# **Addition Discussion Guide (for use during or after reading)**

1. Use your own words to describe and define addition. (What Is Addition?, p. 4-5)
   1. Addition is represented by the + symbol and can be used to join numbers together. Addition is used to combine.
2. Explain how the finding tens strategy is used on pages 6 and 7. How is it different from the counting on strategy? (Counting On, p. 6-7).
   1. The finding tens strategy can be used to help solve addition problems by adding to make a group of ten and then dealing with the remaining amount. For example, the story problem in the text represents 4 + 8. If I know 2 + 8 makes a group of ten, I know I only have 2 remaining. 10 + 2 is easier for me to solve in my head than 4 + 8 even though they represent the same amount, 12. This is different from the counting on strategy because I did not have to individually add on 4 more to 8. Finding a group of ten was more efficient.
3. How are the strategies used on pages 8 and 9 similar to and different from those used on pages 10 and 11? (Find the Tens, p. 8-11)
   1. Both pages 8 and 9 as well as 10 and 11 show how to find groups of 10 when adding 15 and 17 together. Pages 8 and 9 use visuals to create 2 groups of 10, or 20. Next, these pages show how to add the remaining 5 and 2 to get 7. Combining the 20 and 7 together produced a final sum of 27.
   2. Although pages 15 and 17 also show the finding tens strategy, it was done numerically instead of visually. This page shows how to break apart numbers into smaller addends based on place value. Either way, both sets of pages use place value understanding and finding groups of ten to solve this problem efficiently.
4. Explain how knowing doubles facts can be used to solve such problems as those on pages 14 and 15. (Doubles, p. 12-15)
   1. Knowing your doubles facts can be a great strategy! Not only does it help you add your doubles, such as 4 + 4, but it can also be used to find near-doubles. For example, 5 + 6 can be seen as a near-doubles fact. If you know double 5 is 10, you can use that information to find 5 + 6 because it is equivalent to, or the same as, double 5 plus 1, or 11.
5. What are friendly numbers? (Making Friendly Numbers, p. 16-17)
   1. Friendly numbers are those you can manipulate and think about easily in your head. In general, groups of 10, 100, 1,000, and so on are friendly numbers because they are easy to use (they end in zero and relate to our place value understanding). In addition, many people think groups of 5 or even 2 can be considered friendly numbers.
6. Sometimes addition can be written as a “how many more” question, like on pages 20-23. What is another strategy you could use to solve that same problem in a new way? (Mealtime Addition, p. 20-23)
   1. Instead of using a doubling strategy to solve the problem 10 + ? = 21, students may suggest counting up from ten. You can encourage them to try making jumps of 5 or 10 (connecting to friendly numbers) to count up more efficiently. Some students might make the connection to subtraction here by suggesting counting or jumping back to find the missing number.
7. Explain the matching and counting up strategy used on pages 24-27. (Matching and Counting Up, p. 24-27)
   1. Matching and counting up is a strategy that can be used to solve how many more problems. According to the text, one flock has 23 gulls and another has 15 pelicans. To find how many more gulls than pelicans, we can match 15 gulls with 15 pelicans. We can then count up from 15 to 23 (or we can jump 5 and count up 3), which means we have 8 gulls remaining.
8. Extend your thinking: This book was all about addition, but the example on pages 24-27 asks you to find the difference between two numbers. The difference is a term typically associated with subtracting. If this book is all about addition, why might the authors have chosen to describe problems and strategies about subtraction? (Matching and Counting Up, p. 24-27)
   1. Even though this book is mostly about addition, the authors included information about subtraction. These two operations are related and are often considered opposites. Sometimes, especially when working mentally, it can be helpful to use addition to solve subtraction problems and vice versa.
9. Who was Katherine Goble Johnson and what was her claim to fame? (Who’s Who: Katherine Goble Johnson, p. 32-35)
   1. Katherine Goble Johnson was a famous NASA mathematician who broke through both racial and gender barriers. Her knowledge and hard work led to many important contributions to space flight as we know it today.
10. This text focused on describing many addition strategies rather than just one way to add. Why do you think the authors chose to do this?
    1. Students’ answers will vary. Answers might highlight concepts from the Common Core State Standards for Mathematical Practices, such as looking for and making use of structure and regularity in repeated reasoning. In addition, students might highlight the importance of thinking flexibly with numbers and story situations in order to solve them efficiently.