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| **Standard Division Document Aligned with NC Check-In**  **School Year 2017-2018**  **Course: Fifth Grade Math**  ***NOTE: The SDDs were updated based upon principal input to follow the NCDPI NC Check-Ins for this subject/grade. Revised July 19, 2017.***  Standards Expected to be Assessed During each NC Check-In are highlighted.    Please refer to chart and information on the last page of the document regarding important notes on the NC Check-In Assessments. | | | |
| First Nine Weeks Standards:  **5. OA. 1**  Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.  **5.OA. 2**  Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.  **5. OA. 3**  Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.  **5.NBT.1**  Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.  **5.NBT.2**  Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.  **5.NBT.3**  Read, write, and compare decimals to hundredths.  **5.NBT.3A**  Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392=3 x 100 + 4 x 10 + 7 x 1 + 3 x (1/10) + 9 x (1/100) + 2 x (1/1000)  **5.NBT.3B**  Compare two decimals to thousandths based on meanings of the digits in each place, using >, +, and < symbols to record the results of comparisons.  **5.NBT.4**  Use place value understanding to round decimals to any place.  **5.NBT.5 (Moved from 4th 9 weeks)**  Fluently multiply multi-digit whole numbers using the standard algorithm.  **5.NF.3 (Added to 1st 9 weeks and is also taught in 2nd 9 weeks)**  Interpret a fraction as division of the numerator by the denominator *(a/b=a÷ b).* Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.  **5.MD.5 (Moved from 4th 9 weeks)**  Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.  **5.MD.5A(Moved from 4th 9 weeks)**  Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent three-fold whole-number products as volumes, e.g., to represent the associative property of multiplication.  **5.MD.5B (Moved from 4th 9 weeks)**  Apply the formulas *V=l* *x w x h* and *V=b X h* for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.  **5.MD.5C (Moved from 4th 9 weeks)**  Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems. | Second Nine Weeks Standards:  **5. OA.1**  Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.  **5.OA.2**  Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.  **5.OA. 3**  Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.    **5.NBT.6**  Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.  **5.NBT.7**  Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. (Assessed in addition and subtraction only)  **5.NF.1**  Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.  **5.NF.2 (Also taught 3rd 9 weeks)**  Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use the benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.  **5.NF.3 (Added to 1st 9 weeks and is also taught in 2nd 9 weeks)**  Interpret a fraction as division of the numerator by the denominator *(a/b=a÷ b).* Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem.  **5. NF.4**  Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.  **5.NF.4A**  Interpret the product *(a/b) x q* as a parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a x q ÷ b*.  **5.NF.4B**  Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.  **5.NF.5**  Interpret multiplication as  scaling (resizing), by:  **5.NF.5A**  Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.  **5.NF.5**  Interpret multiplication as  scaling (resizing), by:  **5.NF.5B**  Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence *a/b=(n x a)/(n x b)* to the effect of multiplying a/b by 1.  **5. OA.1**  Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.  **5.OA.2**  Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.  **5.OA.3**  Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.  **5. NF.4**  Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.  **5.NF.4A**  Interpret the product *(a/b) x q* as a parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a x q ÷ b*.  **5.NF.4B**  Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.  **5.NF.5**  Interpret multiplication as scaling (resizing), by:  **5.NF.5A**  Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.  **5.NF.5**  Interpret multiplication as  scaling (resizing), by:  **5.NF.5B**  Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence *a/b=(n x a)/(n x b)* to the effect of multiplying a/b by 1.  **5.NF. 6**  Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.  **5.NF.7**  Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.  **5.NF.7A**  Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.  **5.NF.7B**  Interpret division of a whole number by a unit fraction, and compute such quotients.  **5.NF.7C**  Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. | Third Nine Weeks Standards:  **5. OA.1**  Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.  **5.OA.2**  Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.  **5.OA.3**  Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.  **5.NBT.7 (Added to 3rd 9 weeks)**  Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.  **5.NF.2 (Added to 3rd 9 weeks; also taught in 2nd 9 weeks)**  Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use the benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.  **5. NF.4**  Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.  **5.NF.4A**  Interpret the product *(a/b) x q* as a parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a x q ÷ b*.  **5.NF.4B**  Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.  **5.NF.5**  Interpret multiplication as scaling (resizing), by:  **5.NF.5A**  Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.  **5.NF.5**  Interpret multiplication as  scaling (resizing), by:  **5.NF.5B**  Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence *a/b=(n x a)/(n x b)* to the effect of multiplying a/b by 1.  **5.NF. 6**  Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.  **5.NF.7**  Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.  **5.NF.7A**  Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.  **5.NF.7B**  Interpret division of a whole number by a unit fraction, and compute such quotients.  **5.NF.7C**  Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. | Fourth Nine Weeks Standards:  **5.OA.1**  Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.  **5.OA.2**  Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.  **5.OA.3**  Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.  **5.MD.1**  Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.  **5.MD. 2**  Make a line plot to display a data set of measurements in fractions of a unit (1/2, ¼, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots.  **5.MD.3**  Recognize volume as an attribute of solid figures and understand concepts of volume measurement.  **5.MD.3A**  A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.  **5.MD.3B**  A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of (*n*) cubic units.  **5.MD.4**  Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.  **5.MD.5A**  Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent three-fold whole-number products as volumes, e.g., to represent the associative property of multiplication.  **5.MD.5B**  Apply the formulas *V=l* *x w x h* and *V=b X h* for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.  **5.MD.5C**  Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.  **5.G.1**  Use a pair of perpendicular number lines, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis, and *y*-coordinate).  **5.G.2**  Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.  **5.G.3**  Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.  **5.G.4**  Classify two-dimensional figures in a hierarchy based on properties. |

**Further Important Information regarding NC Check-Ins**

The NC Check-Ins are administered throughout the school year to provide teachers and parents with immediate feedback for guiding subsequent instruction. The NC Check-Ins will be offered for grades 5-7 English/Language Arts/reading and grades 4-6 Mathematics. Assessment specifications meetings for grade 4 were held in June 2015 and in June 2016. The NCDPI/Test Development Section invited North Carolina teachers and educators to collaborate and develop recommendations for standards to be assessed, indicating the relative important of each standard, the anticipated instructional time, and the appropriateness of the standard for different questions types for 2015-2016 Proof of Concept Study and for the 2016-2017 NC Check-In. Assessment specifications meets for grades 4 and 6 mathematics were held in March and April of 2017 to collaborate and develop recommendations for the 2017-2018 NC Check-ins. The NC Check-ins are aligned to the NC Standards Course of Study (NCSCS) for Mathematics adopted by the North Carolina State Board of Education in June 2010.

Students will see four response-option, multiple-choice questions and gridded response questions Each question is worth 1 point. Each NC Check-In will generate student-level reports indicating the number of items correct by content standard, item type, and selection type, and will report an overall score. Teacher-level reports will provide a summary with similar information. Parents will receive student reports with an overall score by standard and item number. Students will not receive achievement levels for the NC Check-Ins. Following the administration of an NC Check-In, teachers have access to the materials for up to five weeks. Teachers may use the materials for reviews with students, and parents may view the materials, but only within the school setting. The teacher may share with parents their student’s scores on the items through customary communication (i.e., individual parent/teacher conferences at the school). Parents may not have copies of the NC Check-In items or materials, nor take pictures of any part of the materials.

The chart below provides the Standards to be assessed and the format for each NC Check-In by grade level. Please also note that the dates for the assessments have been added.

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| **Grade 5 Mathematics**  **NC Check-In Assessed Standards & Assessment Format**  **2017-2018** | | | |
| **NC Check-In 1**  **October 23-27**  **(Year-Round & Traditional)** | **NC Check-In 2**  **January 8-12 (Year-Round)**  **January 25-31 (Traditional)** | | **NC Check-In 3**  **March 5-9 (Year-Round)**  **March 19-23 (Traditional)** |
| 5.NBT2  5.NBT5  5.MD.5  5.NF.3 | 5.NF.1  5.NF2  5.NF.3  5.NBT.6  5.NBT.7  (addition and subtraction only) | | 5.NF,2  5.NF.4  5.NF.6  5.NF.7  5.NBT.7 |
| Question Type | | Multiple Choice & Gridded Response | |
| Number of Questions | | 21 MC & 4 GR` | |
| Number of Calculator Inactive Questions | | 8 MC & 4 GR | |
| Number of Calculator Active Questions | | 13 MC & 0 GR | |