

**Bermudian Springs Pennsylvania Core Standards
Math Framework
Third Grade**



Introduction

Bermudian Springs School District, in partnership with all stakeholders, recognizes the importance of our students being able to use mathematics in everyday life and in the workplace. New knowledge, tools, and ways of solving math problems will significantly enhance opportunities for shaping our students future. Math competencies open doors to productive futures. All students should have the opportunity and support necessary to learn significant math with depth and understanding. *Common Core* has provided critical areas designed to bring focus to the standards at each grade by describing key concepts in order to guide instruction. The critical areas for instructional focus for third grade math outlined by the *Common Core* include the following four areas:

- 1. Developing understanding of multiplication and division and strategies for multiplication and division within 100.** Students develop an understanding of the meanings of multiplication and division of whole numbers through activities and problems involving equal-sized groups, arrays, and area models; multiplication is finding an unknown product, and division is finding an unknown factor in these situations. For equal-sized group situations, division can require finding the unknown number of groups or the unknown group size. Students use properties of operations to calculate products of whole numbers, using increasingly sophisticated strategies based on these properties to solve multiplication and division problems involving single-digit factors. By comparing a variety of solution strategies, students learn the relationship between multiplication and division.
- 2. Developing understanding of fractions, especially unit fractions (fractions with numerator 1).** Students develop an understanding of fractions, beginning with unit fractions. Students view fractions in general as being built out of unit fractions, and they use fractions along with visual fraction models to represent parts of a whole. Students understand that the size of a fractional part is relative to the size of the whole. For example, $\frac{1}{2}$ of the paint in a small bucket could be less paint than $\frac{1}{3}$ of the paint in a larger bucket, but $\frac{1}{3}$ of a ribbon is longer than $\frac{1}{5}$ of the same ribbon because when the ribbon is divided into 3 equal parts, the parts are longer than when the ribbon is divided into 5 equal parts. Students are able to use fractions to represent numbers equal to, less than, and greater than one. They solve problems that involve comparing fractions by using visual fraction models and strategies based on noticing equal numerators or denominators.
- 3. Developing understanding of the structure of rectangular arrays and of area;** Students recognize area as an attribute of two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.
- 4. Describing and analyzing two-dimensional shapes.** Students describe, analyze, and compare properties of two-dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole

Adapted from: commoncore.org, 2013; parconline.org, 2013; pdesas.org, 2013

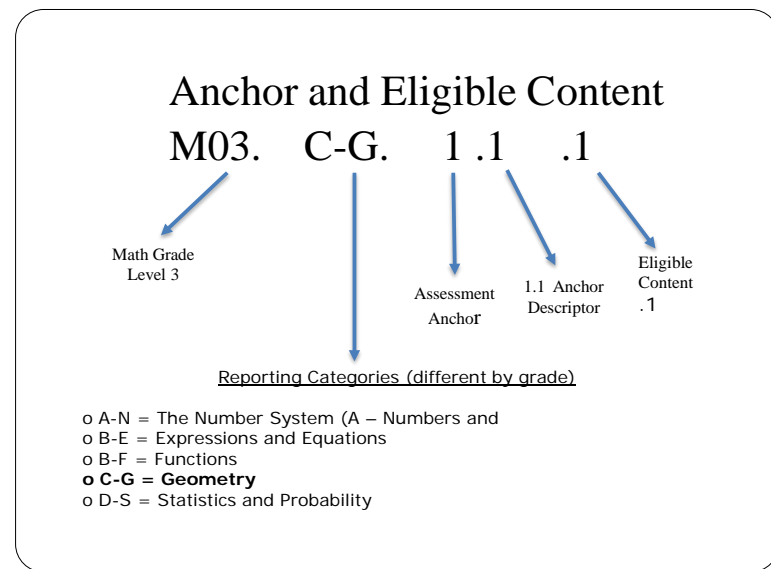
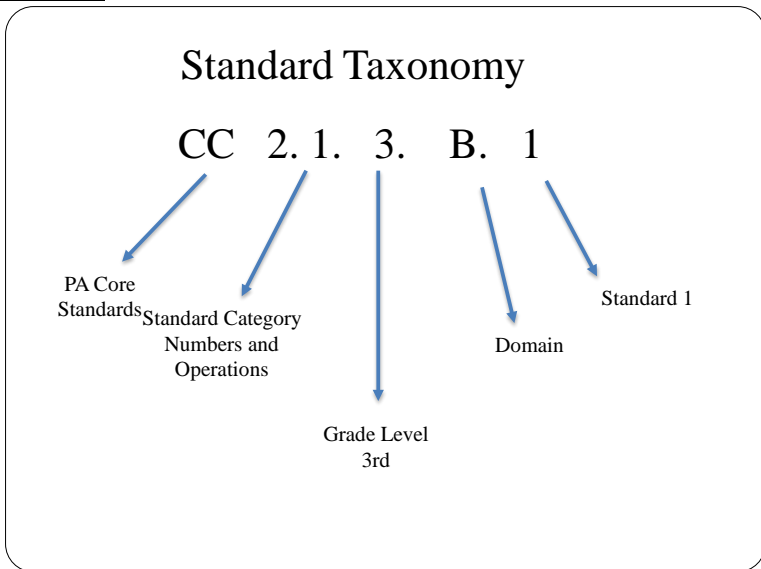
Standards for Mathematical Practice in Third Grade

Bermudian Springs School District incorporated the following Mathematical Practices which are expected to be integrated into every mathematics lesson for all students as outlined in the Pennsylvania Core Standards. Below are a few examples of how these mathematical practices may be integrated into some tasks that Bermudian students will apply in third grade.

Mathematic Practices	Explanations and Examples
1. Make sense of problems and persevere in solving them.	In third grade, mathematically proficient students know that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it. Third graders may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, “Does this make sense?” They listen to the strategies of others and will try different approaches. They often will use another method to check their answers.
2. Reason abstractly and quantitatively.	Mathematically proficient third graders should recognize that a number represents a specific quantity. They connect the quantity to written symbols and create a logical representation of the problem at hand, considering both the appropriate units involved and the meaning of quantities.
3. Construct viable arguments and critique the reasoning of others.	In third grade, mathematically proficient students may construct arguments using concrete referents, such as objects, pictures, and drawings. They refine their mathematical communication skills as they participate in mathematical discussions involving questions like “How did you get that?” and “Why is that true?” They explain their thinking to others and respond to others’ thinking.
4. Model with mathematics.	Mathematically proficient students experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, acting out, making a chart, list, or graph, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They should be able to use all of these representations as needed. Third graders should evaluate their results in the context of the situation and reflect on whether the results make sense.

<p>5. Use appropriate tools strategically.</p>	<p>Mathematically proficient third graders consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be helpful. For instance, they may use graph paper to find all the possible rectangles that have a given perimeter. They compile the possibilities into an organized list or a table, and determine whether they have all the possible rectangles.</p>
<p>6. Attend to precision.</p>	<p>Mathematically proficient third graders develop their mathematical communication skills, they try to use clear and precise language in their discussions with others and in their own reasoning. They are careful about specifying units of measure and state the meaning of the symbols they choose. For instance, when figuring out the area of a rectangle they record their answers in square units.</p>
<p>7. Look for and make use of structure</p>	<p>In third grade mathematically proficient students look closely to discover a pattern or structure. For instance, students use properties of operations as strategies to multiply and divide (commutative and distributive properties).</p>
<p>8. Look for and express regularity in repeated reasoning.</p>	<p>Mathematically proficient students in third grade should notice repetitive actions in computation and look for more shortcut methods. For example, students may use the distributive property as a strategy for using products they know to solve products that they don't know. For example, if students are asked to find the product of 7×8, they might decompose 7 into 5 and 2 and then multiply 5×8 and 2×8 to arrive at $40 + 16$ or 56. In addition, third graders continually evaluate their work by asking themselves, "Does this make sense?"</p>

Mathematical Standards: Development and Progression											
	Pre K	K	1	2	3	4	5	6	7	8	HS
2.1 Numbers and Operations	(A) Counting & Cardinality										
		(B) Number and Operations in Base Ten					(D) Ratios and Proportional Relationships			(F) Number and Quantity	
				(C) Number and Operations - Fractions			(E) The Number System				
2.2 Algebraic Concepts	(A) Operations and Algebraic Thinking						(B) Expressions and Equations			(D) Algebra	
										(C) Functions	
2.3 Geometry	(A) Geometry										
2.4 Measurement, Data and Probability	(A) Measurement and Data						(B) Statistics and Probability				



2.1 Number and Operations	
Domain: (B) Number & Operations in Base Ten	
Standard: CC.2.1.3.B.1 Apply place value understanding and properties of operations to perform multi-digit arithmetic.	
Anchor Descriptor: M03.A-T.1.1 Apply place value strategies to solve problems.	
<ul style="list-style-type: none"> • M03.A-T.1.1.1 Round two-and three-digit whole numbers to the nearest ten or hundred, respectively. 	
<ul style="list-style-type: none"> • M03.A-T.1.1.2 Add two-and three-digit whole numbers (limit sums from 100 through 1,000), and/or subtract two-and three-digit numbers from three-digit whole numbers. 	
<ul style="list-style-type: none"> • M03.A-T.1.1.3 Multiply one-digit whole numbers by two-digit multiples of 10 (from 10 through 90). 	
<ul style="list-style-type: none"> • M03.A-T.1.1.4 Order a set of whole numbers from least to greatest or greatest to least (up through 9,999; limit sets to no more than four numbers). 	
Key Concepts	Key Vocabulary
Apply place value understanding and properties of operations to perform multi-digit arithmetic	place value, ones, tens, hundreds, thousands
Competencies	
<i>Describe what students should be able to do (key skills) as a result of this instruction</i>	
<ul style="list-style-type: none"> • Make ballpark estimates for addition and subtraction problems by rounding two-and three-digit whole numbers to the nearest ten or hundred. • Solve multi-digit arithmetic using place value understanding and properties of operations (up to 2 regroupings) • Identify patterns of multiplication fact extensions • Organize a set of no more than 4 numbers from least to greatest or greatest to least, being able to interpret the directions correctly 	

2.1 Number and Operations

Domain: (C) Number & Operations - Fractions

Standard: CC.2.1.3.C.1 Explore and develop an understanding of fractions as numbers

Anchor Descriptor: M03.A-F.1.1 Develop and apply number theory concepts to compare quantities and magnitudes of fractions and whole numbers.

- **M03.A-F.1.1.1** Demonstrate that when a whole or set is partitioned into y equal parts, the fraction $1/y$ represents 1 part of the whole and/or the fraction x/y represents x equal parts of the whole (limit the denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; no simplification necessary).
- **M03.A-F.1.1.2** Represent fractions on a number line (limit the denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; no simplification necessary).
- **M03.A-F.1.1.3** Recognize and generate simple equivalent fractions (limit the denominators to 1, 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator). *Example 1: $1/2 = 2/4$ Example 2: $4/6 = 2/3$*
- **M03.A-F.1.1.4** Express whole numbers as fractions, and/or generate fractions that are equivalent to whole numbers (limit the denominators to 1, 2, 3, 4, 6, and 8). *Example 1: Express 3 in the form $3 = 3/1$. Example 2: Recognize that $6/1 = 6$.*
- **M03.A-F.1.1.5** Compare two fractions with the same denominator (limit the denominators to 1, 2, 3, 4, 6, and 8), using the symbols $>$, $=$, or $<$, and/or justify the conclusions.

Key Concepts	Key Vocabulary
Explore and develop an understanding of fractions as numbers	numerator, denominator, less than, greater than, equal to

Competencies
Describe what students should be able to do (key skills) as a result of this instruction

- Identify fractions as parts of a whole
- Counting with fractions
- Recognize and generate simple equivalent fractions
- Express whole numbers as fractions and demonstrate the meaning of an improper fraction
- Compare fractions and develop a logical argument for justification

2.2 Algebraic Concepts

Domain: (A) Operations and Algebraic Thinking

Standard: CC.2.2.3.A.1 **Represent and solve problems involving multiplication and division.**

Anchor Descriptor: **M03.B-O.1.1** Understand various meanings of multiplication and division.

- **M03.B-O.1.1.1** Interpret and/or describe products of whole numbers (up to and including 10×10). Example 1: Interpret 35 as the total number of objects in 5 groups, each containing 7 objects. Example 2: Describe a context in which a total number of objects can be expressed as 5×7 .
- **M03.B-O.1.1.2** Interpret and/or describe whole-number quotients of whole numbers (limit dividends through 50, and limit divisors and quotients through 10). Example 1: Interpret $48 \div 8$ as the number of objects in each share when 48 objects are partitioned equally into 8 shares, or as a number of shares when 48 objects are partitioned into equal shares of 8 objects each.

Anchor Descriptor: **M03.B-O.1.2** Solve mathematical and real-world problems using multiplication and division, including determining the missing number in a multiplication and/or division equation.

- **M03.B-O.1.2.1** Use multiplication (up to and including 10×10) and/or division (limit dividends through 50, and limit divisors and quotients through 10) to solve word problems in situations involving equal groups, arrays, and/or measurement quantities.
- **M03.B-O.1.2.2** Determine the unknown whole number in a multiplication (up to and including 10×10) or division (limit dividends through 50, and limit divisors and quotients through 10) equation relating three whole numbers. Example: Determine the unknown number that makes an equation true. Example 2: Describe a context in which a number of shares or a number of groups can be expressed as $48 \div 8$.

Key Concepts

Represent and solve problems involving multiplication and division

Key Vocabulary

factor, divisor, dividends, quotient

Competencies

Describe what students should be able to do (key skills) as a result of this instruction

- Solve multiplication problems up to and including 10×10
- Interpret and/or describe whole-number quotients of whole numbers (limit dividends through 50, and limit divisors and quotients through 10)
- Identify key words that differentiate the operation to be used to solve word problems (multiplication and division)
- Determine the unknown whole number in a multiplication or division equation relating three whole numbers

2.2 Algebraic Concepts

Domain: (A) Operations and Algebraic Thinking

Standard: CC.2.2.3.A.2 Understand properties of multiplication and the relationship between multiplication and division.

Anchor Descriptor: M03.B-O.2.1 Use properties to simplify and solve multiplication problems.

- **M03.B-O.2.1.1** Apply the commutative property of multiplication (not identification or definition of the property).
- **M03.B-O.2.1.2** Apply the associative property of multiplication (not identification or definition of the property).

Anchor Descriptor: M03.B-O.2.2 Relate division to a missing-number multiplication equation.

- **M03.B-O.2.2.1** Interpret and/or model division as a multiplication equation with an unknown factor. *Example: Find $32 \div 8$ by solving $8 \times ? = 32$.*

Key Concepts

Understand properties of multiplication and relationship between multiplication and division, Associative Property – multiplying 3 or more factors; product is the same regardless of the grouping of numbers ($2 \times 3 \times 4 = 2 \times (3 \times 4)$), Commutative Property – product is the same regardless of the order (Turn Around Rule) $2 \times 3 = 3 \times 2$

Key Vocabulary

interpret, number models with parenthesis (associative), turn around rule (commutative)

Competencies

Describe what students should be able to do (key skills) as a result of this instruction

- Apply the commutative property of multiplication
- Apply the associative property of multiplication
- Develop a fact family based on the inverse operation

2.2 Algebraic Concepts	
Domain: (A) Operations and Algebraic Thinking	
Standard: CC.2.2.3.A.3 Demonstrate multiplication and division fluency.	
Key Concepts	Key Vocabulary
Complete multiplication and division facts fluency	factor, product, divisor, dividend, quotient
Competencies	
<i>Describe what students should be able to do (key skills) as a result of this instruction</i>	
<ul style="list-style-type: none"> • Compute basic multiplication and division facts • Use knowledge of basic facts to multiply and divide larger numbers • Apply basic fact knowledge to number stories when appropriate 	

2.2 Algebraic Concepts	
Domain: (A) Operations and Algebraic Thinking	
Standard: CC.2.2.3.A.4 Solve problems involving the four operations, and identify and explain patterns in arithmetic.	
Anchor Descriptor: M04.B-O.3.1 Recognize, describe, extend, create, and replicate a variety of patterns.	
<ul style="list-style-type: none"> • M03.B-O.3.1.1 Solve two-step word problems using the four operations (expressions are not explicitly stated). Limit to problems with whole numbers and having whole-number answers. • M03.B-O.3.1.2 Represent two-step word problems using equations with a symbol standing for the unknown quantity. Limit to problems with whole numbers and having whole-number answers. • M03.B-O.3.1.3 Assess the reasonableness of answers. Limit problems posed with whole numbers and having whole-number answers. • M03.B-O.3.1.4 Solve two-step equations using order of operations (equation is explicitly stated with no grouping symbols). • M03.B-O.3.1.5 Identify arithmetic patterns (including patterns in the addition table or multiplication table) and/or explain them using properties of operations. <i>Example 1: Observe that 4 times a number is always even. Example 2: Explain why 6 times a number can be decomposed into three equal addends.</i> • M03.B-O.3.1.6 Create or match a story to a given combination of symbols (+, −, ×, ÷, <, >, =) and numbers. • M03.B-O.3.1.7 Identify the missing symbol (+, −, ×, ÷, <, >, =) that makes a number sentence true. 	
Key Concepts	Key Vocabulary

Use operations and estimation strategies to solve problems (may include word problems)	equation, operation, symbol, pattern, properties of operations, number sentence, word problem
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Competencies
Describe what students should be able to do (key skills) as a result of this instruction

- Solve two-step word problems using the four operations
- Represent two-step word problems using equations with a symbol standing for the unknown quantity
- Assess the reasonableness of answers
- Solve two-step equations using order of operations
- Identify arithmetic patterns (including patterns in the addition table or multiplication table) and/or explain them using properties of operations
- Create or match a story to a given combination of symbols (+, −, ×, ÷, <, >, =) and numbers
- Identify the missing symbol (+, −, ×, ÷, <, >, =) that makes a number sentence true

2.3 Geometry	
Domain: (A) Geometry	
Standard: CC.2.3.3.A.1 Identify, compare, and classify shapes and their attributes	
Anchor Descriptor: M03.C-G.1.1 Analyze characteristics of polygons.	
<ul style="list-style-type: none"> • M03.C-G.1.1.1 Explain that shapes in different categories may share attributes, and that the shared attributes can define a larger category. <i>Example 1: A rhombus and a rectangle are both quadrilaterals since they both have exactly four sides. Example 2: A triangle and a pentagon are both polygons since they are both multi-sided plane figures.</i> • M03.C-G.1.1.2 Recognize rhombi, rectangles, and squares as examples of quadrilaterals, and/or draw examples of quadrilaterals that do not belong to any of these subcategories. 	
Key Concepts	Key Vocabulary
Identify, compare, and classify shapes and their attributes	attributes, rhombus/rhombi, rectangle, quadrilateral, polygon, pentagon, triangle, characteristic
Competencies	
<i>Describe what students should be able to do (key skills) as a result of this instruction</i>	
<ul style="list-style-type: none"> • Explain that shapes in different categories may share attributes, and that the shared attributes can define a larger category • Recognize rhombi, rectangles, and squares as examples of quadrilaterals, and/or draw examples of quadrilaterals that do not belong to any of these subcategories 	

2.3 Geometry	
Domain: (A) Geometry	
Standard: CC.2.3.3.A.2 Use the understanding of fractions to partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole.	
Anchor Descriptor: M03.C-G.1.1 Analyze characteristics of polygons.	
<ul style="list-style-type: none"> • M03.C-G.1.1.3 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. <i>Example 1: Partition a shape into 4 parts with equal areas. Example 2: Describe the area of each of 8 equal parts as 1/8 of the area of the shape.</i> 	
Key Concepts	Key Vocabulary
Understand concept of fractions to partition, shapes into equal areas and express the area of each part as a unit fraction of the whole, Analyze characteristics of polygons	fraction, numerator, denominator, equal area, polygon, characteristic, whole
Competencies	
<i>Describe what students should be able to do (key skills) as a result of this instruction</i>	
<ul style="list-style-type: none"> • Partition shapes into parts with equal areas • Express the area of each part as a unit fraction of the whole 	

2.4 Measurement, Data and Probability

Domain: (A) Measurement and Data	
Standard: CC.2.4.3.A.1 Solve problems involving measurement and estimation of temperature, liquid volume, mass or length.	
Anchor Descriptor: M03.D-M.1.2 Use the attributes of liquid volume, mass, and length of objects.	
<ul style="list-style-type: none"> • M03.D-M.1.2.1 Measure and estimate liquid volumes and masses of objects using standard units (cups [c], pints [pt], quarts [qt], gallons [gal], ounces [oz.], and pounds [lb]) and metric units (liters [l], grams [g], and kilograms [kg]). 	
<ul style="list-style-type: none"> • M03.D-M.1.2.2 Add, subtract, multiply, and divide to solve one-step word problems involving masses or liquid volumes that are given in the same units. 	
<ul style="list-style-type: none"> • M03.D-M.1.2.3 Use a ruler to measure lengths to the nearest quarter inch or centimeter. 	
Key Concepts	Key Vocabulary
Solve problems involving measurement and estimation of temperature, liquid volume, mass or length	cups [c], pints [pt], quarts [qt], gallons [gal], ounces [oz.], pounds [lb], metric units (liters [l], grams [g], and kilograms [kg]), add, subtract, multiply, divided, mass, liquid volume, quarter inch, centimeter, unit
Competencies	
<i>Describe what students should be able to do (key skills) as a result of this instruction</i>	
<ul style="list-style-type: none"> • Measure and estimate liquid volumes and masses of objects using standard units • Add, subtract, multiply, and divide to solve one-step word problems involving masses or liquid volumes that are given in the same units. • Use a ruler to measure lengths to the nearest quarter inch or centimeter. 	

2.4 Measurement, Data and Probability	
Domain: (A) Measurement and Data	
Standard: CC.2.4.3.A.2 Tell and write time to the nearest minute and solve problems by calculating time intervals.	
Anchor Descriptor: M03.D-M.1.1 Determine or calculate time and elapsed time.	
<ul style="list-style-type: none"> • M03.D-M.1.1.1 Tell, show, and/or write time (analog) to the nearest minute. 	
<ul style="list-style-type: none"> • M03.D-M.1.1.2 Calculate elapsed time to the minute in a given situation (total elapsed time limited to 60 minutes or less). 	
Key Concepts	Key Vocabulary
Tell and write time to the nearest minute and solve problems by calculating time intervals, Determine or calculate time and elapsed time (limited to 60 minutes or less) to the nearest minute	analog, elapsed time, minute, hour, minute hand, hour hand
Competencies	
<i>Describe what students should be able to do (key skills) as a result of this instruction</i>	
<ul style="list-style-type: none"> • Tell, show, and/or write time (analog) to the nearest minute. • Calculate elapsed time to the minute in a given situation (total elapsed time limited to 60 minutes or less) 	

2.4 Measurement, Data and Probability

Domain: (A) Measurement and Data	
Standard: CC.2.4.3.A.3 Solve problems and make change involving money using a combination of coins and bills.	
Anchor Descriptor: M03.D-M.1.3 Count, compare, and make change using a collection of coins and one-dollar bills.	
<ul style="list-style-type: none"> • M03.D-M.1.3.1 Compare total values of combinations of coins (penny, nickel, dime, quarter) and/or dollar bills less than \$5.00. • M03.D-M.1.3.2 Make change for an amount up to \$5.00 with no more than \$2.00 change given (penny, nickel, dime, quarter, and dollar). • M03.D-M.1.3.3 Round amounts of money to the nearest dollar. 	
Key Concepts	Key Vocabulary
Solve problems and make change involving money using a combination of coins and bills	make change, combination, penny, nickel, dime, quarter
Competencies	
<i>Describe what students should be able to do (key skills) as a result of this instruction</i>	
<ul style="list-style-type: none"> • Compare total values of combinations of coins (penny, nickel, dime, quarter) and/or dollar bills less than \$5.00 • Make change for an amount up to \$5.00 with no more than \$2.00 change given (penny, nickel, dime, quarter, and dollar) • Round amounts of money to the nearest dollar 	

2.4 Measurement, Data and Probability	
Domain: (A) Measurement and Data	
Standard: CC.2.4.3.A.4 Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.	
Anchor Descriptor: M04.D-M.3.1 Use appropriate tools and units to sketch an angle and determine angle measurements	
<ul style="list-style-type: none"> • M03.D-M.2.1.1 Complete a scaled pictograph and a scaled bar graph to represent a data set with several categories (scales limited to 1, 2, 5, and 10). • M03.D-M.2.1.2 Solve one-and two-step problems using information to interpret data presented in scaled pictographs and scaled bar graphs (scales limited to 1, 2, 5, and 10). <i>Example 1: (One-step) “Which category is the largest?” Example 2: (Two-step) “How many more are in category A than in category B?”</i> • M03.D-M.2.1.3 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Display the data by making a line plot, where the horizontal scale is marked in appropriate units—whole numbers, halves, or quarters. • M03.D-M.2.1.4 Translate information from one type of display to another. Limit to pictographs, tally charts, bar graphs, and tables. • <i>Example: Convert a tally chart to a bar graph.</i> 	
Key Concepts	Key Vocabulary
Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.	scaled pictograph, scaled bar graph, data, category, represent, interpret, tally chart, table, line plot
Competencies	
<i>Describe what students should be able to do (key skills) as a result of this instruction</i>	

- Complete a scaled pictograph and a scaled bar graph to represent a data set with several categories (scales limited to 1, 2, 5, and 10)
- Solve one-and two-step problems using information to interpret data presented in scaled pictographs and scaled bar graphs (scales limited to 1, 2, 5, and 10)
- Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch
- Display the data by making a line plot, where the horizontal scale is marked in appropriate units—whole numbers, halves, or quarters
- Translate information from one type of display to another. Limit to pictographs, tally charts, bar graphs, and tables

2.4 Measurement, Data and Probability

Domain: (A) Measurement and Data

Standard: CC.2.4.3.A.5 **Determine the area of a rectangle and apply the concept to multiplication and to addition.**

Anchor Descriptor: M03.D-M.3.1 Find the areas of plane figures.

M03.D-M.3.1.1 Measure areas by counting unit squares (square cm, square m, square in., square ft, and non-standard square units).

M03.D-M.3.1.2 Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.

Key Concepts

Determine the area of a rectangle and apply the concept to multiplication and to addition in real world and mathematical problems

Key Vocabulary

area, rectangle, unit square (cm., m., in., ft.), plane figures

Competencies

Describe what students should be able to do (key skills) as a result of this instruction

- Measure areas by counting unit squares (square cm, square m, square in., square ft, and non-standard square units)
- Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems
- Represent whole-number products as rectangular areas in mathematical reasoning

2.4 Measurement, Data and Probability

Domain: (A) Measurement and Data

Standard: CC.2.4.3.A.6 **Solve problems involving perimeters of polygons and distinguish between linear and area measures.**

Anchor Descriptor: M03.D-M.4.1 Find and use the perimeters of plane figures.

M03.D-M.4.1.1 Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, exhibiting rectangles with the same perimeter and different areas, and exhibiting rectangles with the same area and different perimeters. Use the same units throughout the problem.

Key Concepts

Solve problems involving perimeters of polygons and distinguish between linear and area measures

Key Vocabulary

perimeter, polygon, linear, area, units (cm., m., in., ft.)

Competencies

Describe what students should be able to do (key skills) as a result of this instruction

- Solve real-world and mathematical problems involving perimeters of polygons
- Finding the perimeter given the side lengths
- Finding an unknown side length
- Exhibiting rectangles with the same perimeter and different areas
- Exhibiting rectangles with the same area and different perimeters