

Instructional Guide

Grade Level Eighth Grade

Subject Pre-Algebra

School System Pickens County

School Year 2011-2012

Time Period (Pacing – when)	State Assessment Correlations	Standards/ Components (Pacing – what)	Resources/ Activities (Pacing – how) Curricular Alignment	Date of Common Formative Assessment (Pacing – how well)	Mapping Comments (What works what needs adjustment)
1 st 6 weeks					
1 st 6 weeks	ARMT 1 VII-8 Word problems will be used Interpretation of figures may be required The following content may be included: Distance rate time problems money problems which may require a system of equations Numbers(sum, difference, product, quotient) Simple age problems referring only to the present, Consecutive integers, Quantity problems, Cost problems, Wage problems	8.1.a Use addition to solve problems involving integers 8.1.b Use addition to solve problems involving fractions 8.1.B.1.b Applying LCM, including justification for the reasonableness of results, when working with rational numbers 8.1.c Use addition to solve problems involving decimals 8.1.B.3 Utilizing alternative representations to solve problems involving rational numbers Examples: models, drawings, grids, graphs	Text/Teaching Materials: PreAlgebra Text, Chapter 2 Sections 2; Chapter 5 Sections 5,6,7 Vocabulary: Fraction, Integer, Decimal, Absolute Value, LCM, Rules for adding, subtracting, multiplying, dividing Need supplemental material for decimals http://www.cpsb.org/resources/cbt/CBT_07-08/middle/6th/larosa.guilory/lesson.doc		

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1 st 6 weeks	ARMT 1	8.1.d Use subtraction to solve problems involving integers 8.1.e Use subtraction to solve problems involving fractions 8.1.f Use subtraction to solve problems involving decimals 8.1.B.3 Utilizing alternative representations to solve problems involving rational numbers Examples: models, drawings, grids, graphs	Text/Teaching Materials: PreAlgebra Text, Chapter 2 Sections 3; Chapter 5 Sections 5,6,7 Vocabulary: Fraction, Integer, Decimal, Absolute Value, LCM, Rules for adding, subtracting, multiplying, dividing Need supplemental material for decimals		
	ARMT 1	8.1.g Use multiplication to solve problems involving integers 8.1.h Use multiplication to solve problems involving fractions 8.1.i Use multiplication to solve problems involving decimals 8.1.B.3 Utilizing alternative representations to solve problems involving rational numbers Examples: models, drawings, grids, graphs	Text/Teaching Materials: PreAlgebra Text, Chapter 2 Sections 4; Chapter 5 Sections 3 Vocabulary: Fraction, Integer, Decimal, Absolute Value, LCM, Rules for adding, subtracting, multiplying, dividing Need supplemental material for decimals		

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1 st 6 weeks	ARMT 1	8.1.j Use division to solve problems involving integers 8.1.k Use division to solve problems involving fractions 8.1.l Use division to solve problems involving decimals 8.1.B.3 Utilizing alternative representations to solve problems involving rational numbers Examples: models, drawings, grids, graphs	Text/Teaching Materials: PreAlgebra Text, Chapter 2 Sections 5; Chapter 5 Sections 4 Vocabulary: Fraction, Integer, Decimal, Absolute Value, LCM, Rules for adding, subtracting, multiplying, dividing Need supplemental material for decimals		
	ARMT 1 VII-7 Diagrams may be used Verbal descriptions of proportions may be used	8.1.B.4 Applying proportional reasoning to application-based situations Example: Mr. Easterday needs to purchase 250 square yards of carpet to cover the living space in his home. How many square feet of living space does he have in his home? Answer: $\frac{250}{x} = \frac{1}{9}$, $x = 2,250$ square feet of living space.	Text/Teaching Materials: PreAlgebra Text, Chapter 6 Sections 2 Vocabulary: Ratio, Proportion, Cross Products		

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1 st 6 weeks	ARMT 1 I-4, II-2 Greatest common monomial(factor)	8.1.B.1.a Applying GCF, including justification for the reasonableness of results, when working with rational numbers 8.1.B.1.c Applying prime and composite when working with rational numbers	Text/Teaching Materials: PreAlgebra Text, Chapter 4 Sections 2 Vocabulary: Prime, Composite, GCF http://www.cpsb.org/resources/cbt/CBT_07-08/middle/6th/larosa.guillory/lesson.doc		
	ARMT 1	8.1.B.2 Using vocabulary associated with sets, including union, subsets, empty sets, and intersection	Text/Teaching Materials: Vocabulary: set, union, intersection, empty sets, intersection Need supplementary material		

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1 st 6 weeks	ARMT 3 I-1 One, two or no variables may be used One set of parentheses may be used Determining the absolute value of a term may be required Squaring the quantity in parentheses may be required No more than four terms may be included Adding or subtracting negative integers may be required Decimals to the tenths place may be used I-2 Using the distributive property may be used Unlike denominators may be used	8.3.a Use order of operations to evaluate algebraic expressions 8.3.B.1 Apply the substitution principle to evaluate algebraic expressions 8.3.b Use order of operations to simplify algebraic expressions	Text/Teaching Materials: PreAlgebra Text, Chapter 3 Sections 1,2; Chapter 1 Sections 2,3,4 Vocabulary: order of operations, evaluate, simplify, expression, substitution principle		

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1 st 6 weeks	ARMT 2 I-3 Adding or subtracting may be required Fractions may be used Adding exponents may be required	8.2.a Apply the product law of exponents to simplify expressions containing natural number exponents 8.2.b Apply the quotient law of exponents to simplify expressions containing natural number exponents	Text/Teaching Materials: PreAlgebra Text, Chapter 4 Sections 6 Vocabulary: product, quotient, power, exponent, base, simplify, expression		
	ARMT 2	8.2.B.1 Write numbers using scientific notation	Text/Teaching Materials: PreAlgebra Text, Chapter 4 Sections 8 Vocabulary: scientific notation, power, exponent, base		

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2 nd 6 weeks					
2 nd 6 weeks	ARMT 6 II-1 One set of parentheses may be used Finding the sum or difference of terms containing the same variable may be required The solution to the equation may be a fraction VI-1 Determining an equation when given a verbal description may be required	8.6.a Solve multistep linear equations 8.6.b Solve multistep linear equations requiring the use of the distributive property Example: <i>Solve</i> $-2(x-3) - 4x = -8 + x$. <i>Answer:</i> $x = 2$.	Text/Teaching Materials: PreAlgebra Text, Chapter 7 Sections 1,2 Vocabulary: equation, variable, distributive property		

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2 nd 6 weeks	<p>ARMT 5 III-1 The options may be graphs, ordered pairs, tables or mappings The options may be equations when given a table of values or ordered pairs The options may be tables of values or ordered pairs when given an equation III-1, III-2 Functions may be expressed using either the terminology “f(x)=”or”y=”</p> <p>III-2 The domain of a function may be a single value or a set of values A set of ordered pairs may be used</p>	<p>8.5.B.3.a Determine if a relation is a function from information in tables 8.5.B.3.b Determine if a relation is a function from information in sets of ordered pairs 8.5.B.3.c Determine if a relation is a function from information in equations 8.5.B.3.d Determine if a relation is a function from information in graphs 8.5.B.3.e Determine if a relation is a function from information in mappings</p>	<p>Text/Teaching Materials: PreAlgebra Text, Chapter 8 Sections 1,2</p> <p>Vocabulary: relation, function, vertical line test, ordered pair, equation</p>		

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2 nd 6 weeks	ARMT 5 V-1 Equations may be expressed in terms of $f(x)$ The options may be four graphs The options may be four equations The common relations are: $x = \text{constant}$ $y = \text{constant}$ $y = x$ $y = \sqrt{x}$ $y = x^2$ $y = \text{abs value of } x$	8.5.B.2.a Classifying relations as linear or nonlinear by examining tables 8.5.B.2.a Classifying relations as linear or nonlinear by examining graphs 8.5.B.2.a Classifying relations as linear or nonlinear by examining simple equations 8.4.a Graph linear relations by plotting points	Text/Teaching Materials: PreAlgebra Text, Chapter 8 Sections 2; Chapter 13 Sections 5 Vocabulary: linear equation, ordered pair		

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2 nd 6 weeks	ARMT 5 VII-7 Solve problems involving direct variation	<p>8.5.a Solve problems involving linear functions Example: determining from the information on the following chart a rule to be “ $y = 4.5x$ ”</p> <table border="1" data-bbox="956 730 1422 890"> <thead> <tr> <th>Pounds of Peanuts Sold</th> <th>Money Made</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>\$4.50</td> </tr> <tr> <td>2</td> <td>\$9.00</td> </tr> <tr> <td>3</td> <td>\$13.50</td> </tr> <tr> <td>4</td> <td>\$18.00</td> </tr> </tbody> </table> <p>8.5.B.1 Classifying variables in a function as independent or dependent</p>	Pounds of Peanuts Sold	Money Made	1	\$4.50	2	\$9.00	3	\$13.50	4	\$18.00	Text/Teaching Materials: PreAlgebra Text, Chapter 8, Section 5 Vocabulary: rate of change, direct variation, constant of variation, independent variable, dependent variable Need supplemental material for independent/dependent variables		
Pounds of Peanuts Sold	Money Made														
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2 nd 6 weeks	ARMT 4 IV-2 Determining the slope of a line given a line on the coordinate plane with two points labeled with their ordered pairs may be required Determining the slope of a line given two points on a line on the coordinated plane without any coordinates labeled may be required V-2 The following conditions may be included: Two points Slope and y-intercept VI-1 Determining the equation of a line given two ordered pairs may be required Determining the equation of a line given the line graphed on the coordinate plane may be required	8.4.b Graph linear relations by using the slope and y-intercept 8.4.B.1.a Determine slopes of lines 8.4.B.2.a Calculate the slope of a linear relation given as a table 8.4.B.2.b Calculate the slope of a linear relation given as a graph 8.4.B.1.b Determine y-intercepts of lines	Text/Teaching Materials: PreAlgebra Text, Chapter 8 Sections 4,6 Vocabulary: slope, y-intercept, slope-intercept form		
	ARMT 4 V-2 The following conditions may be included: x- and y- intercept	8.4.B.3 Graph linear relations by plotting x and y intercepts	Text/Teaching Materials: PreAlgebra Text, Chapter 8 Sections 3 Vocabulary: x-intercept, y-intercept		

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3 rd 6 weeks					
3 rd 6 weeks	ARMT 7	8.7.B.4 Applying the Triangle Inequality Theorem Example: Determine if a triangle can be formed with sides of 1 inch, 2 inches, and 5 inches. Answer: No, because 5 is not less than the sum of the measures of the other two sides or 5 is not less than $2 + 1$.	Text/Teaching Materials: http://www.istemnetwork.org/resource/educational/lessondetail.cfm?lessonid=203		

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3 rd 6 weeks	ARMT 7	8.7 Solve problems using the Pythagorean Theorem 8.7.B.1 Verifying the Pythagorean Theorem 8.7.B.2 Applying the Pythagorean Theorem to determine if a triangle is a right triangle	Text/Teaching Materials: PreAlgebra Text, Chapter 9 Sections 5 Vocabulary: legs, hypotenuse, Pythagorean Theorem		
	ARMT 7 VII-2 The Pythagorean Theorem will be given on the reference page Diagrams will be included Word problems will be used Radicals may be included in options All radicals will be simplified Drawings will be to scale	8.7.B.3 Applying the Pythagorean Theorem to solve multistep application based problems	Text/Teaching Materials: PreAlgebra Text, Chapter 9 Sections 5 Need supplemental material for application based problems		

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3 rd 6 weeks	ARMT 7 I-V Radicals may be used Lines graphed on the coordinate plane may be included	8.7.B.5 Calculating distances on the coordinate plane using the Pythagorean Theorem	Text/Teaching Materials: PreAlgebra Text, Chapter 9 Sections 6 Material deals with using distance formula to find distance. However, problems can be used to teach finding distance with Pythagorean theorem		
	ARMT 8 VII-4 Sum of the measures of the angles in a rectangle	8.8.a Compare quadrilaterals using their properties and characteristics 8.8.B.1.a Formulating mathematical arguments about the relationships among types of quadrilaterals	Text/Teaching Materials: Chapter 10 Sections 4 Vocabulary: quadrilateral		

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3 rd 6 weeks	ARMT 8 VII-4 Sum of the measures of the angles in a triangle	8.8.b Compare triangles using their properties and characteristics 8.8.B.1.b Formulating mathematical arguments about the relationships among types of triangles	Text/Teaching Materials: PreAlgebra Text, Chapter 8 Sections 4 Vocabulary: Triangle, vertex, acute triangle, obtuse triangle, right triangle, congruent, scalene triangle, isosceles triangles, equilateral triangle		
	ARMT 8 Sum of the measures of the angles in a rectangle	8.8.c Compare quadrilaterals, triangles and solids using their properties and characteristics	Text/Teaching Materials: Solid and Plane Figures Teacher will have students compare and contrast a solid with a plane that is the same shape as one of the solid sides		

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3 rd 6 weeks	ARMT 8	8.8.B.2.c Identifying congruent angles 8.8.B.2.d Identifying congruent shapes	Text/Teaching Materials: PreAlgebra Text Chapter 10 Sections 2 Vocabulary: congruent, corresponding parts		
	ARMT 8	8.8.B.2.a Identifying angle bisectors 8.8.B.2.b Identifying perpendicular bisectors 8.B.3.c Constructing congruent angles 8.B.3.d Constructing congruent segments 8.B.3.e Constructing parallel lines and perpendicular lines	Text/Teaching Materials: PreAlgebra Text Page 499 Need supplemental material on constructing parallel and perpendicular lines		

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3 rd 6 weeks	ARMT 8	8.8.B.3.a Constructing congruent polygons 8.B.3.b Constructing similar polygons	Text/Teaching Materials: PreAlgebra Text Page 499 Need supplemental material		
	ARMT 12 VII-3 Diagrams may be included Drawings will be to scale The word similar or the symbol may be used Use of the scale factor will be required	8.12.B.1.a Applying proportional reasoning to identify similar shapes 8.12.a Determine lengths of missing sides in similar shapes 8.12.b Determine measures of angles in similar shapes 8.12.B.3.a Determining ratios of perimeters of similar triangles 8.12.B.3.d Determining areas of similar triangles 8.12.B.3.b Determining ratios of perimeters of similar trapezoids 8.12.B.3.e Determining areas of similar trapezoids 8.12.B.3.c Determining ratios of perimeters of similar parallelograms 8.12.B.3.f Determining areas of similar parallelograms	Text/Teaching Materials: PreAlgebra Chapter 9 Sections 7 Page 512 Vocabulary: similar triangles Need supplementary material for determining ratios of perimeters and areas		

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3 rd 6 weeks	ARMT 12	8.12.B.2 Using dilations on the coordinate plane to determine measures of similar shapes	Text/Teaching Materials: PreAlgebra Page 512 Need supplemental material for dilations		
	ARMT 12	8.12.B.1.b Applying proportional reasoning to identify congruent shapes 8.12.c Determine lengths of missing sides in congruent shapes 8.12.d Determine measures of angles in congruent shapes	Text/Teaching Materials: PreAlgebra Chapter 10 Sections 2 Vocabulary: congruent, corresponding parts		

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4 th 6 weeks					
4th 6 weeks	ARMT 9 VII The following properties and relationships may be included: Vertical angles Adjacent angles Supplementary angles Complementary angles Linear pair(adjacent supplementary angles) Relationships among the measures of angles formed by two parallel lines and a transversal Word problems may be used The knowledge of the sum of measures of angles may be used Determining measurements of angles when the measurements of angles are expressed as algebraic expressions may be required	8.9.a Determine measures of adjacent angle pairs formed by parallel lines cut by a transversal 8.9.b Determine measures of vertical angle pairs formed by parallel lines cut by a transversal 8.9.c Determine measures of supplementary angle pairs formed by parallel lines cut by a transversal 8.9.d Determine measures of complementary angle pairs formed by parallel lines cut by a transversal 8.9.e Determine measures of angles formed by parallel lines cut by a transversal	Text/Teaching Materials: PreAlgebra Text Chapter 10 Sections 1 Vocabulary: parallel lines, transversal, interior angles, exterior angles, alternate interior angles, alternate exterior angles, corresponding angles, vertical angles, adjacent angles, complementary angles, supplementary angles, perpendicular angles		

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4 th 6 weeks	<p>AMRT 10/IV-1</p> <p>The value of pi will be 3.14, Options may be left in terms of pi, Unnecessary dimensions may be included, Drawings may be used, Finding volume or surface area of a rectangular prism may be required, Extracting a square root may be required, Determining the area of a circle when given in the diameter in the drawing may be required, The formulas will be given in the problems</p> <p>VII-4</p> <p>Diagrams may be included, Word problems may be used, The following content may be included: Area and perimeter of triangles, rectangles and squares, Area and circumference of a circle, given radius or diameter, Perimeter of a regular polygon, given one side, Volume of rectangular prism or cylinder, Determining any dimension of a figure may be required, Determining any dimension of a figure when the dimension is expressed as an Algebraic expression may be required</p> <p>VII-8</p> <p>Word problems will be used, Interpretation of figures may be required, The following content may be included: Area, volume, dimension problems</p>	<p>8.10.a Determine the perimeter of regular plane shapes</p> <p>8.10.b Determine the area of regular plane shapes</p>	<p>Text/Teaching Materials: PreAlgebra Text Chapter 10 Sections 5,7 Vocabulary: formula, perimeter, area, altitude, base, circle, diameter, center, circumference, radius, pi Need supplementary material on perimeter</p>		

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4 th 6 weeks	ARMT 10 VII-8 Word problems will be used Interpretation of figures may be required The following content may be included: Area, volume, dimension problems	8.10.c Determine the perimeter of irregular plane shapes 8.10.d Determine the area of irregular plane shapes	Text/Teaching Materials: PreAlgebra Text Chapter 10 Sections 8 Need supplemental material for perimeter		
	ARMT 11 VII-8 Word problems will be used Interpretation of figures may be required The following content may be included: Area, volume, dimension problems	8.11.a Determine surface area of rectangular prisms 8.11.B.3.a Determine appropriate units of measure to describe surface area 8.11.B.4.a Developing formulas for determining surface area of rectangular prisms 8.11.b Determine volume of rectangular prisms 8.11.B.3.b Determine appropriate units of measure to describe volume 8.11.B.4.b Developing formulas for determining volume of rectangular prisms	Text/Teaching Materials: PreAlgebra Text Chapter 11 Sections 2,4 Vocabulary: volume, surface area, prism		

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4 th 6 weeks	ARMT 11 VII-8 Word problems will be used Interpretation of figures may be required The following content may be included: Area, volume, dimension problems	8.11.c Determine surface area of cylinders 8.11.B.3.a Determine appropriate units of measure to describe surface area 8.11.B.4.c Developing formulas for determining surface area of cylinders 8.11.d Determine volume of cylinders 8.11.B.3.b Determine appropriate units of measure to describe volume 8.11.B.4.e Developing formulas for determining volume of cylinders	Text/Teaching Materials: PreAlgebra Text Chapter 11 Sections 2,4 Vocabulary: volume, surface area, cylinder		
	ARMT 11 VII-8 Word problems will be used Interpretation of figures may be required The following content may be included: Area, volume, dimension problems	8.11.e Determine surface area of pyramids 8.11.B.3.a Determine appropriate units of measure to describe surface area 8.11.B.4.d Developing formulas for determining surface area of pyramids 8.11.f Determine volume of pyramids 8.11.B.3.b Determine appropriate units of measure to describe volume 8.11.B.4.f Developing formulas for determining volume of pyramids	Text/Teaching Materials: PreAlgebra Text Chapter 11 Sections 3,5 Vocabulary: volume, surface area, pyramid		

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4 th 6 weeks	ARMT 11 VII-8 Word problems will be used Interpretation of figures may be required The following content may be included: Area, volume, dimension problems	8.11.B.1.a Determining surface area of cones 8.11.B.3.a Determine appropriate units of measure to describe surface area 8.11.B.2.a Estimating surface area of cones 8.11.B.3.a Determine appropriate units of measure to describe surface area 8.11.B.1.b Determining volume of cones 8.11.B.2.b Estimating volume of cones 8.11.B.3.b Determine appropriate units of measure to describe volume	Text/Teaching Materials: PreAlgebra Text Chapter 11 Sections 3,5 Vocabulary: volume, surface area, cone		
	ARMT 11 VII-8 Word problems will be used Interpretation of figures may be required The following content may be included: Area, volume, dimension problems	8.11.B.1.c Determining surface area of spheres 8.11.B.2.c Estimating surface area of spheres 8.11.B.3.a Determine appropriate units of measure to describe surface area 8.11.B.1.d Determining volume of spheres 8.11.B.2.d Estimating volume of spheres 8.11.B.3.b Determine appropriate units of measure to describe volume	Text/Teaching Materials: Vocabulary: surface area, volume, sphere Need supplementary teaching material		

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4 th 6 weeks	AMRT 12	8.12.B.1.a Applying proportional reasoning to identify similar shapes 8.12.a Determine lengths of missing sides in similar shapes 8.12.b Determine measures of angles in similar shapes 8.12.B.3.a Determining ratios of perimeters of similar triangles 8.12.B.3.d Determining areas of similar triangles 8.12.B.3.b Determining ratios of perimeters of similar trapezoids 8.12.B.3.e Determining areas of similar trapezoids 8.12.B.3.c Determining ratios of perimeters of similar parallelograms 8.12.B.3.f Determining areas of similar parallelograms	Text/Teaching Materials: PreAlgebra Chapter 9 Sections 7 Page 512 Vocabulary: similar triangles Need supplementary material for determining ratios of perimeters and areas		

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4 th 6 weeks	ARMT 12	8.12.B.2 Using dilations on the coordinate plane to determine measures of similar shapes	Text/Teaching Materials: PreAlgebra Page 512 Need supplemental material for dilations		
	ARMT 12	8.12.B.1.b Applying proportional reasoning to identify congruent shapes 8.12.c Determine lengths of missing sides in congruent shapes 8.12.d Determine measures of angles in congruent shapes	Text/Teaching Materials: PreAlgebra Chapter 10 Sections 2 Vocabulary: congruent, corresponding parts		

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5 th 6 weeks					
5 th 6 weeks	ARMT 13 VII-5 The word mean will be used for the arithmetic average The set of numbers used to assess the range will not be in numeric order Decimals up to hundredths may be used Decimals with different numbers of decimal digits may be used in the same item Frequency diagrams may be used	8.13.a Use given data from samples or populations to construct graphs and interpret data 8.13.b Use collected data from samples or populations to construct graphs and interpret data Examples: box-and-whisker plot, circle graph, scatterplot, stem-and-leaf plot, double stem-and-leaf plot, double box-and-whisker plot 8.13.B.1 Estimating a line of best fit from a scatterplot to make predictions 8.13.B.2 Determining the measure of central tendency that is the most appropriate for a given situation	Text/Teaching Materials: PreAlgebra Chapter 1 Section 7; Chapter 5 Section 8; Chapter 8 Section 8; Chapter 12 Sections 1,2,3 Vocabulary: scatter plot, best fit line, stem and leaf plot, stems, leaves, back to back stem and leaf plot, box and whisker plot, circle graph, measures of central tendency, mean, median, mode, range Need supplemental material for circle graphs and double box and whisker plots		

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5 th 6 weeks	ARMT 14 VII-6 Both AND and OR situations may be included	8.14 Determine the theoretical probability of an event 8.14.B.3 Determine the probability of an event through simulation 8.14.B.1.a Calculating the probability of complementary events	Text/Teaching Materials: PreAlgebra Chapter 6 Sections 9 Vocabulary: probability, outcome, simple event, sample space, theoretical probability, simulation, complementary events		
	ARMT 14	8.14.B.1.b Calculating the probability of mutually exclusive events 8.14.B.2.a Determining the probability of two independent events 8.14.B.2.b Determining the probability of two dependent events	Text/Teaching Materials: PreAlgebra Chapter 12 Sections 9 Vocabulary: compound events, mutually exclusive events, independent events, dependent events		