

Unit 3

Multiplication and Division with Units of 0, 1, 6–9, and Multiples of 10

Grade 3 Math

Description: Students will extend their work with factors to include all units from 0 to 10, as well as multiples of 10 within 100. Skip-counting strategies as well as the distributive and associative property is applied. Word problem situations are presented providing opportunities to analyze and model efficiently.

Louisiana Student Standards for Mathematics (LSSM) Instructional Outcomes

Operations and Algebraic Thinking	
3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., 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. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = \Delta \div 3$, $6 \times 6 = ?$.
3.OA.5	Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)
3.OA.6	Understand division as an unknown-factor problem. For example, find $32 \square 8$ by finding the number that makes 32 when multiplied by 8.
3.OA.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
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. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.
Number and Operations in Base Ten	
3.NBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.

Enduring Understandings:

- Multiplication can be shown in different ways.
- Mental pictures help me remember facts and ideas.
- Knowing and understanding multiplication helps us understand division.
- Multiplication and division can help us solve problems.
- Unfamiliar multiplication problems can be solved by using known multiplication facts and properties, e.g., $8 \times 7 = (8 \times 2) + (8 \times 5)$

Essential Questions:

- Why is multiplication necessary?
- How can I show how to solve a multiplication problem in different ways?
- Why do mental models help me remember?
- How can multiplication and division help me solve problems?
- How can working a problem help me better understand the answer?
- What operation can we use to solve the problem and why?
- How is multiplication related to division and other operations?