8th Grade Mathematics
Poudre School District
Pacing Overview

Chapter 1: Equations
18 Days 8.EE.C.7, 8.EE.C.7a, 8.EE.C.7b

Chapter 2: Transformations
18 Days 8.G.A.1*, 8.G.A.2*, 8.G.A.3*, 8.G.A.4*

Chapter 3: Angles and Triangles
12 Days 8.G.A.5*

Chapter 6: Functions (Part One)
6 Days 8.F.A.1*

Chapter 4: Graphing and Writing Linear Equations
22 Days 8.EE.B.5*, 8.EE.B.6*, 8.F.B.4

Chapter 6: Functions (Part Two)
9 Days 8.F.A.2*, 8.F.A.3*, 8.F.B.4*, 8.F.B.5*

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Chapter 9: Data Analysis and Displays (Part One)
6 Days 8.SP.A.1*, 8.SP.A.2*, 8.SP.A.3*

Chapter 5: Systems of Linear Equations
14 Days 8.EE.C.7*, 8.EE.C.8a, 8.EE.C.8b, 8.EE.C.8c*

Chapter 7: Real Numbers and the Pythagorean Theorem
16 Days 8.NS.A.1*, 8.NS.A.2*, 8.EE.A.2*, 8.G.B.6*, 8.G.B.7*, 8.G.B.8*

Chapter 10: Exponents and Scientific Notation
22 Days 8.EE.A.1*, 8.EE.A.3*, 8.EE.A.4*

Chapter 8: Volume and Similar Solids
14 Days 8.G.C.9*

Chapter 9: Data Analysis and Displays (Part Two)
5 Days 8.SP.A.4*

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Review & Common Summative Assessment

* Teaching is complete. Standard can be assessed.
Major Work of the Grade.
Supporting Work of the Grade.
Additional Work of the Grade.

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Chapter 1: Equations
17 Days 8.EE.C.7, 8.EE.C.7a, 8.EE.C.7b

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
	Scavenger Hunt/ Chapter Opener			2 days	1 day
1.1	Activity 1.1			1 day	1 day
	Solving Simple Equations	Learning	8.EE.C.7a, 8.EE.C.7b	1 day	
1.2	Activity 1.2			1 day	2 days
	Solving Multi-Step Equations	Learning	8.EE.C.7a, 8.EE.C.7b	2 days	
1.3	Activity 1.3			1 day	1 day
	Solving Equations with Variables on Both Sides	Learning	8.EE.C.7a, 8.EE.C.7b	2 days	
1.4	Activity 1.4			1 day	2 days
	Rewriting Equations and Formulas	Applying	8.EE.C.7	2 days	

Total: 13 days

Note: Additional days reserved for review and assessment.

Additional Activities/Resources	
Name	**Location**

Vocabulary		
addition property of equality	division property of equality	literal equation
multiplication property of equality	subtraction property of equality	

Standards	
8.EE.C.7	Solve linear equations in one variable.
8.EE.C.7a	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).
8.EE.C.7b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

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Chapter 2: Transformations
18 Days 8.G.A.1*, 8.G.A.2*, 8.G.A.3*, 8.G.A.4*

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
	Chapter Opener			1 day	
2.1	Activity 2.1			1 day	1 day
	Solving Simple Equations	Preparing for	8.G.A.2	1 day	
2.2	Activity 2.2			1 day	1 day
	Translations	Learning	8.G.A.1, 8.G.A.2, 8.G.A.3	1 day	
2.3	Activity 2.3			1 day	1 day
	Reflections	Learning	8.G.A.1, 8.G.A.2, 8.G.A.3	1 day	
2.4	Activity 2.4			1 day	1 day
	Rotations	Learning	8.G.A.1*, 8.G.A.2*, 8.G.A.3	1 day	
2.5	Activity 2.5			1 day	1 day
	Similar Figures	Preparing for	8.G.A.4	1 day	
2.6	Activity 2.6			1 day	1 day
	Perimeters and Areas of Similar Figures	Preparing for	8.G.A.4	1 day	
2.7	Activity 2.7			1 day	1 day
	Dilations	Learning	8.G.A.3*, 8.G.A.4*	1 day	

Total: 15 days

Note: Additional days reserved for review and assessment.

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Additional Activities/Resources	
Name	**Location**

Vocabulary		
angle of rotation	center of dilation	center of rotation
congruent figures	corresponding angles	corresponding sides
dilation	image	line of reflection
reflection	rotation	scale factor (of a dilation)
similar figures	transformation	translation

Standards	
8.G.A.1*	Verify experimentally the properties of rotations, reflections, and translations: • Lines are taken to lines, and line segments to line segments of the same length. • Angles are taken to angles of the same measure. • Parallel lines are taken to parallel lines.
8.G.A.2*	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
8.G.A.3*	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
8.G.A.4*	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

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Chapter 3: Angles and Triangles
12 Days 8.G.A.5*

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
	Chapter Opener			1 day	
3.1	Activity 3.1			1 day	1 day
	Parallel Lines and Transversals	Learning	8.G.A.5	1 day	
3.2	Activity 3.2			1 day	1 day
	Angles of Triangles	Learning	8.G.A.5	1 day	
3.3	Activity 3.3			1 day	1 day
	Angles of Polygons	Applying	8.G.A.5	1 day	
3.4	Activity 3.4			1 day	1 day
	Using Similar Triangles	Learning	8.G.A.5*	1 day	

Total: 9 days

Note: Additional days reserved for review and assessment.

Additional Activities/Resources	
Name	**Location**

Vocabulary		
concave polygon	convex polygon	exterior angles
exterior angles of a polygon	indirect measurement	interior angles
interior angles of a polygon	regular polygon	transversal

Standards	
8.G.A.5*	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*

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Chapter 6: Functions (Part One)
6 Days 8.F.A.1*

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
	Chapter Opener			1 day	
6.1	Activity 6.1			1 day	1 day
	Relations and Functions	Learning	8.F.A.1	1 day	
6.2	Activity 6.2			1 day	1 day
	Representations of Functions	Learning	8.F.A.1*	1 day	

Total: 5 days

Note: Additional days reserved for review and assessment.

Additional Activities/Resources	
Name	**Location**

Vocabulary		
function	function rule	input
mapping diagram	output	relation

Standards	
8.F.A.1*	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.

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Chapter 4: Graphing and Writing Linear Equations
22 Days 8.EE.B.5*, 8.EE.B.6*, 8.F.B.4

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
	Chapter Opener			1 day	
4.1	Activity 4.1			1 day	1 day
	Graphing Linear Equations	Preparing for	8.EE.B.5	1 day	
4.2	Activity 4.2			1 day	1 day
	Slope of a Line	Learning	8.EE.B.6	1 day	
	Extension 4.2			1 day	1 day
4.3	Activity 4.3			1 day	1 day
	Graphing Proportional Relationships	Learning	8.EE.B.5*, 8.EE.B.6	1 day	
4.4	Activity 4.4			1 day	1 day
	Graphing Linear Equations in Slope-Intercept Form	Learning	8.EE.B.6	2 days	
4.5	Activity 4.5			1 day	1 day
	Graphing Linear Equations in Standard Form	Applying	8.EE.B.6*	1 day	
4.6	Activity 4.6			1 day	1 day
	Writing Equations in Slope-Intercept Form	Preparing for	8.F.B.4	2 days	
4.7	Activity 4.7			1 day	1 day
	Writing Equations in Point-Slope Form	Preparing for	8.F.B.4	1 day	

Total: 18 days

Note: Additional days reserved for review and assessment.

Additional Activities/Resources	
Name	**Location**

Vocabulary		
linear equation	point-slope form	rise
run	slope	slope-intercept form
solution of a linear equation	standard form	x-intercept
y-intercept		

Standards	
8.EE.B.5*	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
8.EE.B.6*	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.
8.F.B.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

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Chapter 6: Functions (Part Two)
9 Days 8.F.A.2*, 8.F.A.3*, 8.F.B.4*, 8.F.B.5*

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
6.3	Activity 6.3			1 day	1 day
	Linear Functions	Learning	8.F.A.2*, 8.F.A.3, 8.F.B.4*	1 day	
6.4	Activity 6.4			2 days	1 day
	Comparing Linear and Nonlinear Functions	Learning	8.F.A.3*	1 day	
6.5	Activity 6.5			1 day	1 day
	Analyzing and Sketching Graphs	Learning	8.F.B.5*	1 day	

Total: 7 days

Note: Additional days reserved for review and assessment.

Additional Activities/Resources	
Name	**Location**

Vocabulary	
linear function	nonlinear function

Standards	
8.F.A.2*	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*
8.F.A.3*	Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*
8.F.B.4*	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
8.F.B.5*	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

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Chapter 9: Data Analysis and Displays (Part One)
6 Days 8.SP.A.1*, 8.SP.A.2*, 8.SP.A.3*

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
	Chapter Opener			1 day	
9.1	Activity 9.1			1 day	1 day
	Scatter Plots	Learning	8.SP.A.1	1 day	
9.2	Activity 9.2			1 day	1 day
	Lines of Fit	Learning	8.SP.A.1, 8.SP.A.2*, 8.SP.A.3*	1 day	

Total: 5 days

Note: Additional days reserved for review and assessment.

Additional Activities/Resources	
Name	**Location**

Vocabulary		
line of best fit	line of fit	scatter plot

Standards	
8.SP.A.1*	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
8.SP.A.2*	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
8.SP.A.3*	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.*

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Chapter 5: Systems of Linear Equations
14 Days 8.EE.C.7*, 8.EE.C.8a, 8.EE.C.8b, 8.EE.C.8c*

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
	Chapter Opener			1 day	
5.1	Activity 5.1			1 day	1 day
	Solving Systems of Linear Equations by Graphing	Learning	8.EE.C.8a, 8.EE.C.8b, 8.EE.C.8c	1 day	
5.2	Activity 5.2			1 day	1 day
	Solving Systems of Linear Equations by Substitution	Learning	8.EE.C.8b, 8.EE.C.8c	2 days	
5.3	Activity 5.3			2 days	1 day
	Solving Systems of Linear Equations by Elimination	Learning	8.EE.C.8b, 8.EE.C.8c	1 day	
5.4	Activity 5.4			1 day	1 day
	Solving Special Systems of Linear Equations	Learning	8.EE.C.7*, 8.EE.C.8a, 8.EE.C.8b, 8.EE.C.8c*	1 day	
	Extension 5.4			1 day	1 day

Total: 12 days

Note: Additional days reserved for review and assessment.

Additional Activities/Resources	
Name	**Location**

Vocabulary	
solution of a system of linear equations	system of linear equations

Standards	
8.EE.C.7*	Solve linear equations in one variable.
8.EE.C.8a	Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
8.EE.C.8b	Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.*
8.EE.C.8c*	Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*

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Chapter 7: Real Numbers and the Pythagorean Theorem
16 Days 8.NS.A.1*, 8.NS.A.2*, 8.EE.A.2*, 8.G.B.6*, 8.G.B.7*, 8.G.B.8*

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
	Chapter Opener			1 day	
7.1	Activity 7.1			1 day	1 day
	Finding Square Roots	Learning	8.EE.A.2	1 day	
7.2	Activity 7.2			1 day	1 day
	Finding Cube Roots	Learning	8.EE.A.2	1 day	
7.3	Activity 7.3			1 day	1 day
	The Pythagorean Theorem	Learning	8.EE.A.2, 8.G.B.6, 8.G.B.7, 8.G.B.8	2 days	
7.4	Activity 7.4			1 day	1 day
	Approximating Square Roots	Learning	8.NS.A.1*, 8.NS.A.2*, 8.EE.A.2	1 day	
	Extension 7.4		8.NS.A.1*	1 day	1 day
7.5	Activity 7.5			1 day	1 day
	Using the Pythagorean Theorem	Learning	8.EE.A.2*, 8.G.B.6*, 8.G.B.7*, 8.G.B.8*	1 day	

Total: 13 days

Note: Additional days reserved for review and assessment.

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Additional Activities/Resources	
Name	**Location**

Vocabulary		
cube root	distance formula	hypotenuse
irrational number	legs	perfect cube
perfect square	Pythagorean Theorem	radical sign
radicand	real numbers	square root
theorem		

Standards	
8.NS.A.1*	Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
8.NS.A.2*	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.*
8.EE.A.2*	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.
8.G.B.6*	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.
8.G.B.7*	Solve linear equations in one variable.
8.G.B.8*	Analyze and solve pairs of simultaneous linear equations.

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Chapter 10: Exponents and Scientific Notation
22 Days 8.EE.A.1*, 8.EE.A.3*, 8.EE.A.4*

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
	Chapter Opener			1 day	
10.1	Activity 10.1			1 day	1 day
	Exponents	Learning	8.EE.A.1	1 day	
10.2	Activity 10.2			1 day	1 day
	Product of Powers Property	Learning	8.EE.A.1	1 day	
10.3	Activity 10.3			1 day	1 day
	Quotient of Powers Property	Learning	8.EE.A.1	1 day	
10.4	Activity 10.4			1 day	1 day
	Zero and Negative Exponents	Learning	8.EE.A.1*	1 day	
10.5	Activity 10.5			1 day	1 day
	Reading Scientific Notation	Learning	8.EE.A.3, 8.EE.A.4	1 day	
10.6	Activity 10.6			1 day	1 day
	Writing Scientific Notation	Learning	8.EE.A.3, 8.EE.A.4	1 day	
10.7	Activity 10.7			1 day	1 day
	Operations in Scientific Notation	Learning	8.EE.A.3*, 8.EE.A.4*	1 day	

Total: 15 days

Note: Additional days reserved for review and assessment.

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Additional Activities/Resources	
Name	**Location**

Vocabulary		
base (of a power)	exponent	power
power of a power property	power of a product property	product of powers property
quotient of powers property	scientific notation	

Standards	
8.EE.A.1*	Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.
8.EE.A.3*	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as 3 times 10^8 and the population of the world as 7 times 10^9, and determine that the world population is more than 20 times larger*.
8.EE.A.4*	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

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Chapter 8: Volume and Similar Solids
14 Days 8.G.C.9*

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
	Chapter Opener			1 day	
8.1	Activity 8.1			2 days	1 day
	Volumes of Cylinders	Learning	8.G.C.9	1 day	
8.2	Activity 8.2			1 day	1 day
	Volumes of Cones	Learning	8.G.C.9	1 day	
8.3	Activity 8.3			1 day	1 day
	Volumes of Spheres	Learning	8.G.C.9	1 day	
8.4	Activity 8.4			1 day	2 days
	Surface Areas and Volumes of Similar Solids	Applying	8.G.C.9*	2 days	

Total: 11 days

Note: Additional days reserved for review and assessment.

Additional Activities/Resources	
Name	**Location**

Vocabulary		
hemisphere	similar solids	sphere

Standards	
8.G.C.9*	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

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Chapter 9: Data Analysis and Displays (Part Two)
5 Days 8.SP.A.4*

Chapter Summary					
Section	**Title**	**Level of Learning**	**Standard(s)**	**Pacing (every/every other)**	
9.3	Activity 9.3			1 day	1 day
	Two-Way Tables	Learning	8.SP.A.4*	1 day	
9.4	Activity 9.4			1 day	1 day
	Choosing a Data Display	Applying	8.SP.A.1*	1 day	

Total: 4 days

Note: Additional days reserved for review and assessment.

Additional Activities/Resources	
Name	**Location**

Vocabulary		
joint frequency	marginal frequencies	two-way table

Standards	
8.SP.A.4*	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*