills Review Handbook	EA2G	5	Transforming Coordinates	Students perform elementary transformations in the coordinate plane.

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