IAA Curriculum

Content Area	Mathematics	**Grade**	8
Course Name	Math 8		

Unit Number	Unit Topic	Instruction	Review/Reteach/Extension	Assessing	Buffer	Total
1	The Number System - Real Numbers	12	1	1		14
2	Radicals, Exponents, and Scientific Notation	15	2	2		19
3	Prop. Relationships, Lines, and Linear Equations	12	1	1		14
4	Solve Linear Equations	18	2	2		22
5	Functions	18	2	2		22
6	Geometry - Transformations	10	1	1		12
7	Geometry - Pythagorean Theorem	10	1	1		12
8	Geometry - Volume	10	1	1		12
9	Statistics and Probability	10	1	1		12
Extra Assessment Days/Days After Testing						35
Total Time		115	12	12	0	174
School Days	174					
Free Days	0					

Unit	Unit 1. Real Numbers
Concept / Big Idea	Demonstrate an understanding of rational and irrational numbers.
Essential Understandings	• Understand Rational and Irrational Numbers • Identify Perfect Squares and Perfect Cubes
Competencies	• Determine whether a number is rational or irrational. • Show that a rational numbers' decimal expansion terminates or repeats. • Convert a terminating decimal into a rational number. • Estimate the value of irrational numbers without a calculator. • Locate and/or identify rational and irrational numbers at their approximate locations on a number line.

Dates (estimates only)	**Smart Objectives**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone or PSSA Anchors**	**Keystone / PSSA Eligible Content**	**Vocabulary**
(14 days)	Determine whether a number is rational or irrational. For rational numbers, show that the decimal expansion terminates or repeats (limit repeating decimals to thousandths).	- Do Now / Warm-Up - Lesson video - Direct instruction - Practice exercises - Practice activities: • Rational numbers: Live Worksheets • Classify numbers: Khan Academy • Ordering real numbers: Interactive Worksheet	MA.CC.2.1.8.E.1	M08.A-N.1.1	M08.A-N.1.1.1	natural number whole number integer rational number real number irrational number terminating decimal repeating decimal bar notation
	Convert a terminating or repeating decimal into a rational number (limit repeating decimals to thousandths).		MA.CC.2.1.8.E.1	M08.A-N.1.1	M08.A-N.1.1.2	
	Estimate the value of irrational numbers without a calculator (limit whole number radicand to less than 144).		MA.CC.2.1.8.E.4	M08.A-N.1.1	M08.A-N.1.1.3	
	Use rational approximations of irrational numbers to compare and order irrational numbers.		MA.CC.2.1.8.E.4	M08.A-N.1.1	M08.A-N.1.1.4	
	Locate/identify rational and irrational numbers at approximate locations on a number line.		MA.CC.2.1.8.E.4	M08.A-N.1.1	M08.A-N.1.1.5	

Resources	• McGraw Hill / Glencoe Math Course 3, Volumes 1 & 2 (student workbooks) (Lessons 1.1, 1.10) • McGraw Hill / Glencoe Math Course 3 Teacher Guide, Assessment Masters, 21st Century Assessments, and Practice Masters & Perform. Tasks • PSSA Performance Coach 8 • MathGames.com and IXL.com - practice activities • Virtual math manipulatives here • Vocabulary flashcards - Quizlet • Math Notes - Math Notes • Helpful videos: ○
Formative Assessments	• Various do-nows, classwork, homework, and exit tickets
Summative Assessments	• Midpoint Quiz - Lessons 1.1-1.4 and 1.10 • Chapter Test
Strategies for ELL and IEP Support	• Textbook has vocabulary available in Spanish • Clean copy notes • Online flashcards • Use of calculator • Simplified directions • Translation tools available

Unit	Unit 2. Expressions - Radicals, Exponents, and Scientific Notation
Concept / Big Idea	Demonstrate an understanding of expressions and equations with radicals and integer exponents.
Essential Understandings	• Understand the Purpose of Scientific Notation • Recognize Integer Exponent Relationships • Represent Integer Exponent Properties
Competencies	• Apply properties of integer exponents to generate answers without a calculator. • Use square and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$ (p is a positive rational number). • Estimate very large or very small quantities by using numbers expressed in scientific notation. • Perform operations with numbers expressed in scientific notation.

Dates (estimates only)	**Smart Objectives**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone or PSSA Anchors**	**Keystone / PSSA Eligible Content**	**Vocabulary**
(19 days)	Apply one or more properties of integer exponents to generate equivalent numerical expressions without a calculator (with answers expressed in exponential form with positive exponents), properties provided.	- Do Now / Warm-Up - Lesson video - Direct instruction - Practice exercises - Practice activities: • Rational Numbers and Repeating Decimals ○ Rational numbers: Live Worksheets ○ Classify numbers: Khan Academy ○ Ordering real numbers: Interactive Worksheet • Exponents and Roots ○ Negative Exp.s - lesson ○ Exp.s: SoftSchools Quiz ○ Multiply exponents: Quia ○ Laws of Exp - Pirate Game ○ Laws of Exp - Otter Rush ○ Math Interactives: Laws of Exponents - Pirate Dig ○ Exponents - Jeopardy • Scientific Notation ○ AAAMath - lesson ○ CA Test Prep - CA Test Prep ○ Janus Astro - Astronomy Club	MA.CC.2.2.8.B.1	M08.B-E.1.1	M08.B-E.1.1.1	power base exponent radical sign square / square root cube / cube root monomial term scientific notation Laws of Exponents
	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 perfect squares (up to and including 122) and cube roots of perfect cubes (up to and including 53) without a calculator.		MA.CC.2.2.8.B.1	M08.B-E.1.1	M08.B-E.1.1.2	
	Estimate very large or very small quantities by using numbers expressed in the form of a single digit times an integer power of 10, and express how many times larger or smaller one number is than another.		MA.CC.2.2.8.B.1	M08.B-E.1.1	M08.B-E.1.1.3	

Resources	• McGraw Hill / Glencoe Math Course 3, Volumes 1 & 2 (student workbooks) (Lessons 1.3 - 1.9)
	• McGraw Hill / Glencoe Math Course 3 Teacher Guide, Assessment Masters, 21st Century Assessments, and Practice Masters & Perform. Tasks
	• PSSA Performance Coach 8
	• MathGames.com and IXL.com - practice activities
	• Virtual math manipulatives here
	• Vocabulary flashcards - Quizlet
	• Math Notes - Math Notes
	• Helpful videos:
	  ○ Math Antics: Intro to Exponents - video
	  ○ Math Antics: Zero Power - video
	  ○ Math Antics: Laws of Exponents - video
	  ○ Chemistry Text Online: Scientific Notation - video
	  ○ Math Antics: Scientific Notation - video
	  ○ Chemistry Text Online: Multiply & Divide Scientific Notation - video
	  ○ Chemistry Text Online: Add & Subtract Scientific Notation - video

Formative Assessments	• Various do-nows, classwork, homework, and exit tickets
Summative Assessments	• Midpoint Quiz • Chapter Test
Strategies for ELL and IEP Support	• Textbook has vocabulary available in Spanish • Clean copy notes • Online flashcards • Use of calculator • Simplified directions • Translation tools available

Unit	Unit 3. Proportional Relationships, Lines, and Linear Equations					
Concept / Big Idea	Understand the connections between proportional relationships, lines, and linear equations.					
Essential Understandings	• Understand Slope • Solve Equations • Represent Proportional Relationships					
Competencies	• Graph proportional relationships, interpreting the unit rate as the slope of the graph. • Write the equation for a given line in slope-intercept form.					
Dates (estimates only)	**Smart Objectives**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone or PSSA Anchors**	**Keystone / PSSA Eligible Content**	**Vocabulary**
(14 days)	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.	- Do Now / Warm-Up - Lesson video - Direct instruction - Practice exercises - Practice activities: • Plot points on coord plane - Stock the Shelves • Find intercepts - Quia • Find intercepts - MathExpression	MA.CC.2.2.8.B.2	M08.B-E.2.1	M08.B-E.2.1.1	ratio rate / unit rate proportional proportion constant of proportionality rate of change constant of variation linear relationship slope / rise / run point-slope form x-intercept y-intercept system of equations
	Use similar right triangles to show and explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane.		MA.CC.2.2.8.B.2	M08.B-E.2.1	M08.B-E.2.1.2	
	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.		MA.CC.2.2.8.B.3	M08.B-E.2.1	M08.B-E.2.1.3	
Resources	• McGraw Hill / Glencoe Math Course 3, Volumes 1 & 2 (student workbooks) (Lessons 3.1 - 3.5, 7.6) • McGraw Hill / Glencoe Math Course 3 Teacher Guide, Assessment Masters, 21st Century Assessments, and Practice Masters & Perform. Tasks • PSSA Performance Coach 8 • MathGames.com and IXL.com - practice activities • Virtual math manipulatives here • Vocabulary flashcards - Quizlet • Math Notes (Quizlet flashcards in .pdf format) - Math Notes • Helpful videos: ○ Ms. Sam's Math Class: Proportional Relationships & Lines - lesson ○ Identify x- and y-intercepts - video ○ Find x- and y-intercepts - video ○ Math Antics: Linear Functions - video					

	○ Find Slope and y-Intercept from an Equation, in Spanish - video ○ Convert to Slope-Intercept Form, in Spanish - video
Formative Assessments	• Various do-nows, classwork, homework, and exit tickets
Summative Assessments	• Midpoint Quiz • (Chapter Test - 2.1-2.5, 3.6-3.8, 4.2-4.4)
Strategies for ELL and IEP Support	• Textbook has vocabulary available in Spanish • Clean copy notes • Online flashcards • Use of calculator • Simplified directions • Translation tools available • Videos in Spanish

Unit	Unit 4. Solve Linear Equations
Concept / Big Idea	Analyze and solve linear equations and pairs of simultaneous linear equations.
Essential Understandings	• Identify the number of solutions of a system of equations • Solve systems algebraically
Competencies	• Write and identify linear equations in one variable with one solution, infinitely many solutions, or no solutions. • Solve linear equations. • Interpret solutions to a system of two linear equations in two variables as points of intersection of their graphs. • Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. • Use two linear equations in two variables to solve real world mathematical problems.

Dates (estimates only)	**Smart Objectives**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone or PSSA Anchors**	**Keystone / PSSA Eligible Content**	**Vocabulary**
(22 days)	Write and identify linear equations in one variable with one solution, infinitely many solutions, or no solutions.	- Do Now / Warm-Up - Lesson video - Direct instruction - Practice exercises - Practice activities	MA.CC.2.2.8.B.3	M08.B-E.3.1	M08.B-E.3.1.1	reciprocal multiplicative inverse coefficient null set substitution properties distribute
	Solve linear equations that have rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.		MA.CC.2.2.8.B.3	M08.B-E.3.1	M08.B-E.3.1.2	
	Interpret solutions to a system of two linear equations in two variables as points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.		MA.CC.2.2.8.B.3	M08.B-E.3.1	M08.B-E.3.1.3	
	Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.		MA.CC.2.2.8.B.3	M08.B-E.3.1	M08.B-E.3.1.4	
	Solve real-world and mathematical problems leading to two linear equations in two variables.		MA.CC.2.2.8.B.3	M08.B-E.3.1	M08.B-E.3.1.5	

Resources	• McGraw Hill / Glencoe Math Course 3, Volumes 1 & 2 (student workbooks) (Lessons 2.1 - 2.5, 3.8) • McGraw Hill / Glencoe Math Course 3 Teacher Guide, Assessment Masters, 21st Century Assessments, and Practice Masters & Perform. Tasks • PSSA Performance Coach 8 • MathGames.com and IXL.com - practice activities • Virtual math manipulatives here • Vocabulary flashcards - Quizlet • Math Notes (Quizlet flashcards in .pdf format) - Math Notes
Formative Assessments	• Various do-nows, classwork, homework, and exit tickets
Summative Assessments	• Midpoint Quiz - write, identify and solve linear equations • Midpoint Quiz - interpret systems of linear equations and solve graphically • Chapter Test - 2.1-2.5, 3.6-3.8, 4.2-4.4
Strategies for ELL and IEP Support	• Textbook has vocabulary available in Spanish • Clean copy notes • Online flashcards • Use of calculator • Simplified directions • Translation tools available

Unit	Unit 5. Functions
Concept / Big Idea	Analyze and interpret functions, and use functions to model relationships between quantities.
Essential Understandings	• Explore relations and functions • Study the properties of functions • Represent linear functions • Understand qualitative graphs
Competencies	• Determine whether a relation is a function. • Compare properties of two functions. • 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. • Construct a function to model a linear relationship between two quantities. • Determine and interpret the rate of change. • Describe qualitatively the functional relationship between two quantities by analyzing a graph. • Sketch the graph of a function that has been described verbally.

Dates (estimates only)	Smart Objectives	Instructional Strategies and Activities	PA CC Standards	Keystone or PSSA Anchors	Keystone / PSSA Eligible Content	Vocabulary
(22 days)	Determine whether a relation is a function.	- Do Now / Warm-Up - Lesson video - Direct instruction - Practice exercises - Practice activities	MA.CC.2.2.8.C.1	M08.B-F.1.1	M08.B-F.1.1.1	linear equation relation domain / range initial value function linear function nonlinear function quadratic function independent variable dependent variable system of equations solution continuous data discrete data qualitative graph
	Compare properties of two functions represented in different ways (i.e., algebraically, graphically, numerically in tables, or by verbal descriptions).		MA.CC.2.2.8.C.1	M08.B-F.1.1	M08.B-F.1.1.2	
	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.		MA.CC.2.2.8.C.1	M08.B-F.1.1	M08.B-F.1.1.3	
	Describe qualitatively the functional relationship between two quantities by analyzing a graph (increasing or decreasing, linear or nonlinear). Sketch or determine a graph that exhibits the qualitative features of a function that has been described.		MA.CC.2.2.8.C.2	M08.B-F.2.1	M08.B-F.2.1.2	

	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.		MA.CC.2.2.8.C.2	M08.B-F.2.1	M08.B-F.2.1.1	
Resources	• McGraw Hill / Glencoe Math Course 3, Volumes 1 & 2 (student workbooks) (Lessons 3.6 - 3.7, 4.1 - 4.7, 4.9) • McGraw Hill / Glencoe Math Course 3 Teacher Guide, Assessment Masters, 21st Century Assessments, and Practice Masters & Perform. Tasks • PSSA Performance Coach 8 • MathGames.com and IXL.com - practice activities • Virtual math manipulatives here • Vocabulary flashcards - Quizlet • Math Notes - Math Notes					
Formative Assessments	• Various do-nows, classwork, homework, and exit tickets					
Summative Assessments	• Chapter Test - 2.1-2.5, 3.6-3.8, 4.2-4.4 • Chapter Test - 4.1, 4.5-4.7, 4.9 • Quarter 2 Exam • Chapter 4 Project - document					
Strategies for ELL and IEP Support	• Textbook has vocabulary available in Spanish • Clean copy notes • Online flashcards • Use of calculator • Simplified directions • Translation tools available					

<table>
<tr><td>Unit</td><td colspan="6">Unit 6. Geometry - Transformations and Dilations</td></tr>
<tr><td>Concept / Big Idea</td><td colspan="6">Demonstrate an understanding of geometric transformations.</td></tr>
<tr><td>Essential Understandings</td><td colspan="6">• Understand Properties of Transformations
• Identify Congruent Figures</td></tr>
<tr><td>Competencies</td><td colspan="6">• Identify and apply properties of rotations, reflections and translations.
• Given a two-dimensional figure on a coordinate plane, describe the effect of dilations, translations, rotations, and reflections.</td></tr>
<tr><td>Dates (estimates only)</td><td>Smart Objectives</td><td>Instructional Strategies and Activities</td><td>PA CC Standards</td><td>Keystone or PSSA Anchors</td><td>Keystone / PSSA Eligible Content</td><td>Vocabulary</td></tr>
<tr><td rowspan="3">(12 days)</td><td>Identify and apply properties of rotations, reflections, and translations.</td><td rowspan="3">- Do Now / Warm-Up
- Lesson video
- Direct instruction
- Practice exercises
- Practice activities:
• Tetris - unblocked; great intro to translations and rotations!!
• Factris - multiplication Tetris
• Transformations (interactive)
• Rotation Demonstration - Desmos</td><td>MA.CC.2.3.8.A.2</td><td>M08.C-G.1.1</td><td>M08.C-G.1.1.1</td><td rowspan="3">transformation
preimage
image
translation
congruent
reflection
line of reflection
rotation
center of rotation
dilation
center of dilation
enlargement
reduction
scale factor
similar / similarity</td></tr>
<tr><td>Given two congruent figures, describe a sequence of transformations that exhibits the congruence between them.</td><td>MA.CC.2.3.8.A.2</td><td>M08.C-G.1.1</td><td>M08.C-G.1.1.2</td></tr>
<tr><td>Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures, using coordinates.</td><td>MA.CC.2.3.8.A.2</td><td>M08.C-G.1.1</td><td>M08.C-G.1.1.3</td></tr>
<tr><td>Resources</td><td colspan="6">• McGraw Hill / Glencoe Math Course 3, Volumes 1 & 2 (student workbooks) (Lessons 6.1 - 6.4, 7.1, 7.3)
• McGraw Hill / Glencoe Math Course 3 Teacher Guide, Assessment Masters, 21st Century Assessments, and Practice Masters & Perform. Tasks
• PSSA Performance Coach 8
• MathGames.com and IXL.com - practice activities
• Virtual math manipulatives here
• Vocabulary flashcards - Quizlet
• Math Notes (Quizlet flashcards in .pdf format) - Math Notes
• Helpful videos:
○ MathShorts: Translation - video
○ Mash-Up Math: Translation - video
○ MathShorts: Reflection - video
○ Reflections (reflecting points) - video
○ MathShorts: Rotation - video
○ MathShorts: Dilations - video
○ Math MashUp: Congruence and Similarity - video
○ FuseSchool: Similar and Congruent Shapes - video</td></tr>
</table>

Formative Assessments	• Various do-nows, classwork, homework, and exit tickets
Summative Assessments	• Chapter Test
Strategies for ELL and IEP Support	• Textbook has vocabulary available in Spanish • Clean copy notes • Online flashcards • Use of calculator • Simplified directions • Translation tools available

Unit	Unit 7. Geometry - Pythagorean Theorem					
Concept / Big Idea	Understand and apply the Pythagorean theorem.					
Essential Understandings	• Recognize legs and hypotenuse to use the Pythagorean Theorem • Understand Distance on the Coordinate Plane					
Competencies	• Apply the converse of the Pythagorean theorem to show a triangle is a right triangle. • Apply the Pythagorean theorem to determine unknown side lengths in right triangles in real-world and mathematical problems. • Apply the Pythagorean theorem to find the distance between two points in a coordinate system.					
Dates (estimates only)	**Smart Objectives**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone or PSSA Anchors**	**Keystone / PSSA Eligible Content**	**Vocabulary**
(12 days)	Apply the converse of the Pythagorean theorem to show a triangle is a right triangle.	- Do Now / Warm-Up - Lesson video - Direct instruction - Practice exercises - Practice activities	MA.CC.2.3.8.A.3	M08.C-G.2.1	M08.C-G.2.1.1	theorem Pythagoras right angle right triangle hypotenuse legs distance formula converse
	Apply the Pythagorean theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.		MA.CC.2.3.8.A.3	M08.C-G.2.1	M08.C-G.2.1.2	
	Apply the Pythagorean theorem to find the distance between two points in a coordinate system.		MA.CC.2.3.8.A.3	M08.C-G.2.1	M08.C-G.2.1.3	

Resources	• McGraw Hill / Glencoe Math Course 3, Volumes 1 & 2 (student workbooks) (Lessons 5.5 - 5.7)
	• McGraw Hill / Glencoe Math Course 3 Teacher Guide, Assessment Masters, 21st Century Assessments, and Practice Masters & Perform. Tasks
	• PSSA Performance Coach 8
	• MathGames.com and IXL.com - practice activities
	• Virtual math manipulatives here
	• Vocabulary flashcards - Quizlet
	• Math Notes (Quizlet flashcards in .pdf format) - Math Notes
	• Helpful videos:
	  ○ Math Antics: Pythagorean Theorem - video (to 10:40)
	  ○ Math Antics: Pythagorean Theorem - video (10:35 +)
	  ○ Math Antics: Slope and Distance - video					

Formative Assessments	• Various do-nows, classwork, homework, and exit tickets					

Summative Assessments	• Chapter Test
Strategies for ELL and IEP Support	• Textbook has vocabulary available in Spanish • Clean copy notes • Online flashcards • Use of calculator • Simplified directions • Translation tools available

Unit	Unit 8. Geometry - Volume of Cylinders, Cones, and Spheres					
Concept / Big Idea	Solve real-world and mathematical problems involving volume.					
Essential Understandings	• Find volume of three-dimensional figures • Recognize the relationship between volume of three-dimensional figures					
Competencies	• Apply formulas for the volumes of cones, cylinders, and spheres to solve real-world and mathematical problems.					
Dates (estimates only)	**Smart Objectives**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone or PSSA Anchors**	**Keystone / PSSA Eligible Content**	**Vocabulary**
(12 days)	Apply formulas for the volumes of cones, cylinders, and spheres to solve real-world and mathematical problems. Formulas will be provided.	- Do Now / Warm-Up - Lesson video - Direct instruction - Practice exercises - Practice activities	MA.CC.2.3.8.A.1	M08.C-G.3.1	M08.C-G.3.1.1	geometric solid composite solid volume prism radius diameter cylinder cone sphere hemisphere
Resources	• McGraw Hill / Glencoe Math Course 3, Volumes 1 & 2 (student workbooks) (Lessons 8.1 - 8.3) • McGraw Hill / Glencoe Math Course 3 Teacher Guide, Assessment Masters, 21st Century Assessments, and Practice Masters & Perform. Tasks • PSSA Performance Coach 8 • MathGames.com and IXL.com - practice activities • Virtual math manipulatives here • Vocabulary flashcards - Quizlet • Math Notes (Quizlet flashcards in .pdf format) - Math Notes • Helpful videos: ○ Math with Mr. J.: Radius and Diameter of Circles - video ○ Math Antics: Volume - video ○ MashUp Math: Volume of a Rectangular Prism - video ○ Math with Mr. J.: Volume of a Rectangular Prism - video ○ Math with Mr. J.: Volume of a Cylinder - video ○ MashUp Math: Practice with Volume of Cylinders - video ○ MashUp Math: Volume of a Cone - video ○ Volume of Composite Figures: cylinder + cone - video (7:00 - end) ○ Volume of Composite Figures: cone + rect. prism - video ○ MashUp Math: Volume of a Sphere - video ○ MooMoo Math: Volume of a Hemisphere - video ○ Volume of Composite Figures: cylinder + hemisphere - video (0 - 7:00)					

Formative Assessments	• Various do-nows, classwork, homework, and exit tickets
Summative Assessments	• Chapter Test
Strategies for ELL and IEP Support	• Textbook has vocabulary available in Spanish • Clean copy notes • Online flashcards • Use of calculator • Simplified directions • Translation tools available

Unit	Unit 9. Statistics and Probability					
Concept / Big Idea	Investigate patterns of association in bivariate data.					
Essential Understandings	• Explore paired data • Analyze linear associations and models • Interpret two-way frequency tables					
Competencies	• Construct and interpret scatter plots for bivariate measurement data. • Describe patterns such as clustering, outliers, positive or negative correlation, linear association, and nonlinear association. • Draw a line of best fit. • Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. • Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects.					
Dates (estimates only)	**Smart Objectives**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone or PSSA Anchors**	**Keystone / PSSA Eligible Content**	**Vocabulary**
(12 days)	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 correlation, linear association, and nonlinear association.	- Do Now / Warm-Up - Lesson video - Direct instruction - Practice exercises - Practice activities: • Review equation of a line in y=mx+b form - Line Slope Practice • Plot points on coord plane - Stock the Shelves	MA.CC.2.4.8.B.1	M08.D-S.1.1	M08.D-S.1.1.1	bivariate data scatter plot association positive assoc. negative assoc. no association linear assoc. linear outlier cluster line of best fit conjecture two-way table relative frequency statistics
	For scatter plots that suggest a linear association, identify a line of best fit by judging the closeness of the data points to the line.		MA.CC.2.4.8.B.1	M08.D-S.1.1	M08.D-S.1.1.2	
	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.		MA.CC.2.4.8.B.1	M08.D-S.1.1	M08.D-S.1.1.3	
	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 associations between the two variables.		MA.CC.2.4.8.B.2	M08.D-S.1.2	M08.D-S.1.2.1	

Resources	• McGraw Hill / Glencoe Math Course 3, Volumes 1 & 2 (student workbooks) (Lessons 9.1 - 9.3)
	• McGraw Hill / Glencoe Math Course 3 Teacher Guide, Assessment Masters, 21st Century Assessments, and Practice Masters & Perform. Tasks
	• PSSA Performance Coach 8
	• MathGames.com and IXL.com - practice activities
	• Virtual math manipulatives here
	• Vocabulary flashcards - Quizlet
	• Math Notes (Quizlet flashcards in .pdf format) - Math Notes
	• Helpful videos:
	  ○ Mr. Buffington: Scatter Plots - intro, vocab, association - video
	  ○ Scatter Plots - association, make a plot - video
	  ○ MooMoo Math: Scatter Plots and Line of Best Fit - video
	  ○ Review - Slope of a line in y=mx+b form - video
	  ○ Review - Slope Formula by Mr. Buffington - video
	  ○ Math Tutorials: Two-Way Tables - video
	  ○ Two-Way Tables - video
	  ○ Two-Way Tables (our math book!) - video

Formative Assessments	• Various do-nows, classwork, homework, and exit tickets
Summative Assessments	• Chapter Test
Strategies for ELL and IEP Support	• Textbook has vocabulary available in Spanish • Clean copy notes • Online flashcards • Use of calculator • Simplified directions • Translation tools available