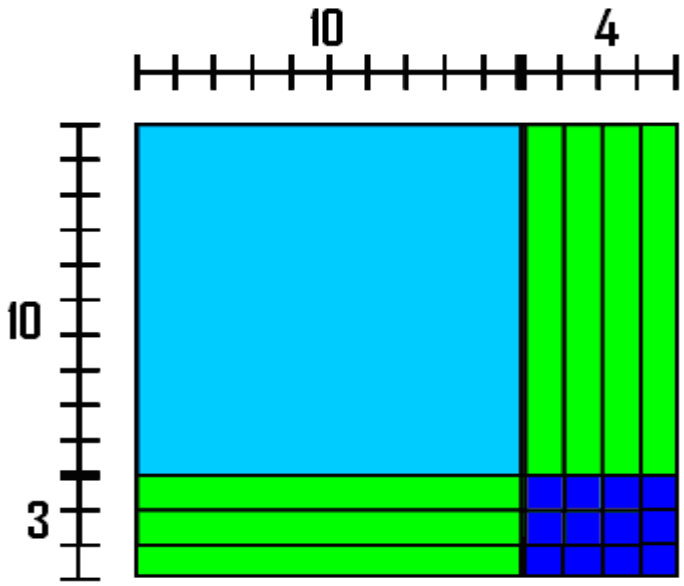
FLORIDA MATHEMATICS STANDARDS: GRADE 4

INSTRUCTIONS: At the end of your final 180 days of teaching, complete this checklist indicating a **mastered skill** by circling **M** or circle **W** for a **skill you are working on**. If you find a **skill you are not ready to tackle**, circle **NA**. Submit this checklist with a completed a Private School Covering Semester Report available at http://www.mycca.org/updates.htm. Completed checklists for subjects that students are taking through CCA group classes are not required.

Big Idea1: Develop quick recall of multiplication facts and related division facts and fluency with whole number multiplication.	
STATUS	**SKILL**
M W NA	Use and describe various models for multiplication in problem-solving situations, and demonstrate recall of basic multiplication and related division facts with ease. *Remarks/Examples*: Given real-world problems and accompanying models that include equal-sized groups, arrays, area, and equal intervals on the number line, students should be able to give the multiplication or division basic fact associated with the situation. The goal is to develop quick recall of multiplication facts and related division facts. Basic multiplication facts include the factors 0 through 9. Related division facts include divisors 1 through 9 and dividends 0-81.
M W NA	Multiply multi-digit whole numbers through four digits fluently, demonstrating understanding of the standard algorithm, and checking for reasonableness of results, including solving real-world problems. *Remarks/Examples*: Place value and properties of operations and numbers should play major roles in developing strategies for multiplying multi-digit whole numbers. For example, 13 x 14 can be thought of as (10 + 3) x (10 + 4). The Distributive Property can then be applied along with focus on decomposition of numbers to multiply 10 x 10 and 10 x 4 then 3 x 10 and 3 x 4. These partial products are added to find the product of 13 x 14. This process should be connected to the standard algorithm.  13 x 14 = (10 + 3) x (10 + 4) = 10 x 10 + 10 x 4 + 3 x 10 + 3 x 4

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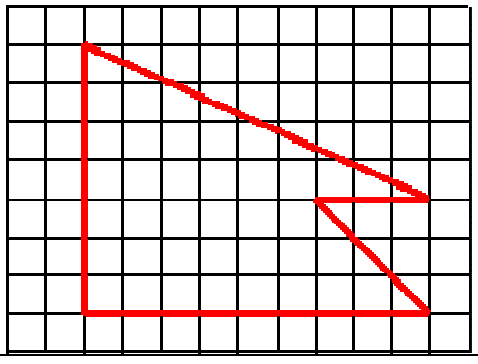
Big Idea2: Develop an understanding of decimals, including the connection between fractions and decimals.			
STATUS			SKILL
M	W	NA	Use decimals through the thousandths place to name numbers between whole numbers. *Remarks/Examples*: Students may use a place value mat to represent decimal numbers through the thousandths with objects, write the symbolic representation with numerals, and name the decimal represented with words. Students can identify decimal numbers on a number line, write the symbolic representation with numerals, and name the decimal value with words.
M	W	NA	Describe decimals as an extension of the base-ten number system. *Remarks/Examples*: By fourth grade, students should know that the relationship between adjacent places in whole numbers is described by a ten-to-one rule (…, 1000, 100, 10, 1, 0.1, 0.01,...). This relationship should be developed for decimals.
M	W	NA	Relate equivalent fractions and decimals with and without models, including locations on a number line. *Remarks/Examples*: Students can explore equivalency of fractions and decimals by using rulers. Models may include rulers, fraction circles, sets of similar objects, and drawings.
M	W	NA	Compare and order decimals, and estimate fraction and decimal amounts in real-world problems. *Remarks/Examples*: Measurements (e.g., lengths) and dollar amounts provide useful contexts for estimating in the real world. Students should understand the relationships and equivalencies between decimals and fractions. . A decimal number may have an equivalent fraction- one where the denominator is (or can be) a power of 10, at this grade level 10, 100, or 1000. They should also be able to represent 5ths as decimals (for example, 3/5= 0.6) and halves as decimals (for example, 7 ½ = 7.5).

Big Idea3: Develop an understanding of area and determine the area of two-dimensional shapes.			
STATUS			SKILL
M	W	NA	Describe and determine area as the number of same-sized units that cover a region in the plane, recognizing that a unit square is the standard unit for measuring area. *Remarks/Examples*: Geoboards, tiles, and grid paper provide helpful contexts for this exploration. The focus is on countable units rather than multiplying dimensions.
M	W	NA	Justify the formula for the area of the rectangle "area = base x height". *Remarks/Examples*: The students should be able to justify the formula for the area of the rectangle by explaining how counting units to find area of a rectangle is related to finding the area by multiplying. The idea of the area of a rectangle as "base x height" rather than "length x width" is useful in connecting to other area formulas.
M	W	NA	Select and use appropriate units, both customary and metric, strategies, and measuring tools to estimate and solve real-world area problems. *Remarks/Examples*: Students should recognize that the area of a piece of paper might be measured in square inches, the area of a room might be measured in square feet, and the area of a large piece of land might be measured in square miles. Alternately, these measurements might be in square centimeters, square meters, and square kilometers, respectively. Example: Students find the area of a composite shape. An L-shaped region may be decomposed into rectangular regions. Example: Find the area of the polygon in the picture. Explain or show how you found the area. 

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Supporting Idea4: Algebra

STATUS	SKILL
M W NA	Generate algebraic rules and use all four operations to describe patterns, including nonnumeric growing or repeating patterns. *Remarks/Examples*: Example 1: A number pattern is: 3, 6, 9, 12, 15, 18... What is an algebraic rule to describe the nth number in the pattern? Example 2: The triangle below is shape 1 and the square is shape 2. This same pattern continues, in which each shape has one more side than the previous shape. How many sides would shape n have, where n can be any natural number? How do you know? 
M W NA	Describe mathematics relationships using expressions, equations, and visual representations. *Remarks/Examples*: Example: Mr. Sims has 168 oranges. He wants to pack them into boxes with 28 in each box. How many boxes does he need? Use pictures or diagrams to show what is happening in the problem. Record your solution with equations. Example Alex is 4 years older than twice as old as Sam What expression gives Alex's age if you use the variable "*S* " to represent Sam's age?
M W NA	Recognize and write algebraic expressions for functions with two operations. *Remarks/Examples*: Regina received $50 from her grandmother as her birthday gift. Her grandfather told her that his Birthday gift will be to give her $5 each month, starting the month after her birthday. Regina decided to save her birthday gifts to buy her favorite music player. The table below illustrates the total amount of gift money that Regina will have received each month. Write an algebraic expression that can be used to show the total amount of money that Regina will have each month.

Month	0	1	2	…	n
Amount of Money	50	50 + 5	50+5 + 5	…	?

Supporting Idea5: Geometry and Measurement

STATUS	SKILL
M W NA	Classify angles of two-dimensional shapes using benchmark angles (i.e. 45°, 90°, 180°, and 360°) *Remarks/Examples*: Use pictures of real world objects or diagrams of shapes with angles and ask students to classify the given angles by using benchmark angles. Use protractor to draw the angles of 45, 90, 180, and 360 degrees.
M W NA	Identify and describe the results of translations, reflections, and rotations of 45, 90, 180, 270, and 360 degrees, including figures with line and rotational symmetry. *Remarks/Examples*: Paper folding, mirrors, and computer technology may be helpful in developing student understanding of these concepts. Simple tessellation of plane may provide engaging opportunities for practice.
M W NA	Identify and build a three-dimensional object from a two-dimensional representation of that object and vice versa. *Remarks/Examples*: Example: A cylinder is composed of 2 bases (circles) & a rectangle. A cube is composed of six squares. A sphere is not easily decomposed into basic two dimensional shapes. Provide nets for students to construct 3-dimensional objects. Challenge students to create their own nets using grid paper.

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Supporting Idea6: Number and Operations	
STATUS	SKILL
M W NA	Use and represent numbers through millions in various contexts, including estimation of relative sizes of amounts or distances. *Remarks/Examples*: Students should recognize the difference between distances such as 100 feet and 1,000 feet or 10 km and 200 cm.
M W NA	Use models to represent division as: • the inverse of multiplication • as partitioning • as successive subtraction *Remarks/Examples*: The inverse of multiplication: 4 x 45 = 180, 180 ÷ 4 = 45, and 180 ÷ 45 = 4. Partitioning: We can share 180 things (possibly represented by base-ten blocks) evenly among 4 groups and determine the number of items in each group. Successive subtraction: We can find the quotient of 180 ÷45 by repeatedly subtracting 45 and counting the number of groups of 45 subtracted before reaching zero. The area model is a useful model for exploring the inverse relationship between multiplication and division.
M W NA	Generate equivalent fractions and simplify fractions. *Remarks/Examples*: Earlier work with models of equivalent fractions in grade 3 should help students to develop conceptual understanding for the rules for generating equivalent fractions and simplifying fractions.
M W NA	Determine factors and multiples for specified whole numbers. *Remarks/Examples*: Multiples and factors should be explored as students determine common denominators for fractions. Use models to identify square numbers to 100. Example: You have 28 chairs. Show all of the ways you can arrange these chairs into arrays. Draw the arrays. Record the dimensions of the arrays.
M W NA	Relate halves, fourths, tenths, and hundredths to decimals and percents. *Remarks/Examples*: Relate common fractions to equivalent decimals and percents such as: 1/4 = 0.25 = 25%. These representations should be related through both models and symbols.
M W NA	Estimate and describe reasonableness of estimates; determine the appropriateness of an estimate versus an exact answer. *Remarks/Examples*: An example in which an estimate is more appropriate than an exact answer is in estimating the amount of food needed for a party. You know the number of people you invited, but still you need to estimate the amount of food and drink to buy.