**Fractions Unit Organizer**

**4th Grade Siener/Ronen/Hersh**

**Summary**

Students are able to

* Recognized mixed numbers and improper fractions
* Convert mixed numbers to improper fractions or improper fractions to mixed numbers
* Add and subtract fractions
* Solve up to 2-step story problems related to fractions

**The Big Idea**

Fractions can be written, compared, added, and subtracted.

**Common Core State Standards**

**Standard: 1. Number Sense, Properties, and Operations**

Concepts and skills students master:

2. Different models and representations can be used to compare fractional parts

**Students can:**

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1. Use ideas of fraction equivalence and ordering to: (CCSS: 4.NF)
2. Explain equivalence of fractions using drawings and models.[[1]](#endnote-1)
3. Use the principle of fraction equivalence to recognize and generate equivalent fractions. (CCSS: 4.NF.1)
4. Compare two fractions with different numerators and different denominators,[[2]](#endnote-2) and justify the conclusions.[[3]](#endnote-3) (CCSS: 4.NF.2)
5. Build fractions from unit fractions by applying understandings of operations on whole numbers. (CCSS: 4.NF)
6. Apply previous understandings of addition and subtraction to add and subtract fractions.[[4]](#endnote-4)
   1. Compose and decompose fractions as sums and differences of fractions with the same denominator in more than one way and justify with visual models.
   2. Add and subtract mixed numbers with like denominators.[[5]](#endnote-5) (CCSS: 4.NF.3c)
   3. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.[[6]](#endnote-6) (CCSS: 4.NF.3d)
7. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. (CCSS: 4.NF.4)
   1. Express a fraction *a*/*b* as a multiple of 1/*b*.[[7]](#endnote-7) (CCSS: 4.NF.4a)
   2. Use a visual fraction model to express a/b as a multiple of 1/b, and apply to multiplication of whole number by a fraction.[[8]](#endnote-8) (CCSS: 4.NF.4b)

Solve word problems involving multiplication of a fraction by a whole number.[[9]](#endnote-9) (CCSS: 4.NF.4c)

**Core Knowledge Content**

Math

II. Fractions and Decimals

1. Fractions
   * Recognize fractions to one-twelfth.
   * Identify numerator and denominator.
   * Write mixed numbers; change improper fractions to mixed numbers and vice versa.
   * Recognize equivalent fractions (for example, ½ = 3/6).
   * Put fractions into lowest terms.
   * Rename fractions with unlike denominators to fractions with common denominators.
   * Compare fractions with like and unlike denominators using the signs <,>, and =.
   * Solve problems in the form of 2/3 = ?/12.
   * Add and subtract fractions with like denominators.
   * Express simple outcomes as fractions (for example, 3 out of 4 as ¾).

**Previous Unit:** Whole Numbers

**Prior Knowledge**

**Grade 3:**

* Recognizing fractions to 1/10
* Identifying numerator and denominator
* Writing mixed numbers
* Recognizing equivalent fractions
* Comparing fractions with like denominators using the signs >, <, and =
* Knowing and writing decimal equivalents to ¼, ½, ¾
* Reading and writing decimals to the hundredths

**Next Unit**: Decimals

**What Students will Learn in Future Grades**

* Continue to focus on strengthening and expanding skills in fractions

**Cross Curricular Links**

**Additional Resources**

Extra Practice for Mathematic 4th Grade

1. Explain why a fraction *a*/*b* is equivalent to a fraction (*n* × *a*)/(*n* × *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. (CCSS: 4.NF.1) [↑](#endnote-ref-1)
2. e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, (CCSS: 4.NF.2) [↑](#endnote-ref-2)
3. e.g., by using a visual fraction model. (CCSS: 4.NF.2) [↑](#endnote-ref-3)
4. Understand a fraction *a*/*b* with *a* > 1 as a sum of fractions 1/*b*. (CCSS: 4.NF.3)

   Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. (CCSS: 4.NF.3a)

   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, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.* (CCSS: 4.NF.3b) [↑](#endnote-ref-4)
5. e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. (CCSS: 4.NF.3c) [↑](#endnote-ref-5)
6. e.g., by using visual fraction models and equations to represent the problem. (CCSS: 4.NF.3d) [↑](#endnote-ref-6)
7. For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4). (CCSS: 4.NF.4a) [↑](#endnote-ref-7)
8. For example, 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.) (CCSS: 4.NF.4b) [↑](#endnote-ref-8)
9. e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?* (CCSS: 4.NF.4c) [↑](#endnote-ref-9)