Grade 5 – Unit 7
Multiply Fractions

Parent Letter

Dear Fifth Grade Families,

In Unit 7, students will work on the following fifth grade Common Core standards in the Number and Operations –Fractions (NF) domain.

5.NF.3	Interpret a fraction as division of the numerator by the denominator ($^{a}/_{b}$ = a ÷ b). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret $^{3}/_{4}$ as the result of dividing 3 by 4, noting that $^{3}/_{4}$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $^{3}/_{4}$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?
5.NF.4a-b	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product ($^{a}/_{b}$) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b. For example, use a visual fraction model to show ($^{2}/_{3}$) × 4 = $^{8}/_{3}$, and create a story context for this equation. Do the same with ($^{2}/_{3}$) × ($^{4}/_{5}$) = $^{8}/_{15}$. (In general, ($^{a}/_{b}$) × ($^{c}/_{d}$) = $^{ac}/_{bd}$.) 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.5a-b	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.

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

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!

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Unit 7 Concepts:

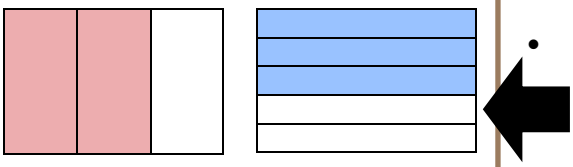
- Fractions as Division
- Reasoning about Multiplying Fractions
- Reasoning about Multiplying a Fraction by 1
- Reasoning about Multiplying a Fraction by a Fraction
- Multiplying Fractions using an area model and the algorithm
- Word Problems Involving Multiplication

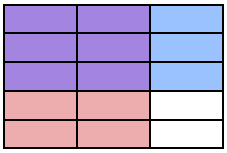
Unit 7 Vocabulary:

- Numerator
- Denominator
- Fraction bar
- Algorithm
- Improper fraction
- Mixed number
- Factors
- Product
- "of"
- Dividend ÷ divisor = quotient

Area Model:

$^2/_3 \times {}^3/_5$





$^2/_3 \times {}^3/_5 = {}^6/_{15}$

Look for ways to engage your child in solving real-life scenarios that use multiplication and division of fractions. Reason with your child to solve situations, perhaps using real household objects to actually perform the division. It's very important for children to understand what's actually happening with multiplication and division of fractions before they learn to solve problems with an algorithm.

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

- We have $^2/_3$ of the cake left to share among the five of us. What fraction of the whole cake can we all have?
- Traffic was so bad, it took us 2 hours to drive 24 miles. What is the fraction? How far did we go in hour?
- I have three bouquets of flowers and four vases. What fraction of a bouquet goes in each vase?
- What fraction shows 5 divided by 6?
- It's 150 miles to Grandma's house and 50 miles to Auntie's house. How much farther is Grandma's house compared to Auntie's house?
- I'm making 4 batches of cookies. Each batch calls for $^3/_4$ of a cup of chocolate chips. Will I use a total of more or less than 4 cups of chocolate chips? How do you know?
- Let's pour $1^1/_4$ cups of lemonade in each of 6 cups. Will we use more or less than 6 cups of lemonade? How do you know?
- There's $^1/_2$ of a gallon of milk in the fridge. If I use $^1/_3$ of it, will the amount left be greater or less than $^1/_2$? Greater or less than $^1/_3$? How do you know?
- Explain to me how this model shows $^2/_3 \times {}^3/_5$. Can you use this model with different fractions? How does the model help you understand what's happening when you multiply fractions?