

Chapter 14. Curriculum for Grade 7

Part A. Correlation of Objectives with Recommended Textbooks

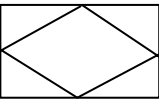
NUMBER STRAND – Grade 7

Alabama Course of Study	TEAM-Math	PH	CMP	SAT-10	AHSGE
<p>1. Demonstrate computational fluency with addition, subtraction, and multiplication of integers.</p> <p style="padding-left: 20px;">a. Developing algorithms for performing operations on integers Example: determining a systematic set of steps that can be used to subtract integers</p> <p style="padding-left: 20px;">b. Using inverse properties of addition and of multiplication</p> <p>2. Use order of operations to evaluate numerical expressions.</p> <p style="padding-left: 20px;">a. Computing absolute values</p> <p style="padding-left: 20px;">b. Finding square roots of perfect squares through 225</p> <p style="padding-left: 20px;">c. Evaluating powers</p> <p style="padding-left: 20px;">d. Applying properties of operations to compute with integers, fractions, and decimals</p> <p>3. Solve problems requiring the use of operations on rational numbers.</p> <p style="padding-left: 20px;">a. Describing the method used</p> <p style="padding-left: 20px;">b. Determining the reasonableness of results</p>	<p>N1. Use operations involving fractions, decimals, percents, introduce irrationals, scientific notation, integers, and determine reasonableness of an answer:</p> <p style="padding-left: 20px;">a. Exponents</p> <p style="padding-left: 20px;">b. Sets</p> <p style="padding-left: 20px;">c. Properties</p> <p style="padding-left: 20px;">d. of operations</p> <p style="padding-left: 20px;">e. Compare and order</p> <p style="padding-left: 20px;">f. Real number line</p> <p>N2. Use prime factorization to find LCM and GCF</p>	<p>1:1-3,6-9</p> <p>3:1-10</p> <p>4:2-5</p>	<p><i>Data Around Us</i></p> <p>Inv. 1-6</p> <p><i>Accentuate the Negative</i></p> <p>Inv 1-5</p>	<p>Solve problems using estimation. Round decimal numbers to a specified place value.</p> <p>Identify least common multiple or greatest common factor for a set of numbers.</p> <p>Identify alternative representations of real numbers.</p> <p>Identify numbers expressed in scientific notation.</p> <p>Identify and use order of operation rules. Addition, subtraction, multiplication, and division of fractions using symbolic notation and in context.</p> <p>Compare and order real numbers.</p> <p>Solve problems using numerical reasoning.</p> <p>Solve problems using appropriate strategies.</p> <p>Addition, subtraction, multiplication, and division of integers, whole numbers and decimals using symbolic notation and in context.</p> <p>Identify and use field properties of addition and multiplication.</p>	<p>I-1</p> <p>I-2</p> <p>I-3</p> <p>I-4</p>
<p>3c. Using percents to solve problems, including problems involving discounts, taxes, commissions, and simple interest</p>	<p>N3. Extend computation to percents greater than 100 and less than 1</p> <p>N4. Expand problem solving situations to include:</p> <p style="padding-left: 20px;">a. Discounts</p> <p style="padding-left: 20px;">b. Taxes</p> <p style="padding-left: 20px;">c. Commissions</p> <p style="padding-left: 20px;">d. Simple interest</p>	<p>6:1-8</p>	<p><i>Comparing and Scaling</i></p> <p>Inv. 1-6</p>		
	<p>N5. Use proportional reasoning to solve problems</p>	<p>5:1-5</p>		<p>Solve problems involving ratio or proportions.</p>	

ALGEBRA STRAND – Grade 7

Alabama Course of Study	TEAM-Math	PH	CMP	SAT-10	AHSGE
4. Express a pattern shown in a table, graph, or chart as an algebraic equation. <ul style="list-style-type: none"> a. Recognizing the relationships between numerical patterns in tables and their respective graphs in the coordinate plane b. Determining if a constant rate of change exists in a pattern 	A1. Explore Functions <ul style="list-style-type: none"> a. Represent and determine a rule for data that appears with tables, graphs, charts, and mappings b. Determine the range and domain c. Investigate the role of functions in real world situations 	9:1-6 10:1-3	<i>Variables and Patterns</i> Inv. 1-5	Solve problems involving patterns. Identify equations of linear functions given tables of values, points, or graphs. Identify parallel and perpendicular lines. Determine domain or range for linear functions. Read and interpret tables and graphs.	III-1 III-2 IV-2 V-1 V-2 V-4
5. Translate verbal phrases into algebraic expressions and algebraic expressions into verbal phrases. <ul style="list-style-type: none"> a. Exhibiting understanding of a variable as an unknown quantity 6. Solve one- and two-step equations. <ul style="list-style-type: none"> a Solving inequalities in one variable b Graphing solution sets of inequalities on a number line c Recognizing properties of equality 	A2. Solve one and two step equations and inequalities A3. Inequalities-graph on number line	2:3-4, 6-10 4-6		Translate between visual representations, sentences, and symbolic notation. Translate problem situations into algebraic expressions and equations. Evaluate expressions. Solve algebraic equations. Identify graphs of inequalities.	II-1 II-2 II-3 II-4 V-3 VI-1 VII-8

GEOMETRY STRAND – Grade 7

Alabama Course of Study	TEAM-Math	PH	CMP	SAT-10	AHSGE
<p>8. Recognize geometric relationships among two-dimensional and three-dimensional objects.</p> <ul style="list-style-type: none"> a Drawing geometric figures when given specified components, including base and height b Investigating properties and relationships among congruent figures c Identifying geometric ideas in settings outside the mathematics classroom <p>Examples: recognizing Escher drawings as examples of tessellations, the geodesic dome as an example of triangulation, and architecture as an example of constructing three-dimensional shapes; identifying landscape design as an example of area</p>	<p>G1. Recognize, compare, and draw two-dimensional and three-dimensional objects</p> <p>G2. Investigate properties and relationships among similar and congruent figures</p>	<p>8-7</p>	<p><i>Filling and Wrapping</i> Inv. 1-2</p> <p><i>Stretching and Shrinking</i> Inv. 1-6</p>	<p>Solve problems using spatial reasoning.</p> <p>Solve problems using properties of geometric figures.</p> <p>Determine measurements indirectly from scale drawings.</p> <p>Solve problems involving ratio or proportions.</p>	<p>VII-3 VII-4 VII-7</p>
<p>7. Determine the transformation(s), including translations, reflections, or rotations, used to alter the position of a polygon on the coordinate plane.</p> <ul style="list-style-type: none"> a Determining the type of symmetry (rotational or line) found in a reflection or rotation b Graphing transformations of quadrilaterals on the Cartesian plane by plotting the vertices c Graphing figures which are similar to other figures using dilations 	<p>G3. Graph the transformations and dilation of geometric figures in the Cartesian plane</p> <p>G4. Determine the types of symmetry (rotational or line) found in a reflection or rotation</p>	<p>Investigation: Slides, Flips, and Turns 10:6-8</p>			
<p>d. Using networks to represent and solve problems</p> <p>Example: Find the number of paths from point A to point B.</p> 	<p>G5. Use networks to represent and solve problems</p>		<p><i>Clever Counting:</i> Inv. 3</p>		

MEASUREMENT STRAND – Grade 7

Alabama Course of Study	TEAM-Math	PH	CMP	SAT-10	AHSGE
11. Solve problems involving ratios or rates, using proportional reasoning. <ul style="list-style-type: none"> a Determining the unit rate b Converting rates from one unit to another Example: determining the number of minutes in three days <ul style="list-style-type: none"> c Converting units of length, weight, or capacity from metric to customary and from customary to metric 	M1. Convert units of length, width, or capacity from metric to customary and from customary to metric M2. Determine unit rates.	1:1 4:8 5:1-5		Identify appropriate units of measurement. Convert between units of measurement.	
	M3. Determine the measures of special angle pairs including: <ul style="list-style-type: none"> a Adjacent b Vertical c Supplementary d Complementary 	7:1-1		Classify angles.	VII-1
9. Solve problems involving circumference and area of circles. <ul style="list-style-type: none"> a Estimating circumference, diameter, and area b Determining appropriate units of measure to describe circumference, diameter, and area c Measuring circumference and diameter using customary and metric units d Using circumference and diameter to approximate the value of π e Identifying π as an irrational number f Developing formulas for determining circumference and area 10 Find the perimeter of polygons and the area of triangles and trapezoids. <ul style="list-style-type: none"> a Developing formulas for determining perimeter and area of triangles and trapezoids 	M4. Develop and apply the concept of pi and the formulas for circumference and area for circles M5. Develop and apply the formula for the volume of a prism and cylinder M6. Determine the lengths of missing sides and measures of angles in similar and congruent figures	8:1-4, 8-9	<i>Filling and Wrapping</i> Inv. 3-7s	Solve problems involving perimeter, circumference, area, or volume. Identify a radius, diameter, or chord of a given circle.	IV-1 VII-2

DATA AND PROBABILITY STRAND-Grade 7

Alabama Course of Study	TEAM-Math	Prentice Hall	CMP	SAT-10	AHSGE
12. Determine measures of central tendency (mean, median, and mode) and the range using a given set of data or graphs, including histograms, frequency tables, and stem-and-leaf plots. a Creating histograms	D1. Interpret and represent data using and creating histograms, frequency tables, stem-and-leaf, and circle graphs (using angle measures) D2. Determine measures of central tendency (mean, median, and mode) and the range, given a set of data or graphs D3. Determine the validity of data, estimation, and predictions	1:10 11:1,4-7		Determine and use measures of central tendency and dispersion.	VII-5
13. Determine the probability of a compound event. Example: finding the probability of selecting at random a hamburger and lemonade when choosing a sandwich and drink from two sandwich choices and three drink choices a Representing outcomes as a list, chart, picture, or tree diagram b Determining the number of possible outcomes by using the fundamental counting principle or other techniques c Modeling the probability of events through simulations with random numbers Example: determining the probability of a baby being a boy by generating random numbers, using a number cube with odd numbers representing a boy, to simulate the outcomes	D4. Determine the probability of compound events: a Represent outcomes as a list, chart, picture, or tree diagram (fundamental counting principle) b Model problem	12:1-7	<i>What Do You Expect?</i> Inv. 1-6	Identify possible outcomes. Find the probability of a simple or compound event. Determine combinations and permutations.	VII-6

Part B. Suggested Sequence of Instructions

First Quarter

Unit on Number – Grade 7

TEAM-Math	Alabama Course of Study	PH	cmp	SAT-10	AHSGE
<p>N1. Use operations involving fractions, decimals, introduce irrationals, scientific notation, integers, and determine reasonableness of an answer:</p> <ul style="list-style-type: none"> a Exponents b Sets c Properties d Order of operations e Compare and order f Real number line <p>N2. Use prime factorization to find LCM and GCF</p>	<p>1. Demonstrate computational fluency with addition, subtraction, and multiplication of integers.</p> <ul style="list-style-type: none"> a Developing algorithms for performing operations on integers Example: determining a systematic set of steps that can be used to subtract integers b Using inverse properties of addition and of multiplication <p>2. Use order of operations to evaluate numerical expressions.</p> <ul style="list-style-type: none"> a Computing absolute values b Finding square roots of perfect squares through 225 c Evaluating powers d Applying properties of operations to compute with integers, fractions, and decimals <p>3. Solve problems requiring the use of operations on rational numbers.</p> <ul style="list-style-type: none"> a Describing the method used b Determining the reasonableness of results 	<p>1:1-3, 6-9 3:1-6, 8-10 4:2-5</p>	<p><i>Data Around Us</i> Inv. 1-6 <i>Accentuate the Negative</i> Inv. 1-5</p>	<p>Solve problems using estimation. Round decimal numbers to a specified place value. Identify least common multiple or greatest common factor for a set of numbers. Identify alternative representations of real numbers. Identify numbers expressed in scientific notation. Identify and use order of operation rules. Addition, subtraction, multiplication, and division of fractions using symbolic notation and in context. Compare and order real numbers. Solve problems using numerical reasoning. Solve problems using appropriate strategies. Addition, subtraction, multiplication, and division of whole numbers and integers using symbolic notation and in context. Operations with whole numbers, decimals, and fractions using symbolic notation and in context. Identify and use field properties of addition and multiplication.</p>	<p>I-1 I-2 I-3 I-4</p>

Second Quarter

Unit on Ratio, Proportion, and Percent – Grade 7

TEAM-Math	Alabama Course of Study	PH	CMP	SAT-10	AHSGE
N3. Extend computation to percents greater than 100 and less than 1 N4. Expand problem solving situations to include: a Discounts b Taxes c Commissions d Simple interest	3c. Using percents to solve problems, including problems involving discounts, taxes, commissions, and simple interest	6:1-8	<i>Comparing and Scaling</i> Inv. 1-6	Solve problems involving ratio or proportions.	
N5. Use proportional reasoning to solve problems M2. Determine unit rates M6. Determine the lengths of missing sides and measures of angles in similar and congruent figures G2. Investigate properties and relationships among similar and congruent figures	11 Solve problems involving ratios or rates, using proportional reasoning. a Determining the unit rate b Converting rates from one unit to another Example: determining the number of minutes in three days	5:1-2, 4-5	<i>Stretching and Shrinking</i> Inv. 1-6	Solve problems involving ratio or proportions. Determine measurements indirectly from scale drawings. Determine measurements indirectly from scale drawings	VII-7 VII-3

Unit on Algebra-Grade 7

TEAM-Math	Alabama Course of Study	PH	CMP	SAT-10	AHSGE
A2. Solve one and two step equations and inequalities A3. Inequalities-graph on number line	5. Translate verbal phrases into algebraic expressions and algebraic expressions into verbal phrases. a Exhibiting understanding of a variable as an unknown quantity 6. Solve one- and two-step equations. a Solving inequalities in one variable b Graphing solution sets of inequalities on a number line c Recognizing properties of equality	2:3-10 4:6s		Translate between visual representations, sentences, and symbolic notation. Translate problem situations into algebraic expressions and equations. Evaluate expressions. Solve algebraic equations. Identify graphs of inequalities.	II-1 II-2 II-3 II-4 V-3 VI-1 VII-8

Third Quarter

Unit on Graphing-Grade 7

TEAM-Math	Alabama Course of Study	PH	CMP	SAT-10	AHSGE
A1. Explore Functions a Represent and determine a rule for data that appears with tables, graphs, charts, and mappings b Determine the range and domain c Investigate the role of functions in real world situations	4. Express a pattern shown in a table, graph, or chart as an algebraic equation. a Recognizing the relationships between numerical patterns in tables and their respective graphs in the coordinate plane b Determining if a constant rate of change exists in a pattern	9:1-6 10:1-3	Variables and Patterns Inv. 1-5	Solve problems involving patterns. Identify equations of linear functions given tables of values, points, or graphs. Identify parallel and perpendicular lines. Determine domain or range for linear functions. Read and interpret tables and graphs.	III-1 III-2 IV-2 V-1 V-2 V-4

Unit on Measurement - Grade 7

TEAM-Math	Alabama Course of Study	PH	CMP	SAT-10	AHSGE
G1. Recognize, compare, and draw two-dimensional and three-dimensional objects M4. Develop and apply the concept of pi and the formulas for circumference and area for circles M5. Develop and apply the formula for the volume of a prism and cylinder M1. Convert units of length, width, or capacity from metric to customary and from customary to metric M3. Determine the measures of special angle pairs including: a Adjacent b Vertical c Supplementary d Complementary	8. Recognize geometric relationships among two-dimensional and three-dimensional objects. a Drawing geometric figures when given specified components, including base and height. b Investigating properties and relationships among congruent figures. c. Identifying geometric ideas in settings outside the mathematics classroom 9. Solve problems involving circumference and area of circles. a Estimating circumference, diameter, and area b Determining appropriate units of measure to describe circumference, diameter, and area c Measuring circumference and diameter using customary and metric units d Using circumference and diameter to approximate the value of π e Identifying π as an irrational number f Developing formulas for determining circumference and area 10. Find the perimeter of polygons and the area of triangles and trapezoids. a Developing formulas for determining perimeter and area of triangles and trapezoids 11c. Converting units of length, weight, or capacity from metric to customary and from customary to metric	8:1-4 8:7-9 4-8 7:1-2	Filling and Wrapping Inv. 1-7	Solve problems using spatial reasoning. Solve problems using properties of geometric figures. Solve problems involving perimeter, circumference, area, or volume. Identify a radius, diameter, or chord of a given circle. Identify appropriate units of measurement. Classify angles. Convert between units of measurements.	IV-1 VII-1 VII-2 VII-3 VII-4 VII-7

Fourth Quarter

Unit on Transformations -Grade 7

TEAM-Math	Alabama Course of Study	PH	CMP	SAT-10	AHSGE
G3. Graph the transformations and dilation of geometric figures in the Cartesian plane G4. Determine types of Symmetry found in a reflection or rotation	7. Determine the transformation(s), including translations, reflections, or rotations, used to alter the position of a polygon on the coordinate plane. b Graphing transformations of quadrilaterals on the Cartesian plane by plotting the vertices c Graphing figures which are similar to other figures using dilations a Determining the type of symmetry (rotational or line) found in a reflection or rotation	Investigation: Slides, Flips, and Turns 10:6-8			
G5 Use networks to represent and solve problems	8d Using networks to represent and solve problems.		Clever Counting Inv. 3		

Unit on Data and Probability-Grade 7

TEAM-Math	Alabama Course of Study	PH	CMP	SAT-10	AHSGE
D1. Interpret and represent data using and creating histograms, frequency tables, stem-and-leaf, and circle graphs (using angle measures) D2. Determine measures of central tendency (mean, median, and mode) and the range, given a set of data or graphs D3. Determine the validity of data, estimation, and predictions	12. Determine measures of central tendency (mean, median, and mode) and the range using a given set of data or graphs, including histograms, frequency tables, and stem-and-leaf plots. a Creating histograms	1:10 11:1,4-7		Determine and use measures of central tendency and dispersion.	VII-5
D4. Determine the probability of compound events: a Represent outcomes as a list, chart, picture, or tree diagram (fundamental counting principle) b Model problem	13. Determine the probability of a compound event. a Representing outcomes as a list, chart, picture, or tree diagram b Determining the number of possible outcomes by using the fundamental counting principle or other techniques c Modeling the probability of events through simulations with random numbers	12:1-7	What Do You Expect? Inv. 1-6	Identify possible outcomes. Find the probability of a simple or compound event. Determine combinations and permutations.	VII-6