

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: Multiplying Fractions

### Common Core State Standards:

**5.NF.4** Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product  $(a/b) \times q$  as  $a$  parts of a partition of  $q$  into  $b$  equal parts; equivalently, as the result of a sequence of operations  $a \times q \div b$ . *For example, use a visual fraction model to show  $(2/3) \times 4 = 8/3$ , and create a story context for this equation. Do the same with  $(2/3) \times (4/5) = 8/15$ . (In general,  $(a/b) \times (c/d) = ac/bd$ .)* b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.

**5.NF.5** Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence  $a/b = (n \times a)/(n \times b)$  to the effect of multiplying  $a/b$  by 1.

**5.NF.6** Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

### Essential Vocabulary:

- factor
- product
- mixed number
- fraction bars
- number lines

### Unit Overview:

In this unit students will realize that the multiplication of a fraction by a whole number can also be represented as repeated addition. For example:  $2 \times \frac{1}{4} = \frac{1}{4} + \frac{1}{4}$ . Students will multiply fractions by whole numbers and fractions by fractions, including mixed numbers. They should be able to explain that multiplying a whole number by a fraction less than one will result in a product less than the whole number. Students will build on their work with finding area from 3<sup>rd</sup> and 4<sup>th</sup> grades by finding area using fractions and mixed numbers. Students are required to create visual fraction models to show their understanding of multiplication using fractions. They are expected to use various strategies to solve word problems involving the multiplication of fractions.

### Strategies/Skills:

Students will use visual fraction models to represent multiplication using fractions.

- Number lines
- Fraction bars
- Pictorial representations/ drawings
- Color tiles
- Grids

### Wake County Public Schools, Unit Overview for Parents

*This document should not replace on-going communication between teachers & parents.*

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### **Video Support:**

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

- <http://tinyurl.com/WCPSSAcademicsYouTube>
  - [ES 5 Math Multiply Fraction X Whole w/ Number Lines](#)
  - [ES 5 Math Multiply Non-Unit Fraction X Whole w/ Number Lines](#)
  - [ES 5 Math Multiply Fraction X Whole with Area Models](#)
  - [ES 5 Math Multiply Fraction X Fraction using Area Models](#)
  - [ES 5 Math Multiply Fraction X Fraction using Number Lines](#)
  - [ES 5 Math Multiply Fraction X Fraction with Visual Fraction Models](#)
  - [ES 5 Math Multiply Mixed Numbers using Area Models](#)
  - [ES 5 Math Multiply Mixed Numbers by Decomposing](#)

### **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: [5<sup>th</sup> Grade Unpacking Document](#)