

Chapter 9. Curriculum for Grade 2

Part A. Correlation of Objectives with Recommended Textbooks

The following pages show how resources from *Investigations in Number, Data, and Space* (“Investigations”) and Scott Foresman Addison Wesley (“SFAW”) align with the TEAM-Math and Alabama Course of Study objectives.

Abbreviations for units in *Investigations in Number, Data, and Space* follow:

- CCC = “Coins, Coupons, and Combinations”
- DIWCS = “Does It Walk, Crawl, or Swim?”
- HLHF = “How Long? How Far?”
- MT = “Mathematical Thinking at Grade 2”
- HMPHMT = “How Many Pockets? How Many Teeth?”
- PTTA = “Putting Together and Taking Apart”
- SHS = Shapes, Halves, and Symmetry”
- TRP = “Timelines & Rhythm Patterns”

NUMBER STRAND – Grade 2

Alabama Course of Study	TEAM-Math	Investigations	SFAW
1. Demonstrate concepts of number sense by using multiple representations of whole numbers up to 1000, counting forward and backward by threes from a given number, identifying a number that is 100 more or 100 less than a given number, and differentiating between odd and even numbers. <ol style="list-style-type: none"> a. Identifying position using ordinal numbers to 100th b. Determining the value of a digit in the ones, tens, hundreds, and thousands place c. Determining the value of a number expressed in expanded notation 4. Determine the monetary value of sets of coins and bills up to \$2.00. <ol style="list-style-type: none"> a. Exchanging coins of equivalent value b. Applying monetary symbols, including dollar (\$), cent (¢), and decimal point (.) c. Recognizing the decimal numbers .10, .25, .50, and .75 as related to money 	N1. Extend an understanding of place value/base 10 to:		
	a. Develop an understanding and use of expanded notation	CCC 3:1	10:2-3
	b. Count by multiples to 100 including 3’s	CCC 2:1-3	3:8-9
	c. Know the value of 100 more or 100 less	CCC 4	10:1 3:8
	d. Represent whole numbers to 1000	Classroom Routines	10:3-4
	e. Develop an understanding of the relationship between ordinal numbers and cardinal numbers		3:10
	f. Use models to develop and explain the value of a 3-digit number	CCC 3	10:2, 11
	g. Determine the monetary value of sets of coins and bills up to \$5.00	CCC 2:6-9 PTTA 2:5-9	3:12,16-17

Alabama Course of Study	TEAM-Math	Investigations	SFAW
2. Apply the operations of addition and subtraction to solve problems involving two-digit numerals, using multiple strategies with and without regrouping. <ul style="list-style-type: none"> a. Demonstrating computational fluency for basic addition and subtraction facts with sums through 18 and differences with minuends through 18, using horizontal and vertical forms b. Interpreting multiplication as repeated addition and division as equal groupings c. Solving multi-step addition and subtraction problems originating from real-life experiences d. Justifying the strategy used to solve addition and subtraction problems e. Using an estimate to determine if an answer is reasonable 	N2. Extend an understanding of the operations of addition and subtraction to:		
	a. Develop computational fluency with sums through 18 and differences with minuends through 18	CCC 1 and 3	1:1-11; 2:11 4:12; 6:11
	b. Solve problems using separation (take-away), comparison (finding the difference), and part-whole (missing addends)	CCC 3	1 11:7
	c. Use two or three digit addition and subtraction to solve problems	PTTA 1	3:12,16,17
	d. Model and explain multiplication as repeated addition with manipulatives, pictures, and symbols		12:1-7
	e. Model division as equal groupings with manipulatives, pictures, and symbols		12:7
	f. Solve story problems and distinguish relevant/irrelevant information	CCC 3	1:3
	3. Label equal parts of a whole using $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$.	N3. Demonstrate an understanding of fractions to:	
a. Label parts of a whole using fraction notation including $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$		SHS 3:1-6	7:9-10
b. Transfer fraction representation from one form to another		SHS 3:1-6	7:11
c. Identify parts of a set as a fractional ratio(3 parts out of 4)		SHS 3:1-6	7:13
d. Represent parts of a whole as a quotient using real life situations (2 cookies divided among 4 people)		SHS 3:1-6	7:13

ALGEBRA STRAND – Grade 2

Alabama Course of Study	TEAM-Math	Investigations	SFAW
5. Create growing patterns. Examples: $\square\square\square$, $\square\square$, \square ; a b, a a b, a a a b	A1. Apply an understanding of patterns, relations, and functions to:		
	a. Interpret and explain numeric patterns <ul style="list-style-type: none"> • Sequence addition (If $32+18=50$ and $33+18=51$, what would $35+18$ be?) • Paired subtraction (If $24-15=9$, what is $24-16$?) 	PTTA 2	4:9
	b. Use mathematical models to represent and understand quantitative relationships		10:10
	c. Identify missing elements in given patterns		
6. Solve problems using the associative property of addition.	d. Extend a growing pattern	TRP 1	10:10
	A2. Extend use and understanding of number sentences using algebraic symbols:		
	a. Apply concepts of $>$ and $<$	MT 4:1	3:5
	b. Introduce concepts of x and $/$	CCC 1:10	12:2, 8
7. Describe change over time in observable (qualitative) and measurable (quantitative) terms. Examples: recognizing that a plant grew taller (qualitative, requiring observation); recognizing that a plant grew three inches (quantitative, requiring measurement)	c. Solve problems using associative and commutative properties	PTTA 2:1; 4:1-4; 5:6	2:4,7; 5:6,11
	d. Solve missing addend problems		11:7
	A3. Describe change over time (qualitative and quantitative)		

GEOMETRY STRAND – Grade 2

Alabama Course of Study	TEAM-Math	Investigations	SFAW
8. Describe attributes of two-dimensional (plane) and three dimensional (solid) figures using the terms <i>side, surface, edge, vertex, and angle</i> . <ul style="list-style-type: none"> • Identifying quadrilaterals, pentagons, hexagons, or octagons 	G1. Analyze geometric relationships using 2D and 3D geometric shapes to:		
	a. Describe attributes of 2-dimensional (plane) and 3-dimensional (solid) figures using terms: side, surface, edge, vertex, angle	<u>SHS</u> 1:1-6	<u>7</u> :4
	b. Categorize 2D and 3D shapes and explain groupings according to the properties	<u>SHS</u> 1:1-6	<u>7</u> :2
	c. Predict the results of PTTA 2D and 3D shapes	<u>SHS</u> 1:1-6	<u>7</u> :3
9. Describe the route from one location to another by applying concepts of direction and distance. Examples: direction—left, right, north, south, east, west; distance (nonstandard)—twenty-five steps from the library; distance (standard)—ten feet from the walkway <ul style="list-style-type: none"> a. Following multi-step directions to locate objects b. Reading maps of the school environment c. Using grids for movement between points 	G2. Apply concepts of positions, directions, and distance to:		
	a. Describe the route from one location to another		<u>9</u> :5
	b. Follow multi-step directions to locate objects	<u>HLHF</u> 1:2-6	<u>9</u> :5
	c. Create and read simple maps	<u>HLHF</u> 1:8; 2:1-5	<u>8</u> :15
d. Identifying line symmetry in plane geometric figures e. Creating designs that exhibit line symmetry f. Recognizing the results of changing the position (transformation) of objects or shapes by sliding (translation), turning (rotation), or flipping (reflection)	d. Use grids to show movement between intersecting points	<u>HLHF</u> 1:2-6	<u>8</u> :15
	G3. Analyze mathematical situations by applying transformations and using symmetry to:		
	a. Apply slides, flips, or turns to create designs that exhibit line symmetry	<u>SHS</u> 4	<u>7</u> :6
	b. Recognize and create lines of symmetry using everyday objects and geometric figures	<u>SHS</u> 4	<u>7</u> :7
	G4. Use visualization and spatial reasoning to:		
	a. Create mental images of geometric shapes using spatial memory and visualization	<u>SHS</u> 1	<u>7</u> :3
	b. Recognize and represent shapes from a different perspective (puzzles)	<u>SHS</u> 1	
	c. Locate shapes and structures in the environment	<u>SHS</u> 1	

MEASUREMENT STRAND – Grade 2

Alabama Course of Study	TEAM-Math	Investigations	SFAW
10. Measure length in customary units, including inches, feet, and yards. a. Using metric units b. Using appropriate tools, including rulers, yard sticks, meter sticks, or tape measures 11. Estimate weight and capacity by making comparisons with familiar objects. Examples: a desk weighing more than a pencil, a cup holding less than a bucket	M1. Apply appropriate techniques, tools and formulas in measurement to:		
	a. Measure using nonstandard, standard customary and metric units	HLHF 1:1-8	9:6-7
	b. Understand the comparison of customary units and metric units to familiar objects		9:8-9
	c. Demonstrate use of customary and metric units in linear measurement		9:1,4
	d. Compare and order objects according to related attributes of weight, area, length and volume	SHS 1 2-3, 6-8	9:6,8,10,11,12,17
12. Tell time to the minute using analog and digital clocks.	M2. Tell time to the minute using analog and digital clocks a. Hour, half hour, quarter, 5 minutes (intervals) b. Elapsed time	TRP 1:4-5 2:4-5	8:1-6
	M3. Compare everyday experiences to reinforce concepts of time (Example: It takes about the same amount of time to watch a movie as it does to watch a football game.)	TRP 1:4-5 2:4-5	8:8

DATA ANALYSIS AND PROBABILITY STRAND – Grade 2

Alabama Course of Study	TEAM-Math	Investigations	SFAW
13. Create displays, including appropriate labels, for a given set of data using pictographs, tally charts, bar graphs, or single- or double-loop Venn diagrams. c. Interpreting graphic displays	D1. Collect, organize, and display data in multiple ways from self-generated questions to:		
	a. Use multiple display models (yes/no charts; single, double, and double over-lapping Venn Diagrams; circle graphs; vertical/horizontal bar graphs, frequency tables; tallies; and other models)	MT 2:6; 5:1-6 CCC 1:11; 2:2,4,5,10 DIWCS 1:1-6; 2:1-4 3:1-3; 4:1-3 TRP 1:1-6	8:9-14
	b. Organize, plan, collect, and interpret data to answer self-generated questions or to make decisions		8:16
	c. Recognize patterns in data collected		
	d. Represent data in multiple ways		
14. Determine if one event related to everyday life is more likely or less likely to occur than another event. Example: determining if it is more likely to rain or snow on July 4th in Alabama	D2. Communicate events and outcomes in appropriate probability terminology (certain, likely, equally likely, unlikely, possible, impossible, fair)	HMPHMT 2:6	9:14,15
	D3. Evaluate and redefine predictions using cognitive benchmarks		

Part B. Suggested Sequence of Instructions

The Grade 2 curriculum has been organized into eight units for each grade level. This will allow for two units during each nine week period. The units will take from three to six weeks to complete, based on content and student need. The pacing of the units is left up to individual schools and teachers, although some units build on content presented in other units.

Each unit represents a general mathematics concept to be emphasized. TEAM-Math objectives are written in bold print in each unit to represent this emphasis. These content objectives are the focus of the unit.

Some objectives are found in more than one unit. When this occurs, it usually means that the objective needs to be expanded to cover higher numbers or more challenging content.

The resource list for each unit references the TEAM-Math adopted textbooks. They are *Investigations in Number, Data, and Space* and *Scott Foresman – Addison Wesley Mathematics*. Some schools or teachers may use the *Investigations* texts entirely, while others may use *Scott Foresman*. Most teachers will benefit from using a combination of the two. Scott Foresman publishes both and provides a Joint Usage Plan to guide teachers in integrating the two textbooks into the classroom plan. Teachers cannot use all the resources listed, so they must choose the best ones for them. All of the *Investigations* units are referenced, although most adoptions only include the three most recommended units.

An additional part of the curriculum will be the mastery of basic addition and subtraction facts. Second grade will focus on mastery of facts through 18.

The Number System (Addition and Subtraction) – Grade 2

This unit focuses on the development of strategies to solve addition and subtraction problems using an understanding of numbers, number relationships, and the operation themselves. Students will be expected to solve a variety of word problems that involve combining, separating, and comparing numbers.

TEAM-Math	Investigations	SFAW
N1. Develop an understanding of place value/base 10 to:		
e. Develop an understanding of the relationship between ordinal numbers and cardinal numbers		3:10
N2. Develop an understanding of the operations of addition and subtraction to:		
a. Develop computational fluency with sums through 18 and differences with minuends through 18	CCC: 1 and 3	1:1-11; 2:11 4:12; 6:11
b. Solve problems using separation (take-away), comparison (finding the difference), and part-whole (missing addends)	CCC: 3	1 11:7
c. Use two or three digit addition and subtraction to solve problems	PTTA 1	3:12,16,17
A1. Apply an understanding of patterns, relations, and functions to:		
a. Interpret and explain numeric patterns <ul style="list-style-type: none"> • Sequence addition (If $32+18=50$ and $33+18=51$, what would $35+18$ be?) • Paired subtraction (If $24-15=9$, what is $24-16$?) 	PTTA: 2	4:9
b. Use mathematical models to represent and understand quantitative relationships		
c. Identify missing elements in given patterns		10:10
d. Extend a growing pattern	TRP: 1	10:10

Addition/Subtraction with 2 digit numbers – Grade 2

This unit focuses on developing strategies for combining and separating problems using two digit numbers.

TEAM-Math	Investigations	SFAW
N1. Extend an understanding of place value/base 10 to:		4:9
c. Know the value of 100 more or 100 less	CCC: 4	10:1 3:8
N2. Extend an understanding of the operations of addition and subtraction to:		
b. Solve problems using separation (take-away), comparison (finding the difference), and part-whole (missing addends)	CCC: 3	1 11:7
c. Use two or three digit addition and subtraction to solve problems	PTTA: 1	3:12,16,17
f. Solve story problems and distinguish relevant/irrelevant information	CCC: 3	1:3
A1. Apply an understanding of patterns, relations, and functions to:		
a. Interpret and explain numeric patterns <ul style="list-style-type: none"> • Sequence addition (If $32+18=50$ and $33+18=51$, what would $35+18$ be?) • Paired subtraction (If $24-15=9$, what is $24-16$?) 	CCC: 3	1 11:7
c. Use two or three digit addition and subtraction to solve problems	PTTA: 1	3:12,16,17
D1. Collect, organize, and display data in multiple ways from self-generated questions to:		
a. Use multiple display models (yes/no charts; single, double, and double over-lapping Venn Diagrams; circle graphs; vertical/horizontal bar graphs, frequency tables; tallies; and other models)	MT: 2:6; 5:1-6 CCC: 1:11; 2:2,4,5,10	8:9-14
b. Organize, plan, collect, and interpret data to answer self-generated questions or to make decisions	DIWCS 1:1-6; 2:1-4; 3:1-3; 4:1-3	8:16
c. Recognize patterns in data collected	TRP: 1:1-6	
d. Represent data in multiple ways		
D2. Communicate events and outcomes in appropriate probability terminology (certain, likely, equally likely, unlikely, possible, impossible, fair)	HMPHMT 2:6	9:14,15

Chapter 9 – Curriculum for Grade 2**Geometry – Grade 2**

This unit focuses on composing and decomposing shapes, transforming shapes through movement, and using fractions.

TEAM-Math	Investigations	SFAW
N3. Demonstrate an understanding of fractions to:		
a. Label parts of a whole using fraction notation including $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$	SHS 3:1-6	7:9,10
b. Transfer fraction representation from one form to another	SHS 3:1-6	7:11
c. Identify parts of a set as a fractional ratio(3 parts out of 4)	SHS 3:1-6	7:13
d. Represent parts of a whole as a quotient using real life situations (2 cookies divided among 4 people)	SHS 3:1-6	7:13
G1. Analyze geometric relationships using 2D and 3D geometric shapes to:		
a. Describe attributes of 2-dimensional (plane) and 3-dimensional (solid) figures using terms: side, surface, edge, vertex, angle	SHS 1:1-6	7:4
b. Categorize 2D and 3D shapes and explain groupings according to the properties	SHS 1:1-6	7:2
c. Predict the results of PTTA 2D and 3D shapes	SHS 1:1-6	7:3
G2. Apply concepts of positions, directions, and distance to:		
a. Describe the route from one location to another		9:5
b. Follow multi-step directions to locate objects	HLHF 1:2-6	9:5
c. Create and read simple maps	HLHF 1:8; 2:1-5	8:15
d. Use grids to show movement between intersecting points	HLHF 1:2-6	8:15
G3. Analyze mathematical situations by applying transformations and using symmetry to:		
a. Apply slides, flips, or turns to create designs that exhibit line symmetry	SHS 4	7:6
b. Recognize and create lines of symmetry using everyday objects and geometric figures	SHS 4	7:7
G4. Use visualization and spatial reasoning to:		
a. Create mental images of geometric shapes using spatial memory and visualization	SHS 1	7:3
b. Recognize and represent shapes from a different perspective (puzzles)	SHS 1	
c. Locate shapes and structures in the environment	SHS 1	

Place Value (to 1000) – Grade 2

In this unit, students are focusing on numbers to 1000. They are exploring place value and developing an understanding of larger numbers.

TEAM-Math	Investigations	SFAW
N1. Extend an understanding of place value/base 10 to:		
a. Develop an understanding and use of expanded notation	CCC 3:1	10:2, 3
b. Count by multiples to 100 including 3's	CCC 2:1-3	3:8, 9
c. Know the value of 100 more or 100 less	CCC 4	10:1; 3:8
d. Represent whole numbers to 1000	Classroom Routines (all units)	10:3, 4
e. Develop an understanding of the relationship between ordinal numbers and cardinal numbers		
f. Use models to develop and explain the value of a 3-digit number	CCC 3	10:2, 11
g. Determine the monetary value of sets of coins and bills up to \$5.00		3:12, 16, 17

Measurement Unit – Grade 2

This unit focuses on the application of measurement to include the correct techniques, tools, and formulas.

TEAM-Math	Investigations	SFAW
M1. Apply appropriate techniques, tools and formulas in measurement to:		
a. Measure using nonstandard, standard customary and metric units	HLHF 1:1-8	9:6, 7
b. Understand the comparison of customary units and metric units to familiar objects		9:8, 9
c. Demonstrate use of customary and metric units in linear measurement		9:1,4
d. Compare and order objects according to related attributes of weight, area, length and volume	SHS 1 2-3, 6-8	9:6,8,10,11,12,17

Sorting and Classifying – Grade 2

This unit focuses on data analysis, probability, and predictions.

TEAM-Math	Investigations	SFAW
D1. Collect, organize, and display data in multiple ways from self-generated questions to:	MT 2:6 5:1-6	
a. Use multiple display models (yes/no charts; single, double, and double over-lapping Venn Diagrams; circle graphs; vertical/horizontal bar graphs, frequency tables; tallies; and other models)	CCC 1:11 2:2,4,5,10 DIWCS 1:1-6 2:1-4 3:1-3 4:1-3	8:9,10,11,12,13,14
b. Organize, plan, collect, and interpret data to answer self-generated questions or to make decisions	TRP 1:1-6	8:16
c. Recognize patterns in data collected		
d. Represent data in multiple ways		
D2. Communicate events and outcomes in appropriate probability terminology (certain, likely, equally likely, unlikely, possible, impossible, fair)	HMPHMT 2:6	9:14,15
D3. Evaluate and redefine predictions using cognitive benchmarks		

Money/Time – Grade 2

This unit focuses on counting money and telling time using both analog and digital clocks. Elapsed time is introduced.

TEAM-Math	Investigations	SFAW
N1. Extend an understanding of place value/base 10 to:		
a. Develop an understanding and use of expanded notation		
b. Count by multiples to 100 including 3's		
c. Know the value of 100 more or 100 less		
d. Represent whole numbers to 1000	CCC 2:6-9 PTTA 2:5-9	3:12,16,17
e. Develop an understanding of the relationship between ordinal numbers and cardinal numbers		
f. Use models to develop and explain the value of a 3-digit number		
g. Determine the monetary value of sets of coins and bills up to \$5.00		
M2. Tell time to the minute using analog and digital clocks	TRP1:4-52:4-5	8:1,2,3,4,5,6
c. Hour, half hour, quarter, 5 minutes (intervals)		
d. Elapsed time		
M3. Compare everyday experiences to reinforce concepts of time (Example: It takes about the same amount of time to watch a movie as it does to watch a football game.)	TRP 1:4-5; 2:4-5	8:8

Multiplication and Division – Grade 2

This unit introduces the operations of multiplication and division through repeated addition and equal groupings.

TEAM-Math	Investigations	SFAW
N2. Extend an understanding of the operations of addition and subtraction to:		
a. Develop computational fluency with sums through 18 and differences with minuends through 18		
b. Solve problems using separation (take-away), comparison (finding the difference), and part-whole (missing addends)		
c. Use two or three digit addition and subtraction to solve problems		
d. Model and explain multiplication as repeated addition with manipulatives, pictures, and symbols		12:1,2,3,4,5,6,7
e. Model division as equal groupings with manipulatives, pictures, and symbols		12:7
f. Solve story problems and distinguish relevant/irrelevant information		
A2. Extend use and understanding of number sentences using algebraic symbols:		
a. Apply concepts of > and <		
b. Introduce concepts of x and /	CCC 1:10	12:2, 8
c. Solve problems using associative and commutative properties		