A Remainder of One

Will Joe ever be included in the 25th squadron?

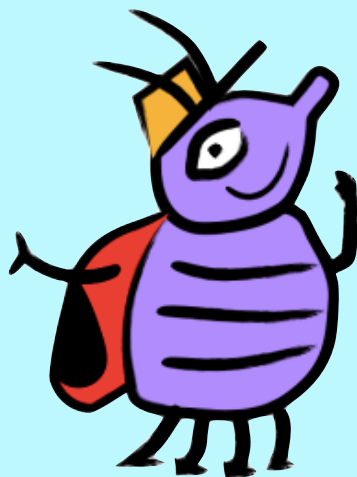**Topics:** division, remainders, multiplication, arrays

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The 25th squadron is divided into equal lines and rows, all except Joe. See how the bugs must divide into rows and columns for Joe to join the parade!

Ages: 4 to 8 years

Lexile: 640L

ATOS Reading Level: 2.1

ISBN: 9780618250776

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Activities To Do Together:

Use *A Remainder of One* to explore division with remainders. In this story, a group of 25 bugs divides themselves into rows to march past the queen. They try different arrangements until they no longer have a remainder.

Before reading the book:

- Ensure your child knows the meaning of the word remainder. If they need a reminder you could show them ten objects. Divide this group into 2 groups of five. Note that there is nothing left over, no remainder. Then divide the same group into three groups of three. Note that there is one left over - this is a remainder.

While reading the book:

- Encourage your child to determine how many bugs are in the squadron. They might count the bugs in the parade or use the words in the story to multiply and add to get the total: "…two lines of twelve, plus Joe…".

- Ask your child to predict how the bugs will arrange themselves next. How many lines will there be and how many in each line? Will there be a remainder?

When you have finished reading the book:

- Practice division using small objects (for example: toy cars, spoons, pebbles, sticks). Find out how many different ways you can divide the group with no remainder. Challenge your child to think of numbers that can be divided several ways with no remainder?

- Talk with your child about how division is used in things like cooking/baking, sports teams, chair arrangements, and carpentry.

- Encourage your child to explore how division is related to multiplication by arranging objects in rows and columns. For example, 12 stones could be divided into 4 rows of 3 in each row. From this arrangement, we can see that 4 x 3 = 12.

Early Math Project

Questions for Mathematical Thinking:

1. Are there other ways to divide the 25th Squadron into equal lines and rows? Why or why not?

2. What if there were only 20 bugs, what ways could you divide the bugs into rows and lines evenly with no remainder? In what ways can you divide 20 bugs so that there is a remainder?

3. If you divide 18 by 3 is there a reminder? What if you divide 19 by 3, is there a remainder? If there is a reminder, explain why.

Early Math Project Resources:

Visit Activities for A Remainder of One (www.earlymathca.org/a-remainder-of-one)

Follow this link or visit earlymathca.org/external-resources for additional online resources.
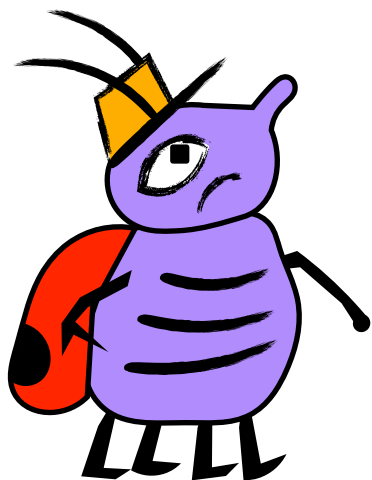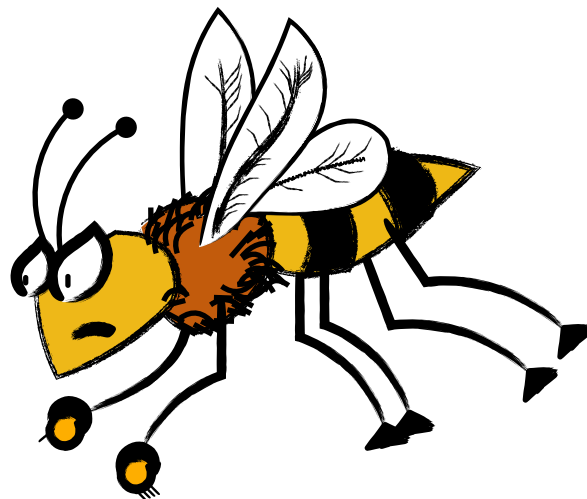
Vocabulary

Math words found in the story: degrees, division, eight, even, five, four, left, line, more, numbers, remainder, rows, six, three, twelve, two

Related math words: array, multiplication

Words to build reading comprehension: infantry, lonesome, misfit, oddball, orchard, scurried, slender, squadron

Also available in: Chinese, Korean, French

Related Books: *The Doorbell Rang* by Pat Hutchins; *Bean Thirteen* by Matthew McElligott

Click this link to the World Catalog or enter https://bit.ly/477D6NI to find *A Remainder of One* in the public library.

Early Math Project

Math Connections: Use *A Remainder of One* to introduce division and remainders. Before reading, talk about what it means to divide. When you divide, you separate a number or quantity into groups that all have the same or equal parts. Explore division by arranging groups of objects such as toys or snacks into equal groups.

Sometimes a number can be divided into equal parts with no numbers left over. At other times, after all of the numbers have been placed into equal groups there are numbers still remaining. The left over numbers are called the remainder. For example, when 32 is divided by ten, there are 3 groups of ten, but there are two left over. We would say that 32 divided by 10 is three (three groups) with a remainder of 2 (two left over).

Show your child how you would write the division problems in the story. For example, the first formation of the 25th squadron, is 25 divided by 2 because there are 25 bugs that are divided into two columns. This can be written several ways:

$$25 \div 2 =$$

$$2\overline{)25}$$

$$\frac{25}{2}$$

Write equations for the other formations the bugs make in the story. Then use twenty-five small objects and divide them into three groups, four groups, and five groups. Is there a remainder?

Now try the same thing again, but use 26 and then 27 objects instead of 25. What do you notice about the remainder this time? Talk about any differences you noticed and why you think it was different.

Early Math Project
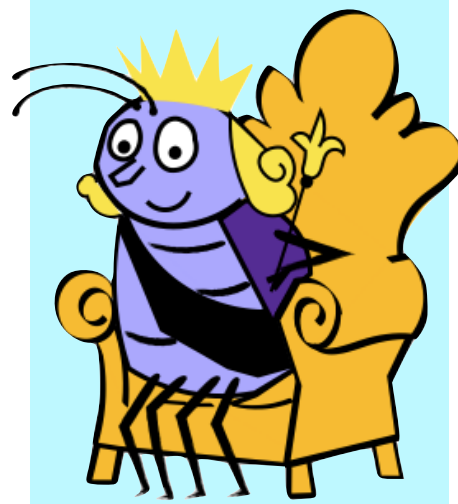
Age Level	Related Preschool Foundations and CA State Standards
Preschool/TK	**Number Sense 1.4** Count objects, using one-to-one correspondence (one object for each number word) with increasing accuracy.
Kindergarten	**Number and Operations in Base Ten K.NBT.1** Work with numbers 11–19 to gain foundations for place value.
Grade 1	**Number and Operations in Base Ten 1.NBT.2** Understand place value.
Grade 2	**Operations and Algebraic Thinking 2.OA.3** Work with equal groups of objects to gain foundations for multiplication.
Grade 3	**Operations and Algebraic Thinking 3.OA.1** Represent and solve problems involving multiplication and division. **3.OA.7** Multiply and divide within 100.