

# Unit Plan 3: Mathematics - Number and Operations-Fractions (Grade 5)

Content Area: **Mathematics**  
Course(s): **Math 5**  
Time Period: **Marking Period 2**  
Length: **January to March**  
Status: **Published**

## Established Goals/Standards

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Please choose the appropriate Goals/Standards from the Standards tab above.

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| MA.5.NF.A.1  | Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.                                                                                                                                                                                                                            |
| MA.5.NF.A.2  | Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.                                                                                                                       |
| MA.5.NF.B.3  | Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). 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.                                                                                                                                                                    |
| MA.5.NF.B.4a | 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 $a \times q \div b$ .                                                                                                                                                                                                                                                                                      |
| MA.5.NF.B.4b | 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.                                                                                                                |
| MA.5.NF.B.5  | Interpret multiplication as scaling (resizing), by:                                                                                                                                                                                                                                                                                                                                                                                                              |
| MA.5.NF.B.5a | 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.                                                                                                                                                                                                                                                                                                         |
| MA.5.NF.B.5b | 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. |
| MA.5.NF.B.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.                                                                                                                                                                                                                                                                                                  |
| MA.5.NF.B.7  | Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.                                                                                                                                                                                                                                                                                                                              |
| MA.5.NF.B.7a | Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.                                                                                                                                                                                                                                                                                                                                                                    |
| MA.5.NF.B.7b | Interpret division of a whole number by a unit fraction, and compute such quotients.                                                                                                                                                                                                                                                                                                                                                                             |
| MA.5.NF.B.7c | Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.                                                                                                                                                                                                                                          |
| MA.5.MD.A    | Convert like measurement units within a given measurement system.                                                                                                                                                                                                                                                                                                                                                                                                |
| MA.5.MD.A.1  | Convert among different-sized standard measurement units within a given measurement                                                                                                                                                                                                                                                                                                                                                                              |

system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.

## Essential Questions

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Please add your Essential Questions by clicking on the Lists tab above.

- What are standard procedures for estimating and finding products and quotients of fractions and mixed numbers?
- What does it mean to add and subtract fractions with unlike denominators?
- What does it mean to add and subtract mixed numbers?
- What is a standard procedure for adding and subtracting fractions with unlike denominators?
- What is a standard procedure for adding and subtracting mixed numbers?

## Enduring Understanding

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Please add your Enduring Understandings by clicking on the Lists tab above.

- Fractions with unlike denominators can be added or subtracted by replacing fractions with equivalent fractions with like denominators. The product of the denominators of two fractions is a common denominator.
- One way to add or subtract mixed numbers is to find a common denominator for the fraction. Sometimes whole numbers or fractions need to be renamed.
- Rounding and compatible numbers can be used to estimate the sum, difference, product, and quotient of fractions or mixed numbers
- To divide a fraction use multiplication and the reciprocal.
- To divide mixed fractions write them as improper fractions and follow the standard procedure.
- to multiply mixed fractions write them as improper fractions and follow the standard procedure.
- To multiply two fractions by multiplying the numerators and denominators after cross canceling.

## Content

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Students will be able to:

- write equivalent fractions
- find the simplest form of fractions
- use a number line and benchmark fractions to help estimate sums, differences, products, and quotients of fractions and mixed fractions
- determine common multiples and least common multiples of two numbers
- find a common denominator to add and subtract fractions with unlike denominators and mixed fractions
- convert improper and mixed fractions
- solve word problems involving addition, subtraction, multiplication, and division of fractions and mixed fractions
- represent fractions as a division problem

- use the Order of Operations to solve problems two or more fractions and two or more operations

*Vocabulary students will know:*

equivalent fractions

simplest form

benchmark fraction

common multiple

least common multiple (LCM)

common denominator

least common denominator (LCD)

improper fraction

mixed number

proper fraction

reciprocal

## **Resources**

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Envision Resources

- [www.pearsonsuccessnet.com](http://www.pearsonsuccessnet.com)
- textbook
- student online resources
- Daily Common Core Review
- Quick Checks
- Reteaching/Practice
- Math Centers

Unit lesson flipcharts

Rainbow Tiles

Online Games from teacher website

Add It Up Fraction Board Game

Mad Minutes

Literature: *My Half Day* by Doris Fisher; The Hershey's Milk Chocolate Bar Fractions Book by Jerry Pallotta