SAU 50
Grade 4
Mathematics
Fractions

Fractions: develop understanding of fractions as decimals.

SAU 50 District Competency:

Students will independently use their learning to perform operations with fractional reasoning using multiple strategies to solve real world problems. (addition and subtraction)

Essential Questions

- How can understanding fractions make life easier?
- When is it helpful to break things into parts?
- How can we use fractions in design?
- How are decimals and fractions related?

Acquisition

Students will demonstrate the following to meet the standards.

- I can explain why a fraction is equivalent to another fraction by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.
- I can recognize and generate equivalent fractions.
- I can compare two fractions with different numerators and different denominators by creating common denominators.
- I can compare different numerators and different denominators by using a benchmark fraction such as ½ on a number line diagram.
- I can compare fractions using symbols >, =, or < and justify the comparison by using models.
- I can explain why a fraction is equivalent to another fraction by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.
- I can recognize and generate equivalent fractions.
- I can compare two fractions with different numerators and different denominators by creating common denominators.
- I can compare different numerators and different denominators by using a benchmark

fraction such as ½ on a number line diagram.
- I can compare fractions using symbols >, =, or < and justify the comparison by using models.
- I can add and subtract mixed numbers with like denominators by using properties of operations and the relationship between addition and subtraction. Ex: Use the associative property to solve problems. 2 ¼ + 3 ¾ = 2 + 3 + ¼ + ¾.
- I can solve word problems involving addition and subtraction of fractions by using visual models and equations to represent the problem.
- I can solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.
- I can write a fraction with denominator 10 as an equivalent fraction with denominator 100.
- I can use decimal notation for fractions with denominators 10 or 100.
- I can compare two decimals to hundredths and record the comparisons with the symbols >, =, < and justify the conclusions using a visual model.

Standards

NH College and Career Ready Standards

Key to Standard Notation:

4.NF.1: 4 *(grade level)* **NF** *(domain: Number and Operations--Fractions)* **1** *(number of the standard)*

Number and Operations –Fractions

Extend understanding of fraction equivalence and ordering.
4.NF.1: Explain why a fraction *a/b* is equivalent to a fraction *(n x a)/(n x b)* by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
4.NF.2: Compare two fractions with different numerators and different denominators, by creating common denominators, numerators, or by comparing to a benchmark fraction such as ½. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions by using a visual fraction model.

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
4.NF.3.: Understand a fraction *a/b* with *a* > 1 as a sum of fractions *1/b.*
4.NF.3.a: Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
4.NF.3.b: Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions by using a visual fraction model.

4.NF.3.c: Add and subtract mixed numbers with like denominators, by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
4.NF.3.d: Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, by using visual fraction models and equations to represent the problem.
4.NF.4: Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
4.NF.4.a: Understand a fraction *a/b* as a multiple of *1/b*.
4.NF.4.b: Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number.
4.NF.4.c: Solve word problems involving multiplication of a fraction by a whole number, by using visual fraction models and equations to represent the problem.

Understand decimal notation for fractions, and compare decimal fractions.
4.NF.5: Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.
4.N.6F: Use decimal notation for fractions with denominators 10 or 100.
4.NF.7: Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, +, < and justify the conclusions by using a visual model.

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