SECOND GRADE MATHEMATICS CURRICULUM

Course 50210

Second grade students will be learning about addition and subtraction as well as using mental strategies to add and subtract numbers. They will work with equal groups of objects to lay the foundations for multiplications. Place value concepts will be used to represents ones and tens and to compare three digit numbers. Students will read, write and skip count to 1000. They will measure and estimate length and use appropriate measuring tools as well as extending addition and subtraction concepts to length problems. Time will be measured to the nearest 5 minutes with both digital and analog clock. Data will be represented using line plots, picture graphs and bar graphs. Also, they will learn to draw specific two- and three-dimensional shapes and to use their understanding of fractions to divide shapes into halves, quarters and thirds.

SECOND GRADE MATHEMATICS OUTLINE:

Goals	Skills	Summative Assessments	Time Frame	Main Resources
• Work with equal groups of objects to gain foundations for multiplication. • Use place value concepts to represent amounts of tens and ones and to compare three digit numbers. • Represent and solve problems involving addition and subtraction within 1000. • Extend the concepts of addition and subtraction to problems involving length. • Compose and distinguish between two- and three-dimensional shapes based on their attributes. • Represent and interpret data using line plots, picture graphs, and bar graphs. • Use the understanding of fractions to partition shapes into halves, quarters, and thirds.	• Use mental strategies to add and subtract within 20. • Use place value concepts to read, write and skip count to 1000. • Measure and estimate lengths in standard units using appropriate tools. • Solve problems using coins and paper currency with appropriate symbols. • Tell and write time to the nearest 5-minute interval using both analog and digital clocks. • Analyze and draw two- and three-dimensional shapes having specified attributes.	Mid-year and End of Year Benchmark Assessments	1-year	Everyday Math 4th ed.

SECOND GRADE MATHEMATICS MAP:

TIME FRAME	BIG IDEAS	CONCEPTS	ESSENTIAL QUESTIONS	STANDARDS	OBJECTIVES	DIFFERENTIATION	ASSESSMENT
Unit 1 (Weeks 2-3)	• Mathematical relationships among numbers can be represented, compared, and communicated. • Patterns exhibit relationships that can be extended, described, and generalized.	1. Math message and number sequences 2. Tools and coins 3. Number writing 4. Calendars and clocks 5. Grouping by $1, $10, and $100 6. Math boxes 7. Equivalent names for numbers 8. Counting patterns 9. Relations (<, >, =)	• What makes a tool appropriate for the given task? • What does it mean to estimate or analyze numerical quantities? • How is mathematics used to quantify, compare, represent, and model numbers? • How can recognizing repetition or regularity assist in solving problems more efficiently?	CC.2.1.2.B.1 Use place value concepts to represent amounts of tens and ones and to compare three digit numbers. CC.2.1.2.B.2 Use place value concepts to read, write, and skip count to 1000. CC.2.1.2.B.3 Use place value understanding and properties of operations to add and subtract within 1000. CC.2.2.2.A.1 Represent and solve problems involving addition and subtraction within 100. CC.2.4.2.A.2 Tell and write time to the nearest five minutes using both analog and digital clocks. CC.2.4.2.A.3 Solve problems and make change using coins and paper currency with appropriate symbols.	• Students will be able to produce accurate time on an analog clock, including nearest half hour. • Students will be able to substitute bills for coin amounts and vice versa. • Students will be able to write the digital time for the analog clock given. • Students will be able to manipulate tools such as a number grid for addition/ subtraction problems of ones, tens, and hundreds. • Students will be able to connect patterns found on number grid with the modification of place values. • Students will be able to compare and contrast values of combinations of coins. • Students will be able to solve addition and subtraction problems using tools such as base-10 blocks, dominoes, etc.	Use of manipulatives Title I support	Math boxes Unit assessments
Unit 2 (Weeks 4-7)	• Mathematical relationships can be represented as expressions,	1. Addition Number Stories 2. Easy Addition Facts	• How can expressions, equations, and inequalities be used	CC.2.2.2.A.1 Represent and solve problems involving addition and	• Students will be able to create a number model for the given number	Use of manipulatives Number grids	Math boxes Unit assessments

	equations, and inequalities in mathematical situations. • Mathematical relationships among numbers can be represented, compared, and communicated.	3. Doubles Facts 4. Turn-around facts 5. + 9 Shortcut 6. Addition strategies That Use Doubles Facts 7. Subtraction from Addition 8. Fact Families 9. Counting Strategies for Subtraction 10. Shortcuts For Harder Subtraction Facts	to quantify, solve, model, and/or analyze mathematical situations? • How is mathematics used to quantify, compare, represent, and model numbers? • How are relationships represented mathematically?	subtraction within 100. CC.2.2.2.A.2 Use mental strategies to add and subtract within 20. CC.2.2.2.A.3 Work with equal groups of objects to gain foundations for multiplication.	story. • Students will be able to discover patterns for adding and subtracting 0 and 1. • Students will be able to solve problems that involve doubles. • Students will be able to discover and utilize patterns for adding and subtracting 9. • Students will be able to discover strategies for adding doubles. • Students will be able to create all possible number models for the given fact families. • Students will be able to generate equivalent names for given numbers. • Students will be able to solve for missing numbers when given a pattern. • Students will be able to find the pattern for the given set of numbers. • Students will be able to count by 5, 10, 100, and 1000. • Students will be able to utilize fact families to solve subtraction and addition problems. • Students will be able to utilize patterns to solve subtracting 8 and 9.	Extra visuals Title 1 Individualized support	Homework

Unit 3 (Weeks 8-10)	• Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. • Patterns exhibit relationships that can be extended, described, and generalized.	1. Numeration and Place Value 2. Using Coins to Buy Things 3. Telling Time 4. Data Collection 5. Making Change 6. Coin Exchanges	• How is mathematics used to quantify, compare, represent, and model numbers? • How can recognizing repetition or regularity assist in solving problems more efficiently?	CC.2.1.2.B.1 Use place value concepts to represent amounts of tens and ones and to compare three digit numbers. CC.2.1.2.B.2 Use place value concepts to read, write, and skip count to 1000. CC.2.4.2.A.2 Tell and write time to the nearest five minutes using both analog and digital clocks. CC.2.4.2.A.3 Solve problems and make change using coins and paper currency with appropriate symbols.	• Students will be able to create 3 digit numbers with base-10 blocks and write the correlating number. • Students will be able to write numbers in dollars-and-cents notation. • Students will be able to compare and contrast analog and digital clocks. • Students will be able to write times for given analog clocks. • Students will be able to calculate values of coins and bill combinations. • Students will be able to make change by counting up. • Students will be able to create coin combinations for given amounts. • Students will be able to count by 1s, 10s, and 100s.	Graphic Organizers Manipulatives Hands-on Activities Title 1 Individualized Support	Math Boxes Unit Assessment Homework Teacher Observation
Unit 4 (Weeks 11-13)	• Mathematical relationships can be represented as expressions, equations, and inequalities in mathematical situations.	1. Change-to-More Number Stories 2. Parts- and- Total Number Stories 3. Temperature Change 4. Estimating Cost 5. Paper-and- Pencil Addition Strategies 6. The Partial-Sums Addition Algorithm	• How is mathematics used to quantify, compare, represent, and model numbers? • How can expressions, equations, and inequalities be used to quantify, solve, model, and/or analyze mathematical situations?	CC.2.1.2.B.3 Use place value understanding and properties of operations to add and subtract within 1000. CC.2.2.2.A.1 Represent and solve problems involving addition and subtraction within 100. CC.2.2.2.A.2 Use mental strategies to add and subtract within 20.	• Students will be able to create and solve number models. • Students will be able to convert number stories to number models. • Students will be able to calculate and write values of coin combinations. • Students will be able to read and record temperatures. • Students will be able to compare	Manipulatives Visuals Title 1 Individualized Support	Homework Math boxes Unit Assessment Teacher Observations

					amounts of money. • Students will be able to compare lengths in centimeters and inches. • Students will be able to estimate sums to assist in addition problems. • Students will be able to create ballpark estimates.		
Unit 5 (Weeks 14-17)	• Patterns exhibit relationships that can be extended, described, and generalized. • Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.	1. Points and Lines Segments 2. Parallel Line Segments 3. Quadrangles 4. 3-dimensional shapes 5. Pyramids 6. Line Symmetry	• How can patterns be used to describe relationships in mathematical situations? • How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving? • How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems?	CC.2.3.2.A.1 Analyze and draw two- and three-dimensional shapes having specified attributes.	• Students will be able to compare and contrast attribute. • Students will be able to create line segments. • Students will be able to create a quadrangle. • Students will be able to name, compare, and contrast polygons. • Students will be able to identify characteristics of quadrangles. • Students will be able to identify, compare, and describe three dimensional shapes. • Students will be able to identify patterns and relationships among pyramids. • Students will be able to create lines of symmetry.	Manipulatives Title 1 Individualized Support	Homework Unit Assessment Math boxes Teacher observations
Unit 6 (Weeks 18-21)	• Mathematical relationships can be represented as expressions, and equations, and	1. Addition of Three or More Numbers 2. Comparison Number Stories 3. Data Collection	• How is mathematics used to quantify, compare, represent, and	CC.2.2.2.A.1 Represent and solve problems involving addition and subtraction within	• The students will be able to determine which addition/subtraction strategy would be	Manipulatives Partner work Title 1	Math boxes Homework Teacher

	inequalities in mathematical situations.	4. Addition/Subtraction Stories 5. Subtraction Strategies 6. Multiples of Equal Groups 7. Multiplication-Array Number Stories 8. Multiplication with Arrays 9. Division Stories	model numbers? • How are relationships represented mathematically?	100. CC.2.2.2.A.3 Work with equal groups of objects to gain foundations for multiplication. CC.2.4.2.A.4 Represent and interpret data using line plots, picture graphs, and bar graphs.	appropriate to use for the given question. • The students will be able to locate the important parts of a comparison story. • The students will be able to solve comparison stories. • The students will be able to manipulate collected data. • The students will be able to create bar and tally charts for data collected. • The students will be able to compare and contrast total-part-part and comparison stories. • The students will be able to create arrays. • The students will be able to create equal-size groupings. • The students will be able to solve multiplication stories using arrays. • The students will be able to write the number model for the given multiplication problem.	individualized support	observation unit assessment
Unit 7 (Weeks 22-24)	• Data can be modeled and used to make inferences. • Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer	1. Patterns in Counting 2. Extending Complements of 10 3. Mental Arithmetic 4. Patterns in Doubles and Halves 5. Data Collection 6. Median of Data	• How can data be organized and represented to provide insight into the relationship between quantities? • How can probability and data analysis be used to make predictions?	CC.2.4.2.A.4 Represent and interpret data using line plots, picture graphs, and bar graphs.	• Students will be able to record skip-counting patterns on a number grid. • Students will be able to compare and contrast the different patterns on a number. • Students will be able to solve	Manipulatives Visuals Graphic organizers Title 1 Individualize Support	Homework Teacher Observation Math boxes Unit assessment

	questions.	7. Frequency Distributions			addition problems with more than three digits. • Students will be able to record data. • Students will be able to create tally chart. • Students will be able to create bar graph. • Students will be able to manipulate data to find the median. • Students will be able to manipulate data to find the mode.		
Unit 8 (Weeks 25-27)	• Mathematical relations and functions can be modeled through multiple representations and analyzed to raise answers questions. • Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.	1. Equal Parts of ONE 2. Collections of Things 3. Equivalent Fractions 4. Equivalent Fractions Using Fraction Cards 5. Comparing Fractions 6. Fraction Number Stories	• How can geometric properties and theorems be used to describe, model, and analyze situations? • How can data be organized and represented to provide insight into the relationship between quantities?	CC.2.3.2.A.2 Use the understanding of fractions to partition shapes into halves, quarters, and thirds.	• Students will be able to use manipulatives to model one half, one fourth, and one eighth. • Students will be able to compare fractional parts of pattern blocks. • Students will be able to describe and name the parts of a fraction. • Students will be able to label fractional parts of a circle. • Students will be able to discover equivalent fractions using fraction cards. • Students will be able to create number stories that include fractional outcomes. • Students will be able to read factions. • Students will be	Manipulatives such as pattern blocks and fraction cards. Additional center work Title 1 Individualized Support	Homework Math boxes Teacher Observation Unit Assessment

					able to compare fractions.		
Unit 9 (Weeks 28-29)	• Measurement attributes can quantified, and estimated using customary and non-customary unit of measure.	1. Measuring with Yards and Meters 2. Linear Measures 3. Fractional Units of Length 4. Perimeter 5. Measuring Longer Distances 6. Area 7. Capacity 8. Weight	• Why does "what" we measure influence "how" we measure? • What makes a tool and/or strategy appropriate for a given task? • In what ways are the mathematical attributes of objects or processes measured, calculated and/or interpreted? • How precise do measurements and calculations need to be?	CC.2.4.2.A.1 Measure and estimate lengths in standard units using appropriate tools. CC.2.4.2.A.6 Extend the concepts of addition and subtraction to problems involving length.	• Students will be able to estimate lengths using nonstandard units of measure. • Students will be able to use a yardstick. • Students will be able to discover the use of fractional parts of units of measure. • Students will be able to compare and contrast U.S. customary and metric system. • Students will be able to add measurements to find perimeter. • Students will be able to solve for perimeter. • Students will be able to count square units to find area. • Students will be able to compare and contrast area and perimeter. • Students will be able to estimate weight. • Students will be able to compare weights.	Center work Manipulatives Title 1 Individualized Support	Homework Teacher Observation Unit assessment Math Boxes
Unit 10 (Weeks 30-33)	• Patterns exhibit relationships that can be extended, described, and generalized. • Mathematical relationships among numbers can be represented,	1. Money 2. Decimal Notation for Pennies and Dimes 3. Money Amounts with a Calculator 4. Using a Calculator to Solve Problems with Money 5. Estimating and	• How are relationships represented mathematically? • How is mathematics used to quantify, compare, represent, and model numbers?	CC.2.1.5.B.1 Apply place value to show an understanding of operations and rounding as they pertain to whole numbers and decimals.	• Name numbers and work with place value. • Students will be able to create equivalent groups of coins for the amount given. • Students will be able to estimate the	Use of manipulatives Manipulatives Number Grid Title 1 Individualized Support	Informal observations Math Boxes Homework Unit Assessment

	compared, and communicated.	Finding Exact Costs 6. Making Change 7. Place Value 8. Place-Value Tools 9. Place-Value Notation for Ten-Thousands 10. Grouping With Parentheses	• How can recognizing repetition or regularity assist in solving problems more efficiently?	CC.2.1.5.B.2 Extend an understanding of operations with whole numbers to perform operations including decimals. CC.2.4.2.A.3 Solve problems and make change using coins and paper currency with appropriate symbols.	total cost of an object. • Students will be able to write amounts in dollars-and-cents notation. • Students will be able to write and read numbers in the ten- thousands place. • Students will be able to label the digit's value. • Students will be able to solve problems involving three or more addends. • Students will be able to exchange money and base ten blocks. • Students will be able to make change. • Students will be able to add/subtraction money. • Students will be able to write number stories with money.		
Unit 11 (Weeks 34-36)	• Mathematical relationships can be represented as expression, equations, and inequalities in mathematical situations.	1. Addition Number stories with Dollars and Cents 2. Subtraction Number stories with Dollars and Cents 3. The Trade-First Subtraction Algorithm 4. Multiples of Equal Groups 5. Division Number Models 6. Multiplication Facts 7. Product Table	• What makes a tool and/or strategy appropriate for a given task? • How are relationships represented mathematically?	CC.2.2.2.A.1 Represent and solve problems involving addition and subtraction within 100. CC.2.2.2.A.3 Work with equal groups of objects to gain foundations for multiplication. CC.2.2.3.A.1 Represent and solve problems involving multiplication and	• The students will be able to create and solve addition problems with money. • The students will be able to compare amounts of money. • The students will be able to use arrays, repeated addition, and skip counting to model multiplication. • The students will be able to use equal groups and equal	Number Grid Visuals Number Lines Fact Triangles Title 1 Individualized Support	Worksheets Homework Unit Assessment Teacher Observation

		8. Multiplication/Division Fact Families 9. Multiplication/Division Fact Practice		division. CC.2.2.3.A.2 Understand properties of multiplication and the relationship between multiplication and division.	shares to model division. • The students will be able to create arrays to solve multiplication problems. • The students will be able to create number stories using multiplication. • The students will be able to construct multiplication and division number sentences for given fact family. • The students will be able to solve multiplication and division stories.		
Unit 12 (Weeks 37-38)	• Data can be modeled and used to make inferences. • Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	1. Reviewing: 2. Calendar 3. Clock Skills 4. Timelines	• How can data be organized and represented to provide insight into the relationship between quantities? • How does the type of data influence the choice of display?	CC.2.2.3.A.1 Represent and solve problems involving multiplication and division. CC.2.4.2.A.4 Represent and interpret data using line plots, picture graphs, and bar graphs.	• The students will be able to write and tell time to the nearest five minute interval. • The students will be able to solve multi-digit subtraction and addition. • The students will be able to show time given including five minute intervals. • The students will be able to utilize multiplication strategies to solve problems. • The students will be able to compare two sets of numbers. • The students will be able to create a frequency table, line plot, and bar graph. • The students will be able to find the median and mode	Manipulatives Number Grid Title 1 Individualized Support	Teacher observation Homework Worksheets Unit Assessment

					of a set of numbers.		