

# Unit 1

## Properties of Multiplication and Division and Solving Problems with Units 2-5 and 10

### Grade 3 Math

#### Unit Length and Description:

Students will build upon the foundation of multiplicative thinking with units started in Grade 2. Students begin by understanding the meaning of multiplication and division. They develop fluency for learning products involving factors of 2, 3, 4, 5, and 10. The restricted set of facts supports learning by providing examples to solve one- and two-step word problems.

#### Louisiana Student Standards for Mathematics (LSSM)

#### Instructional Outcomes

Operations and Algebraic	
<b>3.OA.A.1</b>	Interpret products of whole numbers, e.g., interpret $5 \times 7$ as the total number of objects in 5 groups of 7 objects each. <i>For example, describe a context in which a total number of objects can be expressed as <math>5 \times 7</math>.</i>
<b>3.OA.A.2</b>	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. <i>For example, describe context in which a number of shares or a number of groups can be expressed as <math>56 \div 8</math>.</i>
<b>3.OA.A.3</b>	Use multiplication and division within 100 to solve word problems 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.
<b>3.OA.A.4</b>	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations <math>8 \times ? = 48</math>, <math>5 = \square \div 3</math>, <math>6 \times 6 = ?</math></i>
<b>3.OA.B.5</b>	Apply properties of operations as strategies to multiply and divide. <i>Examples: If <math>6 \times 4 = 24</math> is known, then <math>4 \times 6 = 24</math> is also known. (Commutative property of multiplication.) <math>3 \times 5 \times 2</math> can be found by <math>3 \times 5 = 15</math>, then <math>15 \times 2 = 30</math>, or by <math>5 \times 2 = 10</math>, then <math>3 \times 10 = 30</math>. (Associative property of multiplication.) Knowing that <math>8 \times 5 = 40</math> and <math>8 \times 2 = 16</math>, one can find <math>8 \times 7</math> as <math>8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56</math>. (Distributive</i>

	<i>property.)</i>
<b>3.OA.B.6</b>	Understand division as an unknown-factor problem. <i>For example, find <math>32 \div 8</math> by finding the number that makes 32 when multiplied by 8.</i>
<b>3.OA.C.7</b>	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.
<b>3.OA.D.8</b>	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.

### Enduring Understandings:

- Multiplication and division can be shown in different ways.
- Mental pictures help us remember facts and ideas.
- Knowing and understanding multiplication helps us understand division.
- Problems can be solved using multiplication and division.

### Essential Questions:

- How can I solve multiplication and division problems in different ways?
- How 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?