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| **Standard Division Document Aligned with NC Check-In**  **School Year 2017-2018**  **Course: Fourth 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:  **4.OA.1**  Interpret a multiplication equation as a comparison, e.g., interpret 35=5x7 as a statement 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.  **4.OA.2**  Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.  **4.OA.3**  Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (Assessed in addition and subtraction only on NC Check-in 1)  **4.OA.5**  Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.    **4.NBT.1**  Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.  **4.NBT.2**  Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.  **4.NBT.3**  Use place value understanding to round multi-digit whole numbers to any place.  **4.NBT.4**  Fluently add and subtract multi-digit whole numbers using the standard algorithm.  **4.NBT.5 (Moved from 2nd 9 weeks)** Multiply a whole number of up to digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations.  **4.NBT.6 (Added to 1st 9 weeks- also taught 2nd 9 weeks)**  Find whole-number quotients and remainders with up to four-digit dividends and one-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.  **4.NF.3A**  Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.  **4.NF.3B**  Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. | Second Nine Weeks Standards:  **4.OA.3**  Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.  **4.OA.4**  Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.  **4.OA.5**  Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.  **4.NF.1 (Added to 2nd 9 weeks – also taught in 3rd 9 weeks)**  Explain why a fraction *a/b* is equivalent to a fraction (*n x a*) (*n x b*) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.  **4.NF.1 (Moved from 3rd 9 weeks)**  Explain why a fraction *a/b* is equivalent to a fraction (*n x a*) (*n x b*) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.  **4.NF.2 (Moved from 3rd 9 weeks)**  Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.  **4.NBT.6**  Find whole-number quotients and remainders with up to four-digit dividends and one-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.  **INTRODUCE GEOMETRY AND MEASUREMENT CONCEPTS BELOW AND SPIRAL UNTIL THE 4TH NINE WEEKS**  **4.MD.3 (Moved from 3rd 9 weeks)**  Apply the area and perimeter formulas for rectangles in real world and mathematical problems.  **4.MD.5**  Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.  **4.MD.5A** An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a “one-degree angle,” and can be used to measure angles.  **4.MD.5B**  An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.  **4.MD.6**  Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.  **4.MD.7**  Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.  **4.G.1**  Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.  **4.G.2**  Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.  **4.G.3**  Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. | Third Nine Weeks Standards:  **4.OA.5**  Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.  **4.NF.1**  Explain why a fraction *a/b* is equivalent to a fraction (*n x a*) (*n x b*) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.  **4.NF.2**  Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.  **4.NF.3**  Understand a fraction *a/b* with *a*>1 as a sum of fractions 1/*b*.  **4.NF.3A**  Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.  **4.NF.3B**  Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.  **4.NF.3C**  Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.  **4.NF.3D**  Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.  **4.NF.4**  Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.  **4.NF.4A**  Understand a fraction *a/b* as a multiple of 1/*b.*  **4.NF.4B**  Understand a multiple of *a/b* as a multiple of 1/*b*, and use this understanding to multiply a fraction by a whole number.  **4.NF.4C**  Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.  **4.NF.5**  Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.  **4.NF.6**  Use decimal notation for fractions with denominators 10 or 100.  **4.NF.7**  Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using the visual model.  **4.MD.1 (Moved from 2nd 9 weeks)**  Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz; ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.  **4.MD.3**  Apply the area and perimeter formulas for rectangles in real world and mathematical problems.  **4.MD.4**  Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots.  **CONTINUING TO SPIRAL GEOMETRY AND MEASUREMENT CONCEPTS BELOW FROM 2nd NINE WEEKS**  **4.MD.5**  Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.  **4.MD.5A** An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a “one-degree angle,” and can be used to measure angles.  **4.MD.5B**  An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.  **4.MD.6**  Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.  **4.MD.7**  Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.  **4.G.1**  Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.  **4.G.2**  Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.  **4.G.3**  Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. | Fourth Nine Weeks Standards:  **4.OA.3**  Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.  **4.OA.5**  Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.  **4.MD.2**  Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.  **CONTINUING TO SPIRAL GEOMETRY AND MEASUREMENT CONCEPTS BELOW FROM 3rd NINE WEEKS**  **4.MD.5**  Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.  **4.MD.5A** An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a “one-degree angle,” and can be used to measure angles.  **4.MD.5B**  An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.  **4.MD.6**  Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.  **4.MD.7**  Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.  **4.G.1**  Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.  **4.G.2**  Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.  **4.G.3**  Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. |

**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. 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 4 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)** |
| 4.NBT.2  4.NBT.5  4.NBT.6  4.OA.2  4.OA.3  (Addition and Subtraction only | 4.G.2  4.NBT.6  4.NF.1  4NF.2  4.MD.3  4.OA.3 | 4.G.1  4.NF.1  4NF.3  4.NF.4  4.NF.5  4.MD.1 |
| Question Type | Question Type | |
| Multiple Choice | Multiple Choice | |
| Number of Questions | Number of Questions | |
| 20 | 25 | |
| Number of Calculator Inactive Questions | Number of Calculator Inactive Questions | |
| 20 | 12 | |
| Number of Calculator Active Questions | Number of Calculator Active Questions | |
| 0 | 13 | |