

**2nd Grade Math Curriculum Guide
Lunenburg County Public Schools
June 2014**

Marking Period: 1st Nine Weeks

Days: ongoing

Reporting Category/Strand: Patterns, Functions, and Algebra

SOL 2.22	The student will demonstrate an understanding of equality by recognizing that the symbol = in an equation indicates equivalent quantities and the symbol \neq indicates that quantities are not equivalent.
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand that the equal symbol means equivalent (same as) quantities. • The inequality symbol (\neq) means not equivalent. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Identify the equality (=) and inequality (\neq) symbols. • Identify equivalent values and equations. (e.g., $8 = 8$ and $8 = 4 + 4$) • Identify nonequivalent values and equations. (e.g., $8 \neq 9$ and $4 + 3 \neq 8$) • Identify and use the appropriate symbol to distinguish between equal and not equal quantities. (e.g., $8 + 2 = 7 + 3$ and $1 + 4 \neq 6 + 2$)
Essential Questions	<ul style="list-style-type: none"> • What is equality? • What is inequality?
Primary Resources	<p>Websites www.ixl.com</p> <p>Lesson Plans VDOE Equality and Inequality</p> <p>Books Equal Shmequal by Virginia Kroll</p>
Essential Vocabulary	<p>equality- an equation that correctly equals the answer</p> <p>inequality- an equation that is incorrectly answered</p>

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Marking Period: 1st Nine Weeks

Days: Ongoing

Reporting Category/Strand: Number and Number Sense

<p>SOL 2.4</p>	<p>The student will</p> <ul style="list-style-type: none"> a) count forward by twos, fives, and tens to 100, starting at various multiples of 2, 5, or 10; b) count backward by tens from 100; and c) recognize even and odd numbers.
<p>Essential Knowledge/Skills/Understandings</p>	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand that collections of objects can be grouped and skip counting can be used to count the collection. • Describe patterns in skip counting and use those patterns to predict the next number in the counting sequence. • Understand that the starting point for skip counting by 2 does not always begin at 2. • Understand that the starting point for skip counting by 5 does not always begin at 5. • Understand that the starting point for skip counting by 10 does not always begin at 10. • Understand that every counting number is either even or odd. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Determine patterns created by counting by twos, fives, and tens on a hundred chart. • Skip count by twos, fives, and tens to 100, using manipulatives, a hundred chart, mental mathematics, a calculator, and/or paper and pencil. • Skip count by twos, fives, and tens to 100. • Count backward by tens from 100. • Use objects to determine whether a number is odd or even.
<p>Essential Questions</p>	<ul style="list-style-type: none"> • Demonstrate, explain, and justify even and odd numbers. • Compare and contrast different ways numbers can be grouped for skip counting. • Explain and justify the pattern of counting by 2's, 5's and 10's starting at various numbers. • Explain and justify the pattern of counting backward by 10's starting from 100. • What is a pattern? • Explain and justify a pattern using a variety of methods (e.g., clapping, manipulatives, or a hundreds chart).

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<p>Primary Resources</p>	<p>Websites www.math-aids.com www.themathworksheet.com www.mathfactcafe.com www.ixl.com</p> <p>Teacher Resource Book Basic Math Skills Grade 2, Evan-Moore EMC 3015</p> <p>Lesson Plans VDOE Skip Counting</p> <p>Videos Math Monsters Number Conversation, Transformation and Equivalency</p> <p>Books Scholastic Reader Level 3: Even Steven and ... by Kathryn Cristaldi</p>
<p>Essential Vocabulary</p>	<p>odd-1, 3, 5, 7, 9 even-0, 2, 4, 6, 8</p>

Marking Period: 1st Nine Weeks

Days: Ongoing

Reporting Category/Strand: Number and Number Sense

<p>SOL 2.2</p>	<p>The student will</p> <p>a) identify the ordinal positions first through twentieth, using an ordered set of objects; and</p> <p>b) write the ordinal numbers.</p>
<p>Essential Knowledge/Skills/Understandings</p>	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Use ordinal numbers to describe the position of an object in a sequence or set. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations</p>

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	<p>to</p> <ul style="list-style-type: none"> • Count an ordered set of objects, using the ordinal number words first through twentieth. • Identify the ordinal positions first through twentieth, using an ordered set of objects. • Identify the ordinal positions first through twentieth, using an ordered set of objects presented in lines or rows from <ul style="list-style-type: none"> – left to right; – right to left; – top to bottom; and – bottom to top. • Write 1st, 2nd, 3rd, through 20th in numerals.
Essential Questions	<ul style="list-style-type: none"> • Demonstrate, explain, and justify a counting sequence of numbers. • What position is an object in a sequence or set?
Primary Resources	<p>Websites www.ixl.com</p> <p>Teacher Resource Book Basic Math Skills Grade 2, Evan-Moore EMC 3015</p>
Essential Vocabulary	ordinal numbers - first, second, third

Marking Period: 1st Nine Weeks

Days: ongoing

Reporting Category/Strand: Measurement

SOL 2.13	<p>The student will</p> <p>a) determine past and future days of the week; and</p> <p>b) identify specific days and dates on a given calendar.</p>
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand how to use a calendar as a way to measure time. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations</p>

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	<p>to</p> <ul style="list-style-type: none"> • Determine the days/dates before and after a given day/date. • Determine the day that is a specific number of days or weeks in the past or in the future from a given date, using a calendar. • Identify specific days and dates (e.g., the third Monday in a given month or what day of the week does May 11 fall on).
Essential Questions	<ul style="list-style-type: none"> • How does a calendar measure time? • How does a calendar represent yesterday, today, and tomorrow? • How can you determine the date of the third Tuesday in any given month?
Primary Resources	<p>Websites www.ixl.com</p> <p>Lesson Plans VDOE Calendar</p>
Essential Vocabulary	calendar - a table or register with the days of each month and week in a year

Marking Period: 1st Nine Weeks

Days: 20

Reporting Category/Strand: Computation and Estimation

SOL 2.5	The student will recall addition facts with sums to 20 or less and the corresponding subtraction facts.
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand that addition involves combining and subtraction involves separating. • Develop fluency in recalling facts for addition and subtraction. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Recall and write the basic addition facts for sums to 20 or less and the corresponding subtraction facts, when addition or subtraction problems are presented in either horizontal or vertical written format.
Essential Questions	<ul style="list-style-type: none"> • Compare and contrast methods for finding sums and differences.

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	<ul style="list-style-type: none"> • Create and explain a representation of the relationship between addition and subtraction. • Compare and contrast estimation strategies. • Create and solve a practical problem in multiple ways using data.
Primary Resources	<p>Websites www.math-aids.com www.themathworksheet.com www.mathfactcafe.com www.ixl.com</p> <p>Teacher Resource Book Basic Math Skills Grade 2, Evan-Moore EMC 3015</p> <p>Videos Math Monsters: Doubles and their Neighbors</p>
Essential Vocabulary	<p>addition- combining subtraction- separating number line- a straight line on which there is indicated a one-to-one correspondence between points on the line and the set of real numbers</p>

Marking Period: 1st Nine Weeks

Days: 5

Reporting Category/Strand: Computation and Estimation

SOL 2.9	The student will recognize and describe the related facts that represent and describe the inverse relationship between addition and subtraction.
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand how addition and subtraction relate to one another. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Determine the missing number in a number sentence (e.g., $3 + \underline{\quad} = 5$ or $\underline{\quad} + 2 = 5$; $5 - \underline{\quad} = 3$ or $5 - 2 = \underline{\quad}$).

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	<ul style="list-style-type: none"> • Write the related facts for a given addition or subtraction fact (e.g., given $3 + 4 = 7$, write $7 - 4 = 3$ and $7 - 3 = 4$).
Essential Questions	<ul style="list-style-type: none"> • How are addition and subtraction related to each other? • Determine the missing number in a number sentence. • What are the related facts for a given addition or subtraction sentence?
Primary Resources	<p>Websites www.math-aids.com www.ixl.com</p> <p>Lesson Plans VDOE Related Addition and Subtraction</p>
Essential Vocabulary	related facts- fact families

Marking Period: 1st Nine Weeks

Days: 15

Reporting Category/Strand: Number and Number Sense

SOL 2.1	<p>The student will</p> <p>a) read, write, and identify the place value of each digit in a three-digit numeral, using numeration models;</p> <p>b) round two-digit numbers to the nearest ten; and</p> <p>c) compare two whole numbers between 0 and 999, using symbols (>, <, or =) and words (greater than, less than, or equal to).</p>
Essential Knowledge/Skills/Understandings	<p>Essential Understanding</p> <p>All students should</p> <ul style="list-style-type: none"> • Understand the ten-to-one relationship of ones, tens, and hundreds (10 ones equals 1 ten; 10 tens equals 1 hundred). • Understand that numbers are written to show how many hundreds, tens, and ones are in the number. • Understand that rounding gives a close, easy-to-use number to use when an exact number is not needed for the situation at hand. • Understand that a knowledge of place value is essential when comparing numbers. • Understand the relative magnitude of numbers by comparing numbers.

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	<p>Essential Knowledge and Skills</p> <p>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Demonstrate the understanding of the ten-to-one relationships among ones, tens, and hundreds, using manipulatives (e.g., beans and cups, Base-10 blocks, bundles of 10 sticks). • Determine the place value of each digit in a three digit numeral presented as a pictorial representation (e.g., a picture of Base-10 blocks) or as a physical representation (e.g., actual Base-10 blocks). • Write numerals, using a Base-10 model or picture. • Read three-digit numbers when shown a numeral, a Base-10 model of the number, or a pictorial representation of the number. • Identify the place value (ones, tens, hundreds) of each digit in a three-digit numeral. • Determine the value of each digit in a three-digit numeral (e.g., in 352, the 5 represents 5 tens and its value is 50). • Round two-digit numbers to the nearest ten. • Compare two numbers between 0 and 999 represented pictorially or with concrete objects (e.g., Base-10 blocks), using the words greater than, less than or equal to.
<p>Essential Questions</p>	<ul style="list-style-type: none"> • Explain and justify the place value of the digits in numbers on the hundreds chart. • Demonstrate and explain how to round a two digit number using the hundreds chart. • How can the same quantity be represented in words, numerals, and objects? • Explain and justify how the value of two numbers can be compared. \(\text{Include symbols } >, < \) • What is the relationship between the place values within a number?
<p>Primary Resources</p>	<p>Websites</p> <p>www.math-aids.com</p> <p>www.ixl.com</p> <p>Lesson Plans</p> <p>VDOE Place Value</p> <p>VDOE Rounding</p> <p>Books</p> <p>Sir Cumference and All the King's Tens: A M... by Cindy Neuschwander</p>
<p>Essential Vocabulary</p>	<p>place value- ones, tens, hundreds</p> <p>round- 0, 1, 2, 3, 4 STAY- 5, 6, 7, 8, 9 Go Up- finding the nearest easy-to-use number (e.g., the nearest 10) for the situation at hand.</p>

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	<p>less than- < the number is less greater than- > the number is greater equal to- = the numbers are equal</p>
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Marking Period: 2nd Nine Weeks

Days: 5

Reporting Category/Strand: Probability and Statistics

SOL 2.17	The student will use data from experiments to construct picture graphs, pictographs, and bar graphs.
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand that data may be generated from experiments. • Understand how data can be collected and organized in picture graphs, pictographs, and bar graphs. • Understand that picture graphs use pictures to show and compare data. • Understand that pictographs use a symbol of an object, person, etc. • Understand that bar graphs can be used to compare categorical data. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Organize data from experiments, using lists, tables, objects, pictures, symbols, tally marks, and charts, in order to construct a graph. • Read the information presented horizontally and vertically on picture graphs, pictographs, and bar graphs. • Collect no more than 16 pieces of data to answer a given question. • Represent data from experiments by constructing picture graphs, pictographs, and bar graphs. • Label the axes on a bar graph, limiting the number of categories (categorical data) to four and the increments to multiples of whole numbers (e.g., multiples of 1, 2, or 5). • On a pictograph, limit the number of categories to four and include a key where appropriate.
Essential Questions	<ul style="list-style-type: none"> • What is data? • Explain multiple ways categorical data can be displayed to communicate information. • How can data be used to construct and analyze a representation to predict a future outcome? • How can probability help predict an outcome in an event? • Select the best analysis of a graph from a set of possible analyses of the graph.

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Primary Resources	<p>Websites www.ixl.com</p> <p>Lesson Plans VDOE Probability and Graphs</p> <p>Videos Math Monsters: Data Collection</p> <p>Books Bart's Amazing Charts (Hello Reader! Math L... by Dianne Ochiltree</p>
Essential Vocabulary	<p>table- a chart with data</p> <p>bar graph- data presented in bars</p> <p>pictograph- pictures used to represent data</p> <p>picture graph- data presented in pictures</p>

Marking Period: 2nd Nine Weeks

Days: 5

Reporting Category/Strand: Probability and Statistics

SOL 2.19	The student will analyze data displayed in picture graphs, pictographs, and bar graphs.
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand how to read the key used in a graph to assist in the analysis of the displayed data. • Understand how to interpret data in order to analyze it. • Understand how to analyze data in order to answer the questions posed, make predictions, and generalizations <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Analyze information from simple picture graphs, pictographs, and bar graphs by writing at least one statement that covers one or both of the following:

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	<ul style="list-style-type: none"> – Describe the categories of data and the data as a whole (e.g., the total number of responses). – Identify parts of the data that have special characteristics, including categories with the greatest, the least, or the same. • Select the best analysis of a graph from a set of possible analyses of the graph.
Essential Questions	<ul style="list-style-type: none"> • How to read, interpret, and analyze data from a picture graph, pictograph, and bar graph. • What does the data represent?
Primary Resources	<p>Websites www.ixl.com</p> <p>Lesson Plans VDOE Graphing</p> <p>Books Bart's Amazing Charts (Hello Reader! Math L... by Dianne Ochiltree</p>
Essential Vocabulary	<p>table- a chart with data bar graph- data presented in bars pictograph- pictures used to represent data picture graph- data presented in pictures tally marks- sticks used to represent numbers, grouped by fives</p>

Marking Period: 2nd Nine Weeks

Days: 5

Reporting Category/Strand: Computation and Estimation

SOL 2.8	The student will create and solve one- and two-step addition and subtraction problems, using data from simple tables, picture graphs, and bar graphs.
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Develop strategies for solving practical problems. • Enhance problem solving skills by creating their own problems

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	<p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Identify the appropriate data and the operation needed to solve an addition or subtraction problem where the data are presented in a simple table, picture graph, or bar graph. • Solve addition and subtraction problems requiring a one- or two-step solution, using data from simple tables, picture graphs, bar graphs, and everyday life situations. • Create a one- or two-step addition or subtraction problem using data from simple tables, picture graphs, and bar graphs whose sum is 99 or less.
Essential Questions	<ul style="list-style-type: none"> • What is the operation needed to solve an addition or subtraction problem where the data is presented in a simple table, picture graph, or bar graph? • How to create a one or two step addition or subtraction problem using data from simple tables, picture graphs, and bar graphs.
Primary Resources	<p>Websites www.mathfactcafe.com www.ixl.com</p>
Essential Vocabulary	<p>table- a chart with data bar graph- data presented in bars pictograph- pictures used to represent data picture graph- data presented in pictures</p>

Marking Period: 2nd Nine Weeks

Days: 5

Reporting Category/Strand: Patterns, Functions, and Algebra

SOL 2.21	<p>The student will solve problems by completing numerical sentences involving the basic facts for addition and subtraction. The student will create story problems, using the numerical sentences.</p>
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Use mathematical models to represent and understand quantitative relationships. • Understand various meanings of addition and subtraction and the relationship between the two operations. • Understand how to write missing addend and missing subtrahend sentences.

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	<p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Solve problems by completing a numerical sentence involving the basic facts for addition and subtraction (e.g., $3 + \underline{\quad} = 7$, or $9 - \underline{\quad} = 2$). • Create a story problem for a given numerical sentence.
Essential Questions	<ul style="list-style-type: none"> • How to write missing addend and missing subtrahend sentences • What is the relationship between addition and subtraction?
Primary Resources	<p>Websites www.ixl.com</p> <p>Teacher Resource Book Basic Math Skills Grade 2, Evan-Moore EMC 3015</p>
Essential Vocabulary	number sentence - numbers written in an algorithm

Marking Period: 2nd Nine Weeks

Days: 12

Reporting Category/Strand: Computation and Estimation

SOL 2.6	<p>The student, given two whole numbers whose sum is 99 or less, will</p> <p>a) estimate the sum; and</p> <p>b) find the sum, using various methods of calculation.</p>
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand that estimation skills are valuable, timesaving tools particularly in practical situations when exact answers are not required or needed. • Understand that estimation skills are also valuable in determining the reasonableness of the sum when solving for the exact answer is needed. • Understand that addition is used to join groups in practical situations when exact answers are needed. • Develop flexible methods of adding whole numbers by combining numbers in a variety of ways to find the sum, most

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	<p>depending on place values.</p> <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Regroup 10 ones for 1 ten, using Base-10 models, when finding the sum of two whole numbers whose sum is 99 or less. • Estimate the sum of two whole numbers whose sum is 99 or less and recognize whether the estimation is reasonable. • Find the sum of two whole numbers whose sum is 99 or less, using Base-10 models, such as Base-10 blocks and bundles of tens. • Solve problems presented vertically or horizontally that require finding the sum of two whole numbers whose sum is 99 or less, using paper and pencil. • Solve problems, using mental computation strategies, involving addition of two whole numbers whose sum is 99 or less.
Essential Questions	<ul style="list-style-type: none"> • What is the best strategy to solve addition problems of two whole numbers whose sum is 99 or less?
Primary Resources	<p>Websites www.math-aids.com www.themathworksheet.com www.mathfactcafe.com www.ixl.com</p> <p>Teacher Resource Book Basic Math Skills Grade 2, Evan-Moore EMC 3015</p>
Essential Vocabulary	<p>regroup/rename- to exchanges ones to tens or tens to hundreds estimate- to round</p>

Marking Period: 2nd Nine Weeks

Days: 12

Reporting Category/Strand: Computation and Estimation

SOL 2.7	<p>The student, given two whole numbers, each of which is 99 or less, will</p> <ul style="list-style-type: none"> a) estimate the difference; and b) find the difference, using various methods of calculation.
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<p>Essential Knowledge/Skills/Understandings</p>	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand that estimation skills are valuable, time saving tools particularly in practical situations when exact answers are not required or needed. • Understand that estimation skills are also valuable in determining the reasonableness of the difference when solving for the exact answer is needed. • Understand that subtraction is used in practical situations when exact answers are needed. • Develop flexible methods of subtracting whole numbers to find the difference, by combining numbers in a variety of ways, most depending on place values. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Regroup 1 ten for 10 ones, using Base-10 models, such as Base-10 blocks and bundles of tens. • Estimate the difference of two whole numbers each 99 or less and recognize whether the estimation is reasonable. • Find the difference of two whole numbers each 99 or less, using Base-10 models, such as Base-10 blocks and bundles of tens. • Solve problems presented vertically or horizontally that require finding the difference between two whole numbers each 99 or less, using paper and pencil. • Solve problems, using mental computation strategies, involving subtraction of two whole numbers each 99 or less.
<p>Essential Questions</p>	<ul style="list-style-type: none"> • What is the best strategy to solve subtraction problems of two whole numbers whose sum is 99 or less?
<p>Primary Resources</p>	<p>Websites www.math-aids.com www.themathworksheets.com www.mathfactcafe.com www.ixl.com</p> <p>Lesson Plans VDOE Number Line</p> <p>Teacher Resource Book Basic Math Skills Grade 2, Evan-Moore EMC 3015</p>
<p>Essential Vocabulary</p>	<p>regroup/rename- to exchanges ones to tens or tens to hundreds estimate- to round</p>

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Marking Period: 3rd Nine Weeks

Days: 5

Reporting Category/Strand: Patterns, Functions, and Algebra

SOL 2.20	The student will identify, create, and extend a wide variety of patterns.
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand patterns are a way to recognize order and to predict what comes next in an arrangement. • Analyze how both repeating and growing patterns are generated. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Identify a growing and/or repeating pattern from a given geometric or numeric sequence. • Predict the next number, geometric figure, symbol, picture, or object in a given pattern. • Extend a given pattern, using numbers, geometric figures, symbols, pictures, or objects. • Create a new pattern, using numbers, geometric figures, pictures, symbols, or objects. • Recognize the same pattern in different manifestations.
Essential Questions	<ul style="list-style-type: none"> • How can patterns be repeated and grown? • What is the next number, geometric figure, symbol, picture, or object in a given pattern? • What is the same pattern in different manifestations?
Primary Resources	<p>Websites www.math-aids.com www.ixl.com</p> <p>Lesson Plans VDOE Patterns</p> <p>Teacher Resource Book Basic Math Skills Grade 2, Evan-Moore EMC 3015</p> <p>Videos Math Monster: Patterns</p>

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Essential Vocabulary	pattern: Repeating and Growing numbers, shapes, or colors
<p>Marking Period: 3rd Nine Weeks Days: 16 Reporting Category/Strand: Measurement</p>	
SOL 2.10	<p>The student will</p> <p>a) count and compare a collection of pennies, nickels, dimes, and quarters whose total value is \$2.00 or less; and</p> <p>b) correctly use the cent symbol (¢), dollar symbol (\$), and decimal point (.)</p>
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand how to count and compare a collection of coins and one-dollar bills whose total value is \$2.00 or less. • Understand the proper use of the cent symbol (¢), dollar sign (\$), and decimal point (.) <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Determine the value of a collection of coins and one-dollar bills whose total value is \$2.00 or less. • Compare the values of two sets of coins and one dollar bills (each set having a total value of \$2.00 or less), using the terms greater than, less than, or equal to. • Simulate everyday opportunities to count and compare a collection of coins and one-dollar bills whose total value is \$2.00 or less. • Use the cent (¢) and dollar (\$) symbols and decimal point (.) to write a value of money which is \$2.00 or less.
Essential Questions	<ul style="list-style-type: none"> • Demonstrate and explain multiple strategies for determining the value of a set of coins. • Explain and justify how the value of two sets of coins can be compared. (using <, >, =) • Create and explain situations correctly using the cents sign, decimal point, and dollar sign.
Primary Resources	<p>Websites</p> <p>www.math-aids.com www.mathfactcafe.com www.ixl.com</p>

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	<p>Lesson Plans VDOE Counting Coins</p> <p>Teacher Resource Book Basic Math Skills Grade 2, Evan-Moore EMC 3015</p> <p>Books A Chair for My Mother 25th Anniversary Edit... by Vera B. Williams Pigs Will Be Pigs: Fun with Math and Money by Amy Axelrod Pigs Go to Market: Fun with Math and Shoppi... by Amy Axelrod Welcome Books: Money Matters by Mary Hill Arthur's Funny Money (I Can Read Book 2) by Lillian Hoban</p>
Essential Vocabulary	<p>penny- one cent nickel- five cents dime- ten cents quarter- twenty-five cents dollar- one hundred cents</p>

Marking Period: 3rs Nine Weeks

Days: 15

Reporting Category/Strand: Measurement

SOL 2.12	The student will tell and write time to the nearest five minutes, using analog and digital clocks.
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Apply an appropriate technique to determine time to the nearest five minutes, using analog and digital clocks. • Demonstrate an understanding of counting by fives to predict five minute intervals when telling time to the nearest five minutes. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations</p>

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	<p>to</p> <ul style="list-style-type: none"> • Show, tell, and write time to the nearest five minutes, using an analog and digital clock. • Match a written time to a time shown on a clock face to the nearest five minutes.
Essential Questions	<ul style="list-style-type: none"> • Tell time to the half hour • Identify the parts of the clock and explain their functions
Primary Resources	<p>Websites www.math-aids.com www.themathworksheet.com www.mathfactcafe.com www.ixl.com</p> <p>Teacher Resource Books Basic Math Skills Grade 2, Evan-Moore EMC 3015</p> <p>Videos Math Monsters: Time</p> <p>Books Clocks and More Clocks by Pat Hutchins What Time Is It, Mr. Crocodile? by Judy Sierra</p>
Essential Vocabulary	<p>clock- an instrument for measuring and recording time, especially by mechanical means, usually with hands or changing numbers to indicate the hour and minute: not designed to be worn or carried about.</p>

Marking Period: 3rd Nine Weeks

Days: 5

Reporting Category/Strand: Number and Number Sense

SOL 2.3	<p>The student will</p> <p>a) identify the parts of a set and/or region that represent fractions for halves, thirds, fourths, sixths, eighths, and tenths;</p> <p>b) write the fractions; and</p>
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	<p>c) compare the unit fractions for halves, thirds, fourths, sixths, eighths, and tenths.</p>
<p>Essential Knowledge/Skills/Understandings</p>	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand that fractional parts are equal shares of a whole or a whole set. • Understand that the fraction name (half, fourth) tells the number of equal parts in the whole. • Understand that when working with unit fractions, the larger the denominator, the smaller the part and therefore the smaller the fraction. <p>Essential Knowledge and Skills The student will use communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Recognize fractions as representing equal-size parts of a whole. • Identify the fractional parts of a whole or a set for $\frac{2}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{2}{6}$, $\frac{7}{8}$, $\frac{7}{10}$, etc. • Identify the fraction names (halves, thirds, fourths, sixths, eighths, tenths) for the fraction notations $\frac{2}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{2}{6}$, $\frac{7}{8}$, $\frac{7}{10}$, etc. • Represent fractional parts of a whole for halves, thirds, fourths, sixths, eighths, tenths using <ul style="list-style-type: none"> – region/area models (e.g., pie pieces, pattern blocks, geoboards); – sets (e.g., chips, counters, cubes); and – measurement models (e.g., fraction strips, rods, connecting cubes). • Compare unit fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$, and $\frac{1}{10}$) using the words greater than, less than or equal to and the symbols ($>$, $<$, $=$).
<p>Essential Questions</p>	<ul style="list-style-type: none"> • What is a fraction? • Demonstrate, explain, and justify the relationship between fractional parts. • Create and explain a fraction using a region model. • Create and explain a fraction using a set model. • Compare and contrast set and region models of fractions.
<p>Primary Resources</p>	<p>Websites www.math-aids.com www.ixl.com</p> <p>Lesson Plans VDOE Fractions</p> <p>Teacher Resource Book Basic Math Skills Grade 2, Evan-Moore EMC 3015</p>

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	<p>Books Great Source Mathstart: Student Reader Give... by GREAT SOURCE Full House: An Invitation to Fractions by Dayle Ann Dodds</p>
<p>Essential Vocabulary</p>	<p>fraction - parts of a whole denominator- tells how many equal parts are in the whole or set. numerator- tells how many of those parts are being described.</p>

Marking Period: 4th Nine Weeks

Days: 15

Reporting Category/Strand: Measurement

<p>SOL 2.11</p>	<p>The student will estimate and measure a) length to the nearest centimeter and inch; b) weight/mass of objects in pounds/ounces and kilograms/grams, using a scale; and c) liquid volume in cups, pints, quarts, gallons, and liters.</p>
<p>Essential Knowledge/Skills/Understandings</p>	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand that centimeters/inches are units used to measure length. • Understand how to estimate and measure to determine a linear measure to the nearest centimeter and inch. • Understand that pounds/ounces and kilograms/grams are units used to measure weight/mass. • Understand how to use a scale to determine the weight/mass of an object and use the appropriate unit for measuring weight/mass. • Understand that cups, pints, quarts, gallons, and liters are units used to measure liquid volume. • Understand how to use measuring devices to determine liquid volume in both metric and customary units. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Estimate and measure the length of various line segments and objects to the nearest inch and centimeter. • Estimate and then measure the weight/mass of objects to the nearest pounds/ounces and kilograms/grams, using a scale.

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	<ul style="list-style-type: none"> • Estimate and measure liquid volume in cups, pints, quarts, gallons, and liters.
<p>Essential Questions</p>	<ul style="list-style-type: none"> • What are two examples of objects measured in length, weight/mass, and capacity in U.S. Customary. • What are two examples of objects measured in length, weight/mass, and capacity in the metric system? • Give an example of a situation where an estimate is more appropriate than an actual measurement. • Compare and contrast strategies for determining minutes and hours on an analog clock.
<p>Primary Resources</p>	<p>Websites www.ixl.com</p> <p>Lesson Plans VDOE Kite Measuring Inches and Centimeters VDOE Weight VDOE Volume</p> <p>Teacher Resources Basic Math Skills Grade 2, Evan-Moore EMC 3015</p> <p>Videos Math Monsters: Standard and Nonstandard Measurement</p> <p>Books Millions to Measure by David M. Schwartz If You Were a Quart or a Liter (Math Fun) by Marcie Aboff If You Were an Inch or a Centimeter (Math F...) by Marcie Aboff If You Were a Pound or a Kilogram (Math Fun) by Marcie Aboff</p>
<p>Essential Vocabulary</p>	<p>measurement- length to the nearest centimeter and inch; weight/mass of objects in pounds/ounces and kilograms/grams, using a scale; and liquid volume in cups, pints, quarts, gallons, and liters</p> <p>ruler- 12 inches</p> <p>ounce- 1/16 of a pound</p> <p>pound- 16 ounces</p> <p>kilogram- 1,000 grams</p> <p>grams-</p> <p>balance scale- used for measuring mass</p>

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	<p>weight/ mass- a measure of matter in an object</p> <p>scale- use to measure weight and mass</p> <p>cup-a unit of capacity, equal to 8 fluid ounces (237 milliliters) or 16 tablespoons; half-pint.</p> <p>pint-a liquid and also dry measure of capacity, equal to one half of a liquid and dry quart respectively, approximately 35 cubic inches (0.473 liter)</p> <p>quart-a unit of liquid measure of capacity, equal to one fourth of a gallon</p> <p>gallon-4 quarts, 8 pints, 16 cups</p> <p>liter-a unit of capacity</p> <p>milliliters- a unit of capacity</p>
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Marking Period: 4th Nine Weeks

Days: 15

Reporting Category/Strand: Measurement

SOL 2.14	The student will read the temperature on a Celsius and/or Fahrenheit thermometer to the nearest 10 degrees.
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand how to measure temperature in Celsius and Fahrenheit with a thermometer. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Read temperature to the nearest 10 degrees from real Celsius and Fahrenheit thermometers and from physical models (including pictorial representations) of such thermometers.
Essential Questions	<ul style="list-style-type: none"> • How is temperature measured in degrees from real Celsius and Fahrenheit thermometers and physical models?
Primary Resources	<p>Websites www.math-aids.com www.ixl.com</p> <p>Lesson Plans VDOE Temperature</p>

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Essential Vocabulary	thermometer - an instrument for measuring temperature, often a sealed glass tube that contains a column of liquid, as mercury, that expands and contracts, or rises and falls, with temperature changes, the temperature being read where the top of the column coincides with a calibrated scale marked on the tube or its frame.
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Marking Period: 4th Nine Weeks

Days: 10

Reporting Category/Strand: Geometry

SOL 2.16	The student will identify, describe, compare, and contrast plane and solid geometric figures (circle/sphere, square/cube, and rectangle/rectangular prism).
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand the differences between plane and solid figures while recognizing the interrelatedness of the two. • Understand that a solid figure is made up of a set of plane figures. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Determine similarities and differences between related plane and solid figures (e.g., circle/sphere, square/cube, rectangle/rectangular prism), using models and cutouts. • Trace faces of solid figures (e.g., cube and rectangular solid) to create the set of plane figures related to the solid figure. • Identify and describe plane and solid figures (e.g., circle/sphere, square/cube, and rectangle/rectangular prism), according to the number and shape of their faces, edges, and vertices using models. • Compare and contrast plane and solid geometric figures (e.g., circle/sphere, square/cube, and rectangle/rectangular prism) according to the number and shape of their faces (sides, bases), edges, vertices, and angles.
Essential Questions	<ul style="list-style-type: none"> • What are the similarities and differences between related plane and solid figures (e.g., circle/sphere, square/cube, rectangle/rectangular prism), using models and cutouts?
Primary Resources	<p>Websites www.ixl.com</p> <p>Lesson Plans VDOE Shapes</p>

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	<p>Teacher Resource Book Basic Math Skills Grade 2, Evan-Moore EMC 3015</p> <p>Videos Math Monsters: Geometry</p>
Essential Vocabulary	<p>geometry- the branch of mathematics that deals with the deduction of the properties, measurement, and relationships of points, lines, angles, and figures in space from their defining conditions by means of certain assumed properties of space.</p> <p>right Angle- the angle formed by two radii of a circle that are drawn to the extremities of an arc equal to one quarter of the circle; the angle formed by two perpendicular lines that intersect; an angle of 90°.</p> <p>side- one of the surfaces forming the outside of or bounding a thing, or one of the lines bounding a geometric figure</p> <p>vertex- point</p> <p>sphere- a solid geometric figure generated by the revolution of a semicircle about its diameter</p> <p>cube- a solid bounded by six equal squares, the angle between any two adjacent faces being a right angle.</p> <p>rectangular prism- a solid bounded by six equal rectangles.</p>

Marking Period: 4th Nine Weeks

Days: 7

Reporting Category/Strand: Geometry

SOL 2.15	<p>The student will</p> <p>a) draw a line of symmetry in a figure; and</p> <p>b) identify and create figures with at least one line of symmetry.</p>
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Develop strategies to determine whether or not a figure has at least one line of symmetry. • Develop strategies to create figures with at least one line of symmetry. • Understand that some figures may have more than one line of symmetry. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Identify figures with at least one line of symmetry, using various concrete materials.

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	<ul style="list-style-type: none"> • Draw a line of symmetry — horizontal, vertical, and diagonal — in a figure. • Create figures with at least one line of symmetry using various concrete materials.
Essential Questions	<ul style="list-style-type: none"> • How many lines of symmetry does a figure have?
Primary Resources	<p>Websites www.ixl.com</p> <p>Lesson Plans VDOE Symmetry VDOE Symmetry</p> <p>Teacher Resource Book Basic Math Skills Grade 2, Evan-Moore EMC 3015</p>
Essential Vocabulary	symmetry - the correspondence in size, form, and arrangement of parts on opposite sides of a plane, line, or point; regularity of form or arrangement in terms of like, reciprocal, or corresponding parts.

Marking Period: 4th Nine Weeks

Days: 7

Reporting Category/Strand: Probability and Statistics

SOL 2.18	The student will use data from experiments to predict outcomes when the experiment is repeated.
Essential Knowledge/Skills/Understandings	<p>Essential Understanding All students should</p> <ul style="list-style-type: none"> • Understand that data may be generated from experiments. • Understand that the likelihood of an event occurring is to predict the probability of it happening. <p>Essential Knowledge and Skills The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</p> <ul style="list-style-type: none"> • Conduct probability experiments, using multicolored spinners, colored tiles, or number cubes and use the data from the experiments to predict outcomes if the experiment is repeated. • Record the results of probability experiments, using tables, charts, and tally marks.

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	<ul style="list-style-type: none"> • Interpret the results of probability experiments (e.g., the two-colored spinner landed on red 5 out of 10 times). • Predict which of two events is more likely to occur if an experiment is repeated.
Essential Questions	<ul style="list-style-type: none"> • What are the results of experiments? • What outcome is likely to occur if an experiment is repeated? • How can the results of experiments be represented using tables, charts, and tally marks?
Primary Resources	<p>Websites www.ixl.com</p> <p>Lesson Plans VDOE Probability</p>
Essential Vocabulary	probability and statistics - likely, unlikely, certain, uncertain, impossible, proven through a variety of experiments