

Dear Parents,

We will begin our next unit of study in math soon. The information below will serve as an overview of the unit as you work to support your child at home. If you have any questions, please feel free to contact me. I appreciate your on-going support.

Sincerely,

Your Child's Teacher

## Unit Name: Multiplication and Division

### Common Core State Standards:

**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. For example, describe a context in which a total number of objects can be expressed as  $5 \times 7$ .

**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  $8 \times ? = 48$ ,  $5 = \_ \div 3$ ,  $6 \times 6 = ?$

**3.OA.5** Apply properties of operations as strategies to multiply and divide.2

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  $8 \times 7$  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  $32 \div 8$  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.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.

**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.

### Essential Vocabulary:

- Equal Groups
- Factors
- Repeated Groups
- Repeated Addition
- Product
- Factors
- Array
- Divisor
- Dividend
- Quotient

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### **Unit Overview:**

In this unit students will learn different strategies that will help them to understand the concepts of multiplication and division. The students will think of multiplication as groups of things. Fact families will help to emphasize the connection between multiplication and division. Students will learn the ideas behind the commutative, associative and distributive properties of multiplication. Over the course of the school year the students will internalize math facts to  $9 \times 9$ . Through discussions about multiplication and division the students will gain a better understanding of place value and the base ten system.

### **Strategies/Skills:**

The students will learn how to use arrays, number lines, fact families and drawings to help explain the concepts of both multiplication and division. Multiplying and dividing fluently, flexibly and efficiently will help students learn to internalize multiplication facts. Repeated practice with different multiplication and division strategies will also help to internalize multiplication facts. Students need lots of experiences with all different types of strategies.

### **Video Support:**

Video support can be found on The WCPSS Academics YouTube Channel.

- <http://tinyurl.com/WCPSSAcademicsYouTube>

[ES 3 Math Whole Number Multiplication Arrays](#)

[ES 3 Math Whole Number Discovering Division](#)

Video support can be found on LearnZillion.

- <https://learnzillion.com/>

LearnZillion Videos About Multiplication

- <https://learnzillion.com/lessons/2488-multiply-by-multiples-of-10-with-base-ten-blocks>
- <https://learnzillion.com/lessons/2652-multiply-by-multiples-of-10-using-number-lines>
- <https://learnzillion.com/lessons/2760-multiply-by-multiples-of-10-using-arrays>
- <https://learnzillion.com/lessons/2761-multiply-by-multiples-of-10-by-breaking-apart-the-multiple-of-ten-into-2-factors>

### **Additional Resources:**

If you have limited/no internet access, please contact your child's teacher for hard copies of the resources listed in this document.

- NCDPI Unpacking Document: [3<sup>rd</sup> Grade Unpacking Document](#)