**Mathematical Practices:**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

**Common Core Coding Explanation**

4th Grade      Cluster      Standard

4.OA.A.1
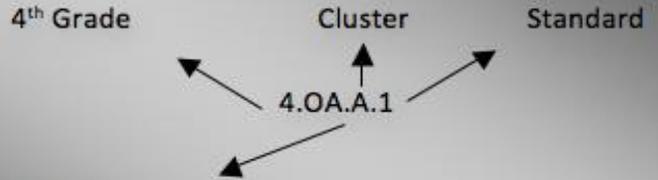
Domain:
OA: Operations and Algebraic Thinking
NBT: Number and Operations in Base Ten
NF: Numbers and Operations in Fractions
MD: Measurement and Data
G: Geometry

| Common Core State Standard | Aligned Textbook Lessons/Activities |
|---|---|
| **Adding and Subtracting Fractions and Mixed Numbers – Suggested 18 Days** ||
| 4.NF.B.3.      Understand a fraction $a/b$ with $a > 1$ as a sum of fractions $1/b$. | |
| a. 4.NF.B.3a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. | |
| b. 4.NF.B.3b. 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.* | |
| c. 4.NF.B.3c. Add and subtract mixed numbers with like denominators, 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. | |
| d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like | |

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| denominators, e.g., by using visual fraction models and equations to represent the problem. | |
| <mark>4.MD.B.4.</mark> Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.* | |

## Multiplying Fractions and Whole Numbers – Suggested 12 Days

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| <mark>4.NF.B.4.</mark>    Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. | |
| a.  4.NF.B.4a. Understand a fraction $a/b$ as a multiple of $1/b$. *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).* | |
| b.  4.NF.B.4b. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.* | |
| c.  4.NF.B.4c. 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. *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?* | |

## Decimal Fractions – Suggested 15 Days

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| 4.NF.C.6. Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram* | | | |
| 4.NF.C.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.[2] *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.* [2] Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade. | | | |
| 4.NF.C.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 >, =, or <, and justify the conclusions, e.g., by using a visual model. | | | |