Mathematics
Unit 2: Computation

Essential Understandings	▪ Mathematics is a language. ▪ Computation can be used to solve problems. ▪ Operations create relationships between numbers.
Essential Questions	▪ Why does one need to multiply? ▪ Why does one need to divide? ▪ What strategies aid in mastering multiplication and division facts? ▪ What is the relationship between multiplication and division? ▪ What numbers or symbols are needed to make number sentences true? ▪ How can a number be broken down into its smallest factors? ▪ How can multiples be used to solve problems? ▪ How does one find the prime factors and multiples of a number? ▪ How are repeated addition and multiplication related?
Essential Knowledge	▪ Knowing basic multiplication and division facts allows one to work flexibly, efficiently, and accurately. ▪ Multiplication and division can be used to solve problems. ▪ Fraction names and symbols are used to describe fractional parts of whole objects or sets of objects. ▪ Estimation is used to determine the reasonableness of results. ▪ Patterns exist in related fact families. ▪ There is a relationship between multiplication and division. ▪ One must select the correct type of computation needed to solve word problems. ▪ Multiplication can be represented in different ways.
Vocabulary	▪ <u>Terms</u>: o GCF, LCM, ratio

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Essential Skills	▪ Identify, explain, and use terms: factor, multiple, product. (R, A ▪ Identify, explain, and use terms: dividend, divisor, quotient, and remainder. (R, A) ▪ Identify products and their related division facts (3s, 4s, 6s, 7s, 8s, 9s). to 100 with automaticity in vertical and horizontal form (I, R, A) ▪ Identify products and their related division facts to 144 (3s, 4s, 5s, 6s, 7s, 8s, 9s, 11s, 12s). (R, A) ▪ Multiply up to four digit numbers by a single-digit number. (I, R, A) ▪ Multiply three digit numbers by two-digit numbers. (I, R, A) ▪ Divide whole numbers up to four digits by a single-digit number and by 10 (remainders may be present). (I, R, A) ▪ Use estimation to determine the reasonableness of an answer. (R, A) ▪ Recognize the relationship between repeated subtraction and division, and the relationship between multiplication and division. (R, A) ▪ Use basic properties of numbers (associative and commutative). (R, A) ▪ Write fact families with products $\leq$ 144 and the related division fact. (A) ▪ Distinguish between important and unimportant information when solving one-step and two-step word problems. (R) ▪ Determine which operation is necessary to effectively solve a one-step and two-step story problem and explain why. (R) ▪ Solve one-step and two-step word problems using basic operations with whole numbers. (R) ▪ Write and solve two-step real life problems using basic operations with whole numbers. (I, R) ▪ Create a word problem for a given number sentence using all operations. (I, R) ▪ Find the greatest common factor (GCF) and least common multiple (LCM) to 100. (I) ▪ Identify and write the missing operation when given incomplete number sentences. (R) ▪ Use related facts (x and ÷) to prove that a product or quotient is accurate. (R) ▪ Add and subtract fractions with like denominators using area, set, and length models. (I, R, A) ▪ Use repeated addition to multiply a unit fraction by a whole number using area, set, and length models. (I) ▪ Add and subtract decimals to the hundredths using area, set, and length models. (I, R, A) ▪ Multiply and divide decimals to the hundredths by a one-digit whole number using area, set, and length models. (I, R, A)

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Related Maine Learning Results	A. Number Whole Number A2.Students understand and use the concepts of multiple and factor. a. Determine if a single-digit number is a factor of a given whole number. b. Determine if a whole number is a multiple of a single-digit number. c. List the first ten multiples of a given number. Whole Number A3.Students understand and use procedures to multiple and divide whole numbers by two-digit numbers. a. Multiply up to four-digit numbers by a single-digit number. b. Multiply three digit numbers by two-digit numbers. c. Divide whole numbers up to four digits by a single-digit number and by ten (remainders may be present). A4.Students understand, name, compare, illustrate, combine, and use fractions. a. Add and subtract fractions with like denominators and use repeated addition to multiply a unit fraction by a whole number. A5.Students understand and use number notation and place value in numbers with two decimal places in real-world contexts including money. a. Add and subtract decimals with up to two decimal places. c. Multiply and divide decimal with up to two decimal places by a one-digit whole number.
NECAP	NECAP Number and Operations M (N & O) 4 – 3 Demonstrates conceptual understanding of mathematical operations by describing or illustrating the relationship between repeated subtraction and division.