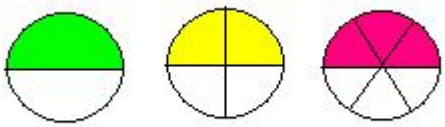
Grade: 3

Big Idea1: Develop understandings of multiplication and division and strategies for basic multiplication facts and related division facts.	
BENCHMARK CODE	**BENCHMARK**
MA.3.A.1.1	Model multiplication and division including problems presented in context: repeated addition, multiplicative comparison, array, how many combinations, measurement, and partitioning. *Remarks/Examples*:Repeated addition: 4 bags of cookies with 8 in each bag. How many cookies are there? Multiplicative comparison: Sam has 8 baseball cards. Elise has 8 times as many. How many does Elise have? Array: A marching band has 8 rows with 7 students in each row. How many band members are marching? Combination: Patrick is getting dressed for school. He has 4 different colored shirts; blue, red, yellow and green. He has blue, tan and black shorts. How many combinations of a shirt and a pair of shorts can he make? Measurement: There are 35 bugs. You will put 5 bugs in each jar. How many jars will you need? Partitive: You have 72 coins and 9 jars. If you want to place an equal number of coins in each jar, how many coins will you put in each jar? *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
MA.3.A.1.2	Solve multiplication and division fact problems by using strategies that result from applying number properties. *Remarks/Examples*:The use of multiple strategies might incorporate the following number properties: The Commutative Property, Associative Property, Distributive Property, and the Identity Property. For example, 8 x 6 can be solved by finding 4 x 6 then doubling the product. This strategy uses the Associative Property in that 8 x 6 = 2 x (4 x 6). The Distributive Property is applied to 7 x 8 when we find 5 x 8 and add it to 2 x 8. 7 x 8 = (5 + 2) x 8 = (5 x 8) + (2 x 8). Example: 14 x 5 can be solved as follows. (10+4) x 5= (10 x 5) + (4 x 5) = 50 + 20 = 70. Example: 19 x 5 = (20 -1) x 5 = (20 x 5) - (5 x 1) = 100 - 5 = 95. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
MA.3.A.1.3	Identify, describe, and apply division and multiplication as inverse operations. *Remarks/Examples*:Example: Twenty-four children are going to the circus in 6 cars. How

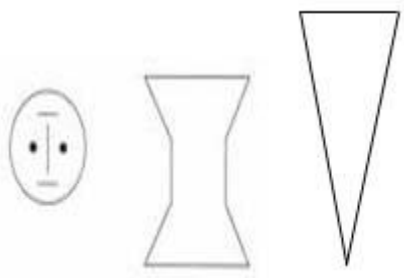
	many children can ride in each car, with the same number of children in each car? Which of the following number sentences can be used to solve this problem? a) 24 - 6 = __ b) 24 + 6 = __ c) __ ÷ 6 = 24 d) 6 x __ = 24 *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea2: Develop an understanding of fractions and fraction equivalence.

BENCHMARK CODE	BENCHMARK
MA.3.A.2.1	Represent fractions, including fractions greater than one, using area, set and linear models. *Remarks/Examples*:Examples of area models include circular and rectangular shapes. Area models can also be represented by more unusual shapes. Examples of set models include groups of objects such as counters. Linear models refer to the number line and fraction strips. Example: Arvin ate ½ of a pizza. April ate ½ of a pizza. Arvin claimed that he ate more pizza than April did. Show that Arvin's claim can be correct. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
MA.3.A.2.2	Describe how the size of the fractional part is related to the number of equal sized pieces in the whole. *Remarks/Examples*:For instance, "As the number of equal parts increases, the size of each fractional part decreases." Fractions can also be compared by looking at numerators, such as when comparing 1/5 and 1/6. Since both fractions represent one part of a whole, the size of the parts can be compared. Fifths are larger than sixths so 1/5 is greater than 1/6. *Cognitive Complexity/Depth of Knowledge Rating:* High
MA.3.A.2.3	Compare and order fractions, including fractions greater than one, using models and strategies. *Remarks/Examples*:Strategies include using benchmark fractions and common numerators and denominators. Typical benchmarks for comparing fractions are 0, , 1/2, and 1. Fractions can also be compared by looking at numerators, such as when comparing 2/5 and 2/6. Since both fractions represent two parts of a whole, the size of the parts can be compared. Fifths are larger than sixths so 2/5 is greater than 2/6. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
MA.3.A.2.4	Use models to represent equivalent fractions, including fractions greater than 1, and identify representations of equivalence. *Remarks/Examples*:Example: Use your fraction circle set to come up with different combination of the same sized pieces that represent 1/2 of a circle.

	 $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$ *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Big Idea3: Describe and analyze properties of two-dimensional shapes.	
BENCHMARK CODE	**BENCHMARK**
MA.3.G.3.1	Describe, analyze, compare and classify two-dimensional shapes using sides and angles - including acute, obtuse, and right angles - and connect these ideas to the definition of shapes. *Remarks/Examples*:Polygonal shapes can be classified by the number of sides. For example, quadrilaterals are polygons with four sides. Quadrilaterals can be further classified by other properties, such as the number of parallel pairs of sides (none, one pair or two pair). In the case of two pair of parallel sides, we call it a parallelogram. Note: Angles are classified by comparing them to a right angle as a benchmark. Students should be familiar with the geometric term "diagonal." *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
MA.3.G.3.2	Compose, decompose, and transform polygons to make other polygons, including concave and convex polygons with three, four, five, six, eight, or ten sides. *Remarks/Examples*:Example: With pattern blocks, a trapezoid and a triangle can be combined to form a parallelogram or a large triangle. Also, the hexagon can be decomposed to form two trapezoids, and so forth. Example: One can cut a triangle off of a parallelogram so that, when translated and attached to the other side, the parallelogram becomes a rectangle. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate
MA.3.G.3.3	Build, draw and analyze two-dimensional shapes from several orientations in order to examine and apply congruence and symmetry. *Remarks/Examples*:Example: Draw a line of symmetry for each of the following:

	 Symmetry mainly includes reflectional symmetry at grade 3. Students should explore that reflectional symmetry produces congruent shapes. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Supporting Idea4: Algebra

BENCHMARK CODE	BENCHMARK
MA.3.A.4.1	Create, analyze, and represent patterns and relationships using words, variables, tables and graphs. *Remarks/Examples*: Example: Look at the pattern below. Tell in your own words what shape is missing. Explain.  A possible answer would be a seven sided regular polygon because the number of side is increasing by one from left to right. Another possible answer is some polygon with pointy top because the pattern in the top of the shapes is pointy, flat, pointy, flat,... Example: In the sequence of shapes below, the triangle is shape 1 and the square is shape 2. How many sides would the 10^{th} shape have? How do you know?  *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Supporting Idea5: Geometry and Measurement

BENCHMARK CODE	BENCHMARK
MA.3.G.5.1	Select appropriate units, strategies and tools to solve problems involving perimeter. *Remarks/Examples*:Example: Find the perimeter of a football field.

	Cognitive Complexity/Depth of Knowledge Rating: Moderate
MA.3.G.5.2	Measure objects using fractional parts of linear units such as 1/2, 1/4, and 1/10. *Cognitive Complexity/Depth of Knowledge Rating:* Low
MA.3.G.5.3	Tell time to the nearest minute and to the nearest quarter hour, and determine the amount of time elapsed. *Remarks/Examples*:Elapsed time may include days, weeks, months, years, decades, and centuries. *Cognitive Complexity/Depth of Knowledge Rating:* Moderate

Supporting Idea6: Number and Operations

BENCHMARK CODE	BENCHMARK
MA.3.A.6.1	Represent, compute, estimate and solve problems using numbers through hundred thousands. *Remarks/Examples*: Instructional focus should be placed on estimation through mental computation prior to written calculations. Students should be able to represent numbers with flexibility. For instance, 947 can be thought of as 9 hundreds 4 tens 7 ones, or as 94 tens 7 ones, or as 8 hundreds 14 tens 7 ones. *Cognitive Complexity/Depth of Knowledge Rating:* Low
MA.3.A.6.2	Solve non-routine problems by making a table, chart ,or list and searching for patterns. *Remarks/Examples*:Example: A frog in a pit tries to go out. He jumps 3 steps up and then slides 1 step down. If the height of the pit is 21 steps, how many jumps does the frog need to make? Example: Show 5 different combinations of US coins that total 53¢. Example: The 24 chairs in the classroom are arranged in rows with the same number of chairs in each row. List all of the possible ways the chairs can be arranged. *Cognitive Complexity/Depth of Knowledge Rating:* High

Supporting Idea7: Data Analysis

BENCHMARK CODE	BENCHMARK
MA.3.S.7.1	Construct and analyze frequency tables, bar graphs, pictographs, and line plots from data, including data collected through observations, surveys, and experiments. *Remarks/Examples*:Use of addition, subtraction, multiplication, and division of whole

	numbers should be included during this process. At this grade level, students might analyze graphs with words such as most, least, minimum, and maximum to provide a conceptual foundation for the more formal terms such as mode and range that they will learn in later grades. The collected data and the intent of the data collection should help to determine the choice of data display. *Cognitive Complexity/Depth of Knowledge Rating:* High