

MATH Connections Correlation to Kentucky Standards

<p>Correlation Key:</p> <p>"X" Coverage = Secondary concept of the activity or problem. Students gain a basic understanding or introduction of the concept.</p> <hr/> <p>"XX" In-depth coverage = Primary concept that is the focus of the activity or problem. Students gain thorough understanding of the concept.</p>		MATH Connections 1A				MATH Connections 1B				MATH Connections 2A			MATH Connections 2B			MATH Connections 3A				MATH Connections 3B			
	Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 7	Chapter 8	Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 1	Chapter 2	Chapter 3	Chapter 4	Chapter 5	Chapter 6	Chapter 7	Chapter 8	

The code numbers before each content statement are used to identify, track and collect data on KCCT test questions. The following abbreviations and symbols are used in the codes:

- MA – Mathematics
- E, M, or H – Elementary, Middle, or High School level
- Second Number: 1 – Concepts, 2 – Skills, 3 – Relationships
- Third Number: Number of the Content Statement under Concepts, Skills, or Relationships (each new section begins with #1)

Example: MA-E-3.2.8 means Mathematics, Elementary, Probability/Statistics, Skill #8

Number/Computation

Concepts

<p>MA-H-1.1.1 Students will describe properties of, define, give examples of, and apply real numbers to both real-world and mathematical situations, and understand that irrational numbers cannot be represented by terminating or repeating decimals.</p>	XX	XX	XX	X	XX	XX	X	X	X	X	X	X	X	X	X	XX	X	X	X	XX	XX
<p>MA-H-1.1.2 Students will recognize, define, give examples of, and apply to both real-world and mathematical situations finite arithmetic and geometric sequences and series.</p>		X				XX															XX
<p>MA-H-1.1.3 Students will understand how matrices are used to represent real-world data.</p>														XX							

Skills

<p>MA-H-1.2.1 Students will perform addition, subtraction, multiplication, and division with real numbers in problem-solving situations to specified accuracy.</p>	XX	XX	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	XX
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MA-H-1.2.2 Students will simplify real number expressions such as those containing opposites, reciprocals, absolute values, exponents (integer), roots (square, cube), and factorials.	XX	XX	X	X	X	X	X	X	XX	X	X	X	X	X	X	XX	X	XX	X	X	X	X
MA-H-1.2.3 Students will use matrix addition, subtraction, multiplication (no larger than 2 by 2), and scalar multiplication to solve real-world problems.														XX								
MA-H-1.2.4 Students will determine a specific term of a sequence given an explicit formula and write an explicit rule for the nth term of arithmetic and geometric sequences.		X				XX															XX	
MA-H-1.2.5 Students will use simple combinations and permutations to count discrete quantities.							X											XX				
Relationships																						
MA-H-1.3.1 Students will understand how the following subsets of real numbers relate to each other: natural, whole, integers, rational, irrational, reals.					X													X				XX
MA-H-1.3.2 Students will understand how real number properties (identity, inverse, commutative, associative, distributive, closure) are used to simplify expressions and solve equations.		XX	X	X	XX	X			XX	X	X	X	X	XX	XX	X	X	X	X	XX	X	
MA-H-1.3.3 Students will understand how to use equivalence relations (reflexive, symmetric, transitive) and order relations (less than, greater than, equal to) to solve problems using real numbers.		X	X		X																XX	

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MA-H-1.3.4 Students will understand how ratio and proportion can be used in a variety of mathematical contexts and to solve real-world problems.			XX					XX	XX	XX	XX	XX			X	X		XX	X			
<u>Geometry/Measurement Concepts</u>																						
MA-H-2.1.1 Students will describe properties of and give examples of geometric transformations and apply geometric transformations (translations, rotations, reflections, dilations), with and without a coordinate plane, to both real-world and mathematical situations.			X						X	X		XX			XX		XX					
MA-H-2.1.2 Students will define, describe properties of, give examples of, and apply to both real-world and mathematical situations spatial relationships such as betweenness, parallelism, and perpendicularity.			XX							XX												
MA-H-2.1.3 Students will define, describe properties of, give examples of, and apply to both real-world and mathematical situations angle relationships such as linear pairs, vertical, complementary, supplementary, corresponding, and alternate interior angles.										XX	XX											
MA-H-2.1.4 Students will describe properties of, define, give examples of, and apply to both real-world and mathematical situations ratio measures including slope and rate.			XX	XX	XX	XX				XX	XX	XX	X	XX	XX	XX	XX	X	XX			

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MA-H-2.1.5 Students will describe properties of, define, give examples of, and apply to both real-world and mathematical situations right triangle trigonometric measures (sine, cosine, tangent).											XX	X						XX					
Skills																							
MA-H-2.2.1 Students will perform transformations (reflections, translations, rotations, dilations) on figures.										X		XX									XX		
MA-H-2.2.2 Students will classify two-dimensional and three-dimensional geometric figures according to their characteristics such as lengths of sides; angle measures; and number of sides, faces, edges, and vertices. Students will describe the intersection of a plane with a three-dimensional geometric figure.										XX		XX	XX	XX							XX		
MA-H-2.2.3 Students will determine height and distance using methods of indirect measurement such as similar triangles (including shadow or mirror method) and right triangle relationships (including trigonometric ratios).									XX	XX	XX	XX	XX							XX			
MA-H-2.2.4 Students will use Pythagorean relationships to solve problems in real-world and mathematical situations.									XX	XX	XX	X	XX							X			
MA-H-2.2.5 Students will apply the concepts of congruence and similarity to solve real-world and mathematical problems (not including proofs).										XX													

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MA-H-2.2.6 Students will calculate surface area and volume of rectangular prisms, pyramids, cylinders, cones, and spheres in problem settings using given formulas.									XX				XX		X								
MA-H-2.2.7 Students will apply formulas for the slope of a line, distance between two points, and midpoint of a segment to solve problems.			XX	XX	XX	XX			XX	XX	XX	XX	XX							X			
Relationships																							
MA-H-2.3.1 Students will solve real-world geometry problems by using algebra.									XX	XX		XX	XX	XX	XX								
MA-H-2.3.2 Students will apply algebra to solve problems involving geometric figures in a coordinate plane.									XX	XX		XX	XX										
MA-H-2.3.3 Students will understand how figures in a coordinate plane and their resulting images under a transformation are algebraically and geometrically related. Students will describe elements that change and elements that do not change under these transformations.												XX											
MA-H-2.3.4 Students will understand how a change in one or more dimensions of a geometric shape affects perimeter, area, volume, or surface area.									XX	XX		XX	XX		X								
Probability/Statistics Concepts																							
MA-H-3.1.1 Students will understand how standard deviation measures the scatter of a discrete set of real-world data.	XX																			XX			

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MA-H-3.1.2 Students will recognize that curve fitting (linear, quadratic, exponential) can be used as a method of describing and predicting from a set of data or scatter plot. Students will recognize the appropriate curve for a particular set of data.				XX	XX										XX	XX	XX					
MA-H-3.1.3 Students will describe and give examples of various sampling techniques and biases in data collection.	XX						XX											XX				
MA-H-3.1.4 Students will understand the differences between combinations and permutations.																		XX				
MA-H-3.1.5 Students will understand differences between theoretical and experimental probability.							XX											XX				
Skills																						
MA-H-3.2.1 Students will analyze, interpret results, make decisions, and draw conclusions based on a set of data.	XX						XX											XX				
MA-H-3.2.2 Students will plot a set of bivariate data and select an appropriate curve (linear, quadratic, exponential) of best fit.				XX	XX										XX	XX	XX					
MA-H-3.2.3 Students will organize, display, and interpret statistical models (tables, graphs) of bivariate data.				XX	XX										XX	XX	XX					
MA-H-3.2.4 Students will interpret the results of a probability simulation, draw conclusions, and make predictions.							XX															

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MA-H-3.2.5 Students will represent probabilities in multiple ways such as fractions, decimals, percentages, and geometric area models.							XX										XX					
MA-H-3.2.6 Students will determine probabilities in situations involving replacement and non-replacement.							XX										XX					
Relationships																						
MA-H-3.3.1 Students will understand how outliers affect measures of central tendency.	XX																					
MA-H-3.3.2 Students will describe how sampling techniques can influence results.	XX						XX										XX					
MA-H-3.3.3 Students will understand and reason about the use and misuse of statistics and statistical representations such as type of graph and choice of scale.	XX																XX					
MA-H-3.3.4 Students will use data and curve of best fit to make and defend predictions.	XX			XX	XX		XX															
Algebraic Ideas																						
Concepts																						
MA-H-4.1.1 Students will understand the concept of a function and roles of independent and dependent variables.						X											XX					
MA-H-4.1.2 Students will describe, give examples of, and recognize differences among expressions, equations, and inequalities.	X	X							X											XX		
MA-H-4.1.3 Students will understand systems of linear equations (2 equations in 2 variables) and representations of linear systems.					XX				X				XX					XX				

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MA-H-4.1.4 Students will identify linear, quadratic, absolute value, and exponential functions from graphs and equations.			X			XX			X	X					XX							
MA-H-4.1.5 Students will apply direct and inverse variation to both real-world and mathematical problems.									XX	XX												
MA-H-4.1.6 Students will recognize, give examples of, and apply the laws of exponents.		XX														XX						
Skills																						
MA-H-4.2.1 Students will solve linear equations and linear inequalities.		XX	XX	XX	X	XX				X	X				XX					XX	XX	
MA-H-4.2.2 Students will graph the equation of a line.			XX	XX	XX	XX				XX	X	X			XX					XX		
MA-H-4.2.3 Students will solve systems of linear equations (2 equations in 2 variables) including systems that arise from real-world problems.						XX				X				XX						XX		
MA-H-4.2.4 Students will create tables of numerical values of functions including linear, quadratic, absolute value, exponential, and simple piecewise such as some long distance phone rates.		XX	XX		XX	XX								XX	XX	XX	XX					
MA-H-4.2.5 Students will determine the domain and range of a function, the slope and intercepts of a linear function, and the maximum/minimum and intercepts of a quadratic function.						XX									XX	XX	XX	XX				
MA-H-4.2.6 Students will determine approximate solutions to quadratic equations.															XX							

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MA-H-4.2.7 Students will add, subtract, and multiply polynomial expressions, and students will factor polynomial expressions using the greatest common monomial factor.		XX							XX				X		XX								
MA-H-4.2.8 Students will use direct and inverse variation to solve real-world problems.								XX	XX														
Relationships																							
MA-H-4.3.1 Students will write and solve linear equations describing real-world situations.		XX	XX	XX	XX	XX			XX	XX					XX					XX			
MA-H-4.3.2 Students will understand how formulas, tables, graphs, and equations of functions relate to each other.		XX	XX	XX	XX	XX			XX						XX	XX	XX			XX			
MA-H-4.3.3 Students will demonstrate how slope shows rate of change in linear functions arising from real-world situations.			XX	XX	XX	XX									XX					XX			
MA-H-4.3.4 Students will show how changes in parameters affect graphs of functions [e.g., compare the graphs $y = x^2$, $y = 2x^2$, $y = (x - 4)^2$, and $y = x^2 + 3$].															XX								
MA-H-4.3.5 Students will show how equations and graphs are models of the relationship between two real-world quantities (e.g., the relationship between degrees Celsius and degrees Fahrenheit).			XX			XX			XX	XX		XX			XX	XX	XX						