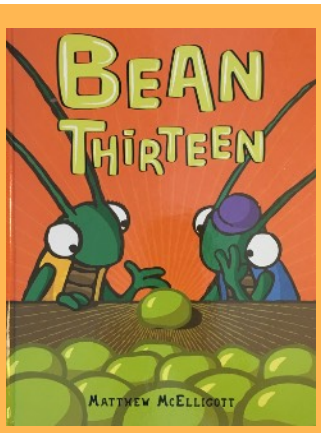


AUTHOR:
Matthew McElligott

Ralph and Flora pick thirteen beans and try to find a way to share them evenly.

Ages: 4 to 12 years

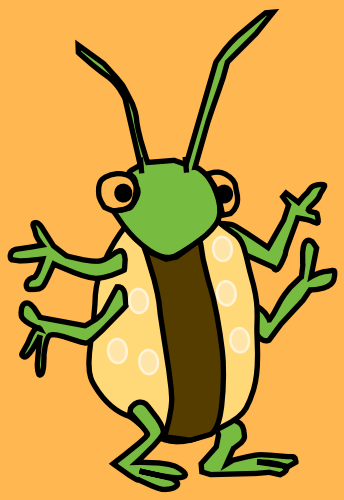
Interest Level:
Preschool to 6th grade

ATOS Reading Level:
2.4

Lexile: 470L

ISBN: 9780399245350

Genre: Fiction



Bean Thirteen

It is dinner time at Ralph and Flora's house. Who will end up with the dreaded bean thirteen?

Topics: prime numbers, division, counting, factors

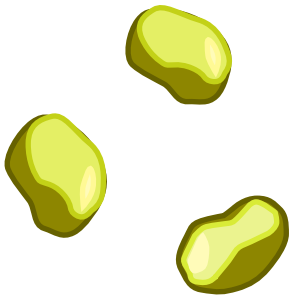
Math Connections: Use *Bean Thirteen* to introduce the concepts of factors and prime numbers. Ask your child if they have heard the words factor and prime number. Have them tell you about factors and prime numbers if they are familiar with these terms. If not, talk to your child about factors. Use the number 8 as an example. The factors of 8 are all the combinations of two whole numbers that can be multiplied together to get the number eight. For example, 8x1=8 and 2x4=8. So we say 1, 2, 4, and 8 are the factors of 8.

Notice that all of the factors of 8 can be divided evenly into 8 with no remainder. Some numbers that are greater than 1, only have whole number factors that include 1 and the number itself. These are considered prime numbers. The first few prime numbers are 2, 3, 5, 7, 11, 13, 17, 19, 23, and 29.

While reading the book ask your child how they would divide the beans each time a new guest is invited to dinner. Does each guest receive the same amount? Ask your child why they think the thirteen beans cannot be divided evenly among Ralph, Flora, and their guests.

After reading the story discuss prime numbers with your child. Can your child explain what makes a number a prime number? Can they identify a few prime numbers?

Ask your child to recall a time they shared a snack among friends. Were they able to divide the snack up evenly? If so, how did they do it? If there were pieces of snack left over, what did they do?



Extension Questions:

1. How do you think this story would have been different if Flora had not picked the thirteenth bean? Could Ralph and Flora divide the twelve beans evenly between themselves? How many beans would each of them get
2. How could twelve beans be divided evenly between Ralph, Flora, and April? How could twelve beans be divided evenly between Ralph, Flora, April, and Joe
3. Could twelve beans be divided evenly between Ralph, Flora, April, Joe, and Meg. Explain why or why not.
4. Try to divide 11 beans evenly between two, three, four, and five people. What happens? Is 11 more like 12 or 13? Try to divide 18 beans evenly between two, three, four, and six people. What happens? Is 18 more like 12 or 13?
5. Why do you think it wasn't possible to divide 11 and 13 by 2, 3, 4, 5, and 6?

Vocabulary for Building Math Concepts	fair, four, leftover, many, one, piles, six, thirteen, twelve, two
Vocabulary for Extending Math Concepts	division, factors, multiplication, prime numbers, remainders, triskaidekaphobia
Vocabulary for Reading Comprehension	admit, fuss, gather, panic, separated, shrugged, unlucky

Early Math Project Resources:
Unlucky Bean Thirteen (English)
El Frijol 13 Sin Suerte (Spanish)
Twelve Whole Beans (English)
Doce Frijoles Enteros (Spanish)

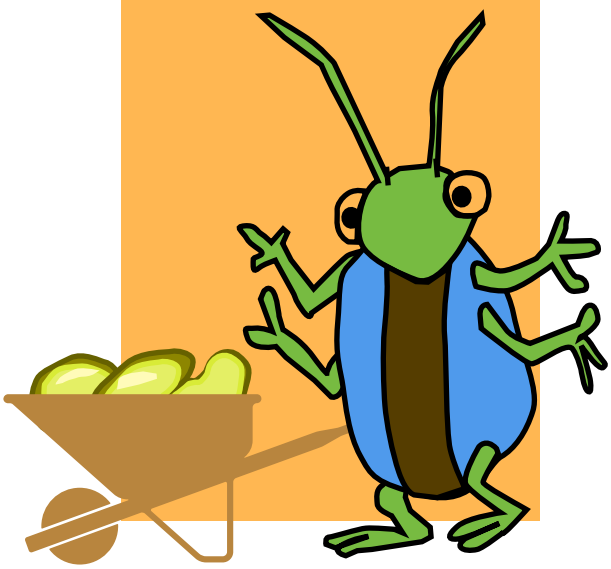
Online Resources:
Bean Math Activities From Matt McElligott's Website (Activities from Matt McElligott's website to explore odd and even numbers, divisions, prime numbers, fractions, and remainders)

Classification: Picture Story Book

Spanish Title: Not Available

Related Books: *The Doorbell Rang by* Pat Hutchins; *Divide and Ride* by Stuart J. Murphy

Find this book at your local library: https://www.worldcat.org/title/bean-thirteen/oclc/1065753188&referer=brief_results



Age Level	Related Preschool Foundations and CA State Standards
Preschool/ TK	**Preschool Learning Foundations** https://bit.ly/34vEeN3
Preschool/ TK	**Number Sense 1.0** Children begin to understand numbers and quantities in their everyday environment.**1.2** Recognize and know the name of some written numerals. **1.5** Understand, when counting, that the number name of the last object counted represents the total number of objects in the group (i.e., cardinality). **2.2** Understand that adding to (or taking away) one or more objects from a group will increase (or decrease) the number of objects in the group. **Mathematical Reasoning 1.0** Children use mathematical thinking to solve problems that arise in their everyday environment.
Grades K-3	**California Common Core State Math Standards** https://bit.ly/31No7bP
Kindergarten	**Counting and Cardinality K.CC.4** Count to tell the number of objects. **Compare Numbers K.CC.6** Compare numbers.
Grade 1	**Operations and Algebraic Thinking 1.OA.1** Represent and solve problems involving addition and subtraction.
Grade 2	**Operations and Algebraic Thinking 2.OA.1** Represent and solve problems involving addition and subtraction. **2.OA.3** Work with equal groups of objects to gain foundations for multiplication.
Grade 3	**Operations and Algebraic Thinking 3.OA.2** Interpret whole-number quotients of whole numbers **3.OA.3** Represent and solve problems involving multiplication and division.