



Dear Third Grade Families,

In Unit 2, students will work on the following third grade Common Core standards in the Operations and Algebraic Thinking (OA) domain.

3.OA.1	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>
3.OA.5	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 property.)</i>
3.NBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., $9 \times 80$ , $5 \times 60$ ) using strategies based on place value and properties of operations.

**Unit 2 Concepts:**

- Relating multiplication to addition
- Multiplying one-digit numbers by multiples of ten
- Arrays and multiplication
- Commutative property of multiplication
- Associative property of multiplication
- Distributive property of multiplication

**Unit 2 Vocabulary:**

- Factor
- Product
- Pattern
- Array
- Rows
- Columns

Ask questions like these to help your child become a productive mathematical thinker:

- How is repeated addition like multiplication?
- Why is an array a good model for multiplication?
- Explain why the properties of multiplication make sense.
- What rules or concepts help you to make sense of multiplication?

**Commutative Property**

$12 \times 5$  is the same as  $5 \times 12$

**Associative Property**

$(2 \times 3) \times 4$  is the same as  $2 \times (3 \times 4)$

**Distributive Property**

$$6 \times 9 = 54$$

$$\swarrow \quad \searrow$$

$$(3 + 3) \times 9 = 54$$

$$(3 \times 9) + (3 \times 9) = 54$$

Need a review? Check out our lesson videos on-line!

[swunmath.com/student-videos](http://swunmath.com/student-videos)

If you don't know the class's special name, ask your child's teacher.

We encourage you to talk with your child daily about what was learned in math class.

Thank you for your support!