SAU 50
Grade 5
Mathematics
Fractions

Fractions: add, subtract, multiply, and divide fractions.

SAU 50 District Competency:

Students will independently use their learning to measuring and calculating with precision and reasonableness to create a product

Essential Questions

- Why is equivalence important and how can I use it?
- Why are fractions needed to solve real world problems?

Acquisition

Students will demonstrate the following to meet the standards.

- I can add and subtract fractions with unlike denominators and solve word problems by using visual fraction models or equations to represent the problem.
- I can check to see if my answer is reasonable by using estimation and benchmark fractions.
- I can multiply fractions and divide whole numbers by fractions.
- I can solve word problems involving division and multiplication and write the quotient/product as a fraction or as a mixed number by using visual fraction models or equations to represent the problem.
- I can 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.
- I can explain why the product can be smaller, equal to or greater than the fractional factors.
- I can divide and solve word problems with whole numbers by unit fractions and unit fractions with whole numbers.
- I can make a line plot to display a data set of measurements using fractions and solve problems using the information.

Standards

NH College and Career Ready Standards

Key to Standard Notation:

5.NF.1: 5 *(grade level)* **NF** *(domain: Number and Operations--Fractions)* **MD** *(domain: Measurement and Data)* **1** *(number of the standard)*

Number and Operations –Fractions
Use equivalent fractions as a strategy to add and subtract fractions.
5.NF.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.
5.NF.2: Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, 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.

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
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, by using visual fraction models or equations to represent the problem.
5.NF.4: Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
5.NF.4.a: Interpret the product *(a/b) x q* as a parts of a partition of *q* into *b* equal parts; equivalently, as the result of a sequence of operations *a x q ÷ b*.
5.NF.4.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:
5.NF.5.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.
5.NF.5.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 x a)/(n x b)* to the effect of multiplying *a/b* by 1.
5.NF.6: Solve real world problems involving multiplication of fractions and mixed numbers by using visual fraction models or equations to represent the problem.
5.NF.7: Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
5.NF.7.a: Interpret division of a unit fraction by a non-zero whole number, and compute such

quotients.
5.NF.7.b: Interpret division of a whole number by a unit fraction, and compute such quotients.
5.NF.7.c: Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, by using visual fraction models and equations to represent the problem.

Measurement and Data
Represent and interpret data.
5.MD.2: Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots.

New Hampshire College and Career Ready Standards

References:

National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). *Common Core Standards for Mathematics* (United States, National Governors Association Center for Best Practices, Council of Chief State School Officers). Retrieved August 10, 2016, from http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf

Math is fun/definitions. (n.d.). Retrieved April 17, 2017, from http:/www.mathisfun.com/definitions