

SAU 50
Grade 3
Mathematics
Operations and Algebraic Thinking
Numbers and Operations in Base 10

Operations: multiply and divide within 100; use properties of operations to perform multi-digit arithmetic.

Algebraic Thinking: solve problems involving multiplication and division; understand properties of multiplication.

SAU 50 District Competency:

Students will independently use their learning to use strategies to explain the solution to a problem with precision and reasonableness.

Essential Questions

- How do mathematical strategies help us solve everyday problems?
- How do the four operations relate to one another?
- Why are mathematical operations important?
- How do mathematical operations relate to each other?

Acquisition

Students will demonstrate the following to meet the standards.

- I can show through pictures, numbers, or words how addition and multiplication are alike.
- I can fill in a missing number to make a number sentence true.
- I can use multiplication and division word problems that involve equal groups, arrays, and area with products up to 100 by using drawings and equations with a symbol for the unknown number.
- I can fill in a missing number to make an equation true involving multiplication or division.
- I can apply property of operations as strategies to multiply and divide.
- I can fluently multiply and divide within 100 using strategies.
- I can assess the reasonableness of answers using mental computation and estimation strategies including rounding.
- I can solve two-step word problems using addition, subtraction, multiplication, and division.
- I can identify arithmetic patterns and explain them using properties of operations.

- I can round to the nearest 10 and 100.
- I can add and subtract within 1000 with regrouping and borrowing.
- I can multiply any 1 digit whole number by 10.

Standards

NH College and Career Ready Standards

Key to Standard Notation:

3.OA.1: 3 (*grade level*) **OA** (*domain: Operations and Algebraic Thinking*) **NBT** (*domain: Numbers and Operations in Base 10*) **1** (*number of the standard*)

Operations and Algebraic Thinking

Represent and solve problems involving multiplication and division.

3.OA.1: Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each.

3.OA.2: Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.

3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, by using drawings and equations with a symbol for the unknown number to represent the problem.

3.OA.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

Understand properties of multiplication and the relationship between multiplication and division.

3.OA.5: Apply properties of operations as strategies to multiply and divide. (commutative property of multiplication, associative property of multiplication, and distributive property)

3.OA.6: Understand division as an unknown-factor problem.

Multiply and divide within 100.

3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division, or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Solve problems involving the four operations, and identify and explain patterns in arithmetic.

3.OA.8: Solve two-step word problems using the four operations. 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.

3.OA.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.

Numbers and Operations in Base Ten

Use place value understanding and properties of operations to perform multi-digit arithmetic.

3.NBT.1: Use place value understanding to round whole numbers to the nearest 10 or 100.

3.NBT.2: Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

3.NBT.3: Multiply one-digit whole numbers by multiples of 10 in the range 10-90 using strategies based on place value and properties of operations.

[New Hampshire College and Career Ready Standards](#)

References:

National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). *Common Core Standards for Mathematics* (United States, National Governors Association Center for Best Practices, Council of Chief State School Officers). Retrieved August 10, 2016, from http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf

Math is fun/definitions. (n.d.). Retrieved April 17, 2017, from <http://www.mathisfun.com/definitions>