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| **Synopsis of high-quality task:**  Students work together to determine how 5th grade friends can share their lunches using fractions.  **Anticipated student time spent on task:** 50 minutes  **Student task structure(s):** Partner work and Group work |
| [**Math Content Standards and Practices:**](http://www.doe.mass.edu/frameworks/math/2017-06.pdf)  **5.NF.A.2** Solve word problems involving addition and subtraction of fractions referring to the same whole (the whole can be a set of objects), 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.  **5.NF.B.3** Interpret a fraction as division of the numerator by the denominator (a ∕b = ab). 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.  **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.  **SMP.1** Make sense out of problems and persevere in solving them.  **SMP.3** Construct viable arguments and critique the reasoning of others.  **SMP.5** Use appropriate tools strategically. |
| **Prior Knowledge:**  **4.NF.A.2** Compare two fractions with different numerators and different denominators, 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 <, and justify the conclusions, e.g., by using a visual fraction model.  **4.NF.B.3d** Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using drawings or visual fraction models and equations to represent the problem.  **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. |
| **Connections to the real-world:**   * Sharing among friends * Problem solving * Equal Distribution * Meals * Picking the “better deal” |
| **Mastery Goals:**  Learning Objective:   * Students will be able to create a mathematical model. * Students will be able to write equations using relevant functions to represent the situation.   Language Objective:   * Students will discuss possible solutions and outcomes with group members. * Students will brainstorm different entry points to the task. * Students will be able to identify mathematical vocabulary to explain the solution to the situation. * Students will state and justify if the situation is better with three friends and two sandwiches or four friends and three sandwiches. |
| **Teacher instructions**  **Instructional Tips/Strategies/Suggestions:**   1. Start the task with a whole group “Notice-and-Wonder” with the following image displayed:   **Clipart of a student standing.Clipart of two students eating lunch.**  Gradually draw discussion toward the fact that two students are eating lunch and the one who is not.   1. Students then work in groups of two or three to complete parts A - C using the student handout at the end of this task.  * Look over all three parts as a whole class to clarify directions and expectations. * Circulate the room as students work independently.   + Make sure students are answering the questions in Parts B and C in complete sentences.   + Students should be able to realize fairly easily that each student will get ⅔ of the sandwich, and to model an equation in Part B.     - One area of difficulty was comparing the ⅔ to ¾.   3. The task concludes with a synthesizing discussion of answers and mathematical thinking. |
| **Instructional Materials:**  Include:   * Teacher Instruction Packet   + Display “Think and Wonder” Image so it is visible for all students to see. * Student Packet   + One copy for each student.   + Pencil. |
| **Accessibility and Supports:**  Potential sentence starters:   * Our equation represents \_\_\_\_\_\_\_ * Our equation represents this situation because \_\_\_\_\_\_\_\_ * Owen will get more or less of a sandwich if \_\_\_\_\_\_\_   Key academic vocabulary:   * Fraction * Common denominator * Equation * Ratio   Supports:   * Access to fraction strips |

**Student Handout:**

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**5th Grade Sandwiches (Fractions)**

It’s lunch time for 5th grade friends Owen, Aiden, and Brooke. Aiden and Brooke both have sandwiches. Owen forgot his lunch. Aiden and Brooke want to share their sandwiches with Owen.

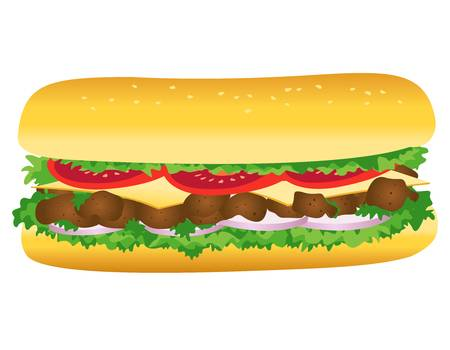
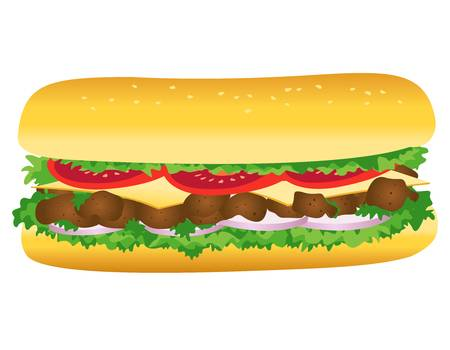
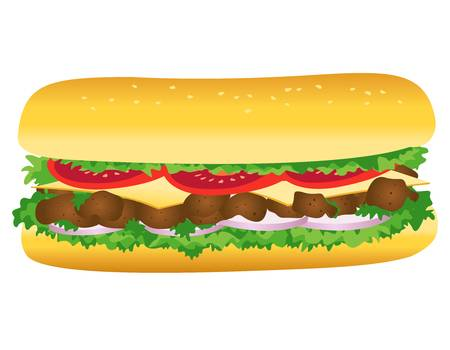
1. If Owen, Aiden, and Brooke share both sandwiches equally, what fraction of a sandwich does each person get? Use the picture below to show your thinking.

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| **Clipart of a sandwich** | **Clipart of the same sandwich.** |

1. Write an equation to show how together these parts make up the 2 sandwiches. Explain how the equation you wrote represents this situation.

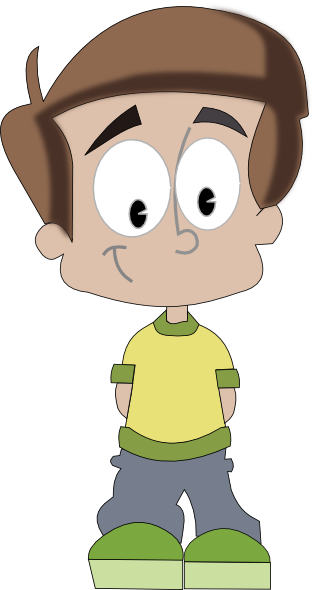
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1. Another friend Taylor also has a sandwich. If all four friends share the three sandwiches equally, will Owen get more of a sandwich than if he shared with only Aiden and Brooke? Show or explain your thinking.

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**Think and Wonder image**

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| **Sample Student Work:**  **student work for the activity**  **image of student work adding fraction**  **image of student work** |