Knox County Prioritized Mathematics Curriculum
3130 Foundations IA

2006-2007

Key
C-Compact - objectives that have been previously taught
A-Assessed – objectives assessed by Knox County or the state
I-Important - objectives providing enrichment skills or support to subsequent mathematics courses (optional)

*** These objectives and "aligned" chapters are arranged in the order of suggestive sequence for teaching.**

Chapter 1 Algebra Toolbox

Vocabulary	Writing Prompts
Algebraic expression, algebraic inequality, coefficient, constant, equation, evaluate, inequality, inverse operation, like terms, ordered pair, origin, solve, substitute, term, variable, x-axis, x-coordinate, y-axis, y-coordinate	• Have students write at least three examples of variable and constants from their everyday lives. • Ask students to explain why they think mathematics is the universal language • Ask students to write about any real-world situation in which an inequality is represented.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A	**1.2.6** Apply order of operations to evaluate numerical expressions containing whole numbers, exponents, and no more than two sets of grouping symbols.	**Use Order of Operations.**	Skills Bank	768
A	**1.1.4** Apply order of operations to evaluate numerical expressions. **2.2.4** Evaluate a first-degree algebraic expression given the values for the variables.	**Evaluate algebraic expressions.**	1.1	4-7
A	**2.2.3** Translate a one-variable verbal expression into an algebraic expression.	**Write algebraic expressions.**	1.2	8-12
A	**2.2.1** Solve a one-step linear equation with a variable on only one side of the equation.	**Solve equations using addition and subtraction.**	1.3	13-17
A	**2.2.1** Solve a one-step linear equation with a variable on only one side of the equation.	**Solve equations using multiplication and division.**	1.4	18-22
A	**2.3.1** Select the number line graph that models a given one-step linear inequality.	**Solve and graph inequalities.**	1.5	23-27
A	**1.2.4** Multiply an integer by a one-variable binomial **2.3.2** Simplify a first-degree algebraic expression by combining like terms	**Combine like terms in an expression..**	1.6	28-31
A		**Write the solutions of equations in two variables as ordered pairs.**	1.7	34-37
A	**3.2.1** Identify the coordinates for a given point.	**Graph points and lines on the coordinate plane.**	1.8	38-41
A	**3.2.1** Identify the coordinates for a given point.	**Learn to interpret information given in a graph or table**	1.9	43-47

		graph or table.		
A	**3.2.1** Identify the coordinates for a given point.	**Make a graph to solve problems.**	1.9	43-47

Chapter 2 Integers and Exponents

Vocabulary	Writing Prompts
Absolute value, base, exponent, exponential form, integer, opposite, power, scientific notation	• Have students write about a career or activity in which someone might want to find an average of negative integers. • Have students write about the similarities and differences between solving equations and solving inequalities. • Have students describe how to evaluate an expression with a negative exponent.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A	**1.2.1** Identify the opposite of any rational number.	**Add integers using opposites.**	2.1	60-63
A	**1.2.1** Identify the opposite of any rational number.	**Subtract an integer's opposite.**	2.2	64-67
A		**Multiply and divide integers.**	2.3	68-71
A	**2.2.1** Solve a one-step linear equation with a variable on only one side of the equation.	**Solve equations with integers.**	2.4	74-77
A	**2.3.1** Select the number line graph that models a given one-step linear inequality.	**Solve inequalities with integers.**	2.5	78-81
A	**1.2.6** Apply order of operations to evaluate numerical expressions containing whole numbers, exponents, and no more than two sets of grouping symbols.	**Evaluate expressions with exponents.**	2.6	84-87
A	**1.1.1** Choose the correct prime factorization of a two-digit composite whole number.	**Determine prime factorization.**	Skills Bank	763
A	**1.2.3** Choose an equivalent exponential form of a one-variable monomial given in factored form.	**Apply the properties of exponents.**	2.7	88-91
A	**1.2.3** Choose an equivalent exponential form of a one-variable monomial, then give answer as a factored form.	**Evaluate the zero exponent.**	2.7	88-91
A		**Evaluate expressions with negative exponents.**	2.8	92-95
A		**Express numbers in scientific notation.**	2.9	96-99

Chapter 3 Rational and Real Numbers

Vocabulary	Writing Prompts
Irrational number, perfect square, principal square root, rational number, real number, reciprocal, relatively prime	• Ask students to explain how to multiply a decimal and a fraction. • Ask students to explain how multiplication and division of fractions are the same and how they are different. • Ask students to explain the difference between rational and irrational numbers.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A		**Write rational numbers in equivalent forms.**	3.1	112-116
A	**1.1.2** Compare fractions to decimals using greater than, less than, or equal to.	**Compare and order rational numbers.**	Skills Bank	770
A		**Add and subtract decimals.**	3.2	117-120
A		**Add and subtract rational numbers with like denominators.**	3.2	117-120
A	**1.1.3** Multiply a fraction by a multiple of its denominator.	**Multiply fractions, mixed numbers, and decimals.**	3.3	121-125
A		**Divide fractions and decimals.**	3.4	126-130
A		**Add and subtract fractions with unlike denominators.**	3.5	131-134
A	**2.2.1** Solve a one-step linear equation with a variable on only one side of the equation.	**Solve equations with rational numbers.**	3.6	136-139
A		**Solve inequalities with rational numbers.**	3.7	140-143
A		**Find square roots.**	3.8	146-149
A	**1.2.2** Select the best estimate for the coordinate of a given point on a number line.	**Estimate square roots to a given number of decimal places.**	3.9	150-153
A		**Solve problems using square roots.**	3.9	150-153

A		**Determine if a number is rational or irrational.**	3.10	156-159

Vocabulary	Writing Prompts
Back to back stem and leaf plot, bar graph, frequency table, histogram, line graph, mean, median, mode, outlier, stem-and-leaf plot	• In five different basketball games, Michael Jordan scored 12, 26, 28, 6, and 51 points. Ask students to explain which measure of central tendency they think best describes this data set. • Have students write a paragraph about why someone might want to mislead the public using statistics or graphs.

Chapter 4 Collecting, Displaying, and Analyzing Data

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A	**5.2.3** Determine the median from a given stem-and-leaf plot.	**Organize data into tables or stem- and-leaf plots.**	4.2	179-182
A	**5.1.1** Determine the mean, median, mode, and range for a given set of data.	**Find measures of central tendency.**	4.3	184-187
A	**5.2.1** Construct and interpret bar, circle, and line graphs of real-world data.	**Display data in bar graphs, line graphs, and histograms.**	4.5	196-199
I		**Recognize misleading graphs and statistics.**	4.6	200-203

Chapter 5 Plane Geometry

Vocabulary	Writing Prompts
acute angle, acute triangle, angle, complementary angles, congruent, equilateral triangle, isosceles triangle, line, line of symmetry, obtuse angle, obtuse triangle, parallel lines, perpendicular lines, plane, point, ray, regular tessellation, right angle, right triangle, rotational symmetry, scalene triangle, segment, supplementary angles, tessellation, Triangle-Sum Theorem, vertical angles	• Have students look around the room and give examples of angles. Have students classify those angles by angle measure and by the length of the sides. • Have students find three words that display symmetry. Have them write the words and draw the line of symmetry or identify the rotational symmetry.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
I		**Classify and name points, lines, planes and angles.**	5.1	222-226
I		**Identify parallel and perpendicular lines. Identify the angles formed when parallel lines are cut by a tranversal.**	5.2	228-231
I		**Find unknown angles in a triangle.**	5.3	234-238

Chapter 6 Perimeter, Area, and Volume

Vocabulary	Writing Prompts
area, circle, circumference, complex shapes, cone, cylinder, diameter, great circle, hemisphere, hypotenuse, lateral area, lateral surface, leg, non-overlapping figures, perimeter, prism, pyramid, Pythagorean Theorem, radius, regular pyramid, right cone, slant height, sphere, surface area	• Have students write about a real world situation in which they would need to find the perimeter and area of an object. Also have them estimate the measures of the object they have chosen. • Have students list some real world examples of right triangles. Have them write about why it might be important to know the lengths of the sides of these right triangles.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A	**3.1.1** Determine the perimeter of any geometric figure.	**Find the perimeter and area of rectangles and parallelograms.**	6.1	280-284
A	**4.1.1** Apply the given formula to determine the area of a rectangular figure with rational dimensions.	**Find the area of triangles and trapezoids.**	6.2	285-288
A	**3.3.1** Use the Pythagorean Theorem to determine the length of a missing side of a right triangle. (No radicals)	**Use the Pythagorean Theorem and its converse to solve problems.**	6.3	290-293
A	**4.1.1** Apply the given formula to determine the area of a rectangular figure with rational dimensions.	**Find the area and circumference of circles.**	6.4	294-297
I		**Find the volume of prisms and cylinders.**	6.6	307-311
I		**Find the volume of pyramids and cones.**	6.7	312-315
I		**Find the surface area of prisms and cylinders.**	6.8	316-319
I		**Find the surface area of pyramids and cones.**	6.9	320-323
I		**Find the volume and surface area of spheres.**	6.10	324-327

Chapter 7 Ratios and Similarity

Vocabulary	Writing Prompts
cross product, equivalent ratio, proportion, rate, ratio, scale, scale drawing, scale factor, scale model, similar, unit price, unit rate	• Have students write about some real-world situations in which ratios would be useful. Some examples might include figuring the cost of a number of items or changing the quantities of ingredients for a recipe. • Have students describe why they think it is or is not helpful for supermarkets to include unit prices on price labels. • Have students write about situations other than reducing or enlarging a picture in which similar figures would be useful.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A	**1.3.1** Select ratios and proportions to represent real-world problems such as scale drawings and samplings.	**Find equivalent ratios to create proportions.**	7.1	342-345
A	**4.2.1** Calculate the cost per unit to determine the best buy.	**Work with rates and ratios.**	7.2	346-349
A		**Solve proportions.**	7.4	356-359
A		**Determine whether figures are similar.**	7.6	368-371
A		**Use scale factors.**	7.6	368-371
A	**3.2.2** Find the missing length of a side given two similar triangles.	**Find missing dimensions in similar figures.**	7.6	368-371
I	**1.3.1** Select ratios and proportions to represent real-world problems such as scale drawings and samplings.	**Make comparisons between and find dimensions of scale drawings and actual objects.**	7.7	372-375
I	**1.3.1** Select ratios and proportions to represent real-world problems such as scale drawings and samplings.	**Make comparisons between and find dimensions of scale models and actual objects.**	7.8	376-379

Chapter 8 Percents

Vocabulary	Writing Prompts
commission, commission rate, interest, percent, percent of change, percent decrease, percent increase, principal, rate of interest, sales tax, simple interest, withholding tax	• Ask students to compare the two methods for solving percent problems – writing and solving equations and setting up proportions. • Ask students to describe the process they would use to solve each of the three types of percent problems. • Ask students to describe how they would calculate the percent increase in their height over the last year.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A	**1.2.2** Select the best estimate for the coordinate of a given point on a number line.	**Relate decimals, fractions, and percents.**	8.1	400-403
A	**5.2.2** Interpret circle graphs representing real-world data.	**Interpret circle graphs representing real world data.**	8.1	403
A		**Find percents.**	8.2	405-408
A		**Find a number when the percent is known.**	8.3	410-412
A		**Find percent increase and decrease.**	8.4	416-419
I	**2.2.4** Evaluate a first-degree algebraic expression given the values for the variables.	**Find commission, sales tax, and withholding tax.**	8.6	424-426
A	**2.2.4** Evaluate a first-degree algebraic expression given the values for the variables.	**Compute simple interest.**	8.7	428-431

Chapter 9 Probability

Vocabulary	Writing Prompts
certain, equally likely, event, experiment, experimental probability, fair, Fundamental Counting Principle, impossible, odds against, odds in favor, outcome, probability, sample space, theoretical probability, tree diagram, trial	• Ask students to identify some examples of probability in their everyday lives. Some examples may include weather forecasts, sports, or board games. • Ask students to write about how probability has affected a game they have played. • Ask students to write about a situation in their lives in which they may want to consider all the possible outcomes of an event.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A	**5.1.3** Determine the probability of a single event.	**Find the probability of an event by using the definition of probability.**	9.1	446-450
A	**5.1.3** Determine the probability of a single event.	**Estimate probability using experimental models.**	9.2	451-453
A	**5.1.3** Determine the probability of a single event	**Estimate probability using theoretical methods.**	9.4	462-465
A	**5.1.2** Determine the number of possible outcomes for a simple experiment using a list, tree diagram, or the multiplication counting principle.	**Find the number of possible outcomes in an experiment.**	9.5	467-470

Chapter 10 More Equations and Inequalities

Vocabulary	Writing Prompts
Equation, inequality, solve, variable	• Explain the process of solving two-step equations to a friend who has not seen them yet. • Compare the process of solving a multi-step equation with the process of checking the solution.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A	**2.2.2** Solve a two-step linear equation with a variable on only one side of the equation (integral coefficients and constants).	**Solve two-step equations.**	10.1	498-501
A	**2.2.2** Solve a two-step linear equation with a variable on only one side of the equation (integral coefficients and constants).	**Solve multi-step equations.**	10.2	502-505
A		**Solve equations with variables on both sides of the equal sign.**	10.3	507-511
A	**2.3.1** Select the number graph that models a given one-step linear inequality (variables may not have negative coefficients).	**Solve two-step inequalities Graph the solutions of an inequality on a number line.**	10.4	514-518
A	**2.2.2** Solve a two-step linear equation with a variable on only one side of the equation (integral coefficients and constants).	**Solve an equation for a variable.**	10.5	519-522

Chapter 11 Graphing Lines

Vocabulary	Writing Prompts
Boundary line, linear equation, linear inequality, point-slope form, slope-intercept form, x-intercept, y-intercept	• Tell whether a graph shows a linear equation. • Write about the difference between a line that has zero slope and a line that has an undefined slope. • Write about how to estimate the coordinates of a point on a line of best fit.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A	**2.2.5** Select the appropriate linear graph that models a real-world situation.	**Identify and graph linear equations.**	11.1	540-544
A		**Find the slope of a line and use slope to understand and draw graphs.**	11.2	545-549
A		**Use slopes and intercepts to graph linear equations.**	11.3	550-553
A		**Find the equation of a line given one point and the slope.**	11.4	556-559
A		**Graph inequalities on the coordinate plane.**	11.6	567-571
A	**2.2.5** Select the appropriate linear graph that models a real-world situation.	**Recognize relationships in data and find the equation of the line of best fit.**	11.7	572-575

Chapter 12 Sequences and Functions

Vocabulary	Writing Prompts
Arithmetic sequence, common difference, common ratio, Fibonacci sequence, first difference, geometric sequence, second difference, sequence, term	• Tell how to determine if a sequence is arithmetic or geometric when given only the first two terms. • Write about the steps one would take to identify a rule for a given sequence.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A		**Find terms in an arithmetic sequence.**	12.1	590-594
A	**2.1.2** Extend a numerical pattern using only whole numbers.	**Find terms in a geometric sequence.**	12.2	596-599

Chapter 13 Polynomials

Vocabulary	Writing Prompts
Binomial, degree of a polynomial, monomial, polynomial, trinomial	• Write an algebraic expression that is not a polynomial and explain why it is not a polynomial. • Consider whether the difference of two polynomials can be zero. Explain the answer and give an example.

Key	State Performance Indicators	Knox County Performance Objectives	Textbook Correlation	
			Section	Pages
A		**Classify polynomials by degree and by the number of terms.**	13.1	644-647
A		**Simplify polynomials.**	13.2	650-653
A		**Add polynomials.**	13.3	656-659
A		**Subtract polynomials.**	13.4	660-663
A		**Multiply polynomials by monomials.**	13.5	664-667