NJDOE MODEL CURRICULUM			
CONTENT AREA: Mathematics	**GRADE: 4**	**UNIT: # 2**	**UNIT NAME: Compute with Multi-digit Whole Numbers and Define Equivalent Fractions**

#	STUDENT LEARNING OBJECTIVES	CORRESPONDING CCSS
1	**Compose equations from information supplied in word problems (with all 4 operations) using letters to represent unknowns (without solving).**	**4.OA.3**
2	Use strategies to multiply multi-digit numbers and explain the answer using equations, rectangular arrays, and area models (up to 4-digits by 1-digit or 2-digits by 2-digits).	4.NBT.5
3	Use strategies to divide multi-digit dividends by one-digit divisors and explain the answer using equations, rectangular arrays, and area models.	4.NBT.6
4	Recognize and generate equivalent fractions and explain why they are equivalent using visual fraction models.	4.NF.1
5	Compare two fractions with different numerators and different denominators using >, <, and = and justify the comparison by using visual fraction models (recognizing the comparison is valid only when two fractions refer to the same whole).	4.NF.2
6	Determine if a number between 1 and 100 is a prime or composite number	4.OA.4
7	Find all factor pairs for a whole number up to 100 and determine whether it is a multiple of a given 1-digit whole number.	4.OA.4

Major Content **Supporting Content** **Additional Content** (Identified by PARCC Model Content Frameworks).
Bold type indicates grade level fluency requirements. *(Identified by PARCC Model Content Frameworks).*

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Selected Opportunities for Connection to Mathematical Practices

1. **Make sense of problems and persevere in solving them.**
   SLO #1 Explain correspondences among equations involving all four operations in word problems.
2. **Reason abstractly and quantitatively.**
   SLO #1 Use quantitative reasoning that involves creating a coherent representation of equations from word problems.
   SLO #4 Understand and make sense of equivalent fractions' quantities and their relationships.
   SLO #5 Understand and make sense of fraction quantities with different numerators and denominators in order to compare them.
3. **Construct viable arguments and critique the reason of others.**
   SLO #4 Understand and use stated assumptions and definitions about fractions in order to recognize and generate equivalent fractions.
   SLO #4 Be able to communicate and justify conclusions made about equivalent fractions.
4. **Model with mathematics.**
   SLO #1 Apply and use previously learned concepts about equations and word problems to compose an equation from a word problem.
   SLO #5 Map the relationship between fractions with different numerators and denominators using tools.
5. **Use appropriate tools strategically.**
   SLO #2 Consider and use available tools, such as rectangular arrays and area models, when multiplying multi-digit numbers.
   SLO #3 Consider and use available tools, such as rectangular arrays and area models, when using equations in division.
   SLO #4 Consider and use available tools, such as visual fraction models, when working with equivalent fractions.
6. **Attend to precision.**
   SLO #2 Calculate multiplication of multi-digit numbers accurately and efficiently and be able to explain the solution.
   SLO #3 Calculate division of multi-digit dividends by one-digit divisors accurately and efficiently and be able to explain the solution.
   SLO #4 Be able to precisely communicate why fractions are equivalent.
   SLO #5 State the meaning of the symbols <, >, or = when comparing two fractions with different numerators and denominators.
7. **Look for and make use of structure.**
   SLO #6 Look for and discern patterns to determine prime numbers between 1 and 100.
   SLO #7 Look for and discern patterns to determine factor pairs and multiples of whole numbers up to 100.
8. **Look for and express regularity in repeated reasoning.**
   SLO #6 Look for and express regularity in repeated reasoning when determining prime numbers between 1 and 100.
   SLO #7 Look for and express regularity in repeated reasoning when determining factor pairs and multiples of whole numbers.

Bold type identifies possible starting points for connections to the SLOs in this unit.

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Code #	Common Core State 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.NBT.5	Multiply a whole number of up to four 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, rectangular arrays, and/or area models.
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.
4.NF.1	Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × 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. (Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100).
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 1/2. 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.

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