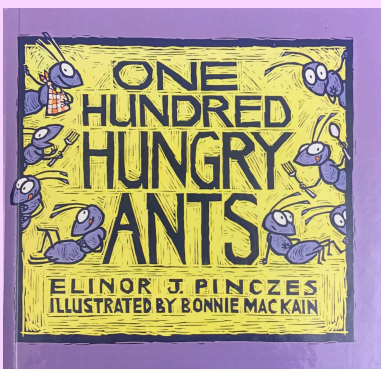


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One hundred hungry ants march through the forest on their way to the picnic. The ants make several stops to change their marching formation.

**Ages:** 4 to 9 years

**ATOS Reading Level:**  
2.6

**Lexile:** AD520L

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# One Hundred Hungry Ants

*Will the ants make it to the picnic on time?*

**Topics:** counting, arrays, patterns, multiplication, factors of 100

## Activities To Do Together:

*One Hundred Hungry Ants* can be used to introduce and discuss the concept of factors. Factors are numbers that divide evenly into another number without a remainder. Understanding factors helps children solve for unknown values and supports success with fractions.

Before reading the book:

- Explore with your child what it means for ants to walk in a line or a row.
- Ask your child what they think the hungry ants will do.
- Ask your child what they think is the best way for a group of one hundred people to walk to a nearby park. What challenges might the people encounter?

While reading the book:

- Talk about the littlest ant's idea to move into 2 lines of 50 and whether this plan saved time. Why or why not?
- Notice together what the other animals are doing. Encourage your child to predict what the ants will find when they finally get to the picnic blanket.
- Look at the page where the 10 rows of 10 ants arrive at the edge of the picnic blanket. Discuss with your child the signs that indicate that the ants took a long time to arrive.

When you have finished reading the book:

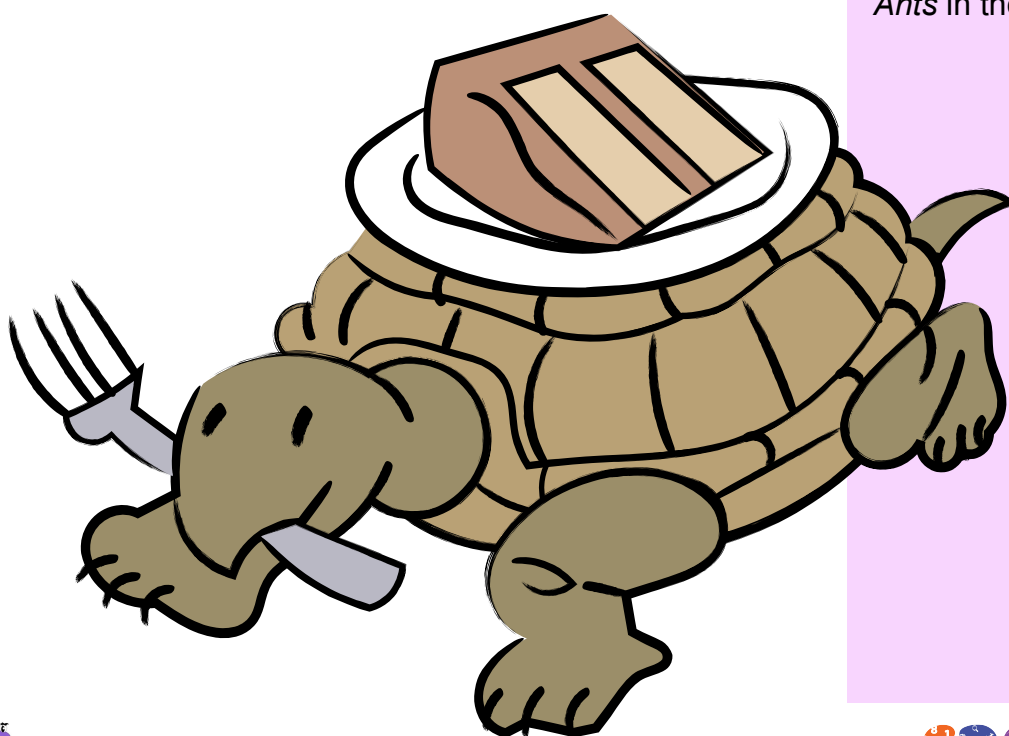
- Encourage your child to use objects or draw pictures to show all of the ways that 12 ants could march to a picnic in equal-size rows.
- Encourage your child to draw a picture or make a list of the different ways that the ants traveled to the picnic.
- Challenge your child to figure out how 99 hungry ants could march home in equal-size rows.

### Questions for Mathematical Thinking:

1. What caused the ants to be late?
2. How many animals in this story got food at the picnic?
3. What changed each time there was a new formation of ants? What stayed the same?
4. Do you think the ants would have been quicker if they had started marching with 10 lines of 10 rows? Do you think that would have been faster than marching in a single line of 100 ants? Why or why not?
5. If there are 20 ants marching toward a picnic, how many different formations can they walk in with equal-size rows?
6. How many different ways can 100 ants march so there are the same number of ants in each line? How could you find out?

### Early Math Project Resources:

Visit [One Hundred Hungry Ants](http://countplayexplore.org/book/one-hundred-hungry-ants) (countplayexplore.org/book/one-hundred-hungry-ants) to find activities and related California Learning Foundations and/or Mathematics Standards provided by the California Department of Education for this book.



### Vocabulary

**Math words found in the story:** all, any, down, littlest, long, ninety-nine, one, one hundred, row, some, up, whole

**Related math words:** array, column, division, multiplication, patterns

### Words to build reading

**comprehension:** aglow, fro, growling, gurgling, rumbling, shrieked, swarming, whisked

**Related Books:** *Bean Thirteen* by Matthew McElligott; *A Remainder of One* by Elinor J. Pinczes

Click this link to the [World Catalog](http://WorldCatalog) or enter bit.ly/3MWX5G5 to find *One Hundred Hungry Ants* in the public library.

**Math Connections:** *One Hundred Hungry Ants* can be used to explore factors. Factors are numbers that divide evenly into another number without a remainder. For example, 4 and 25 are factors of 100. When you divide 100 by 4, you get 25 with no remainder. The numbers 1, 2, 4, 5, 10, 25, 50, and 100 are all factors of 100 because each of these numbers divides evenly into 100 with no remainder.

In *One Hundred Hungry Ants*, the smallest ant stops the ant group four different times to rearrange the ants' marching formation because she thinks the ants won't make it to the picnic on time. She suggests that they change their formation to make the journey quicker. She changes the formation into a group of 2 lines with 50 rows. After marching for a bit, she believes they're still too slow, so she insists on forming 4 lines with 25 rows. Encourage your child to keep track of all the different ways the ants march while traveling to the picnic. Talk with your child about how the numbers involved in the different formations are factors of one hundred. Talk with your child about how the formation would not have had the same number of ants in each line if they had marched in a row that was not a factor of 100.

Explore together how a group of 12 ants could march in formation with the same number of ants in each row. How would the formation look if the ants marched in three rows with the same number of ants in each line? Notice that it's not possible for the ants to march in five rows and have the same number of ants in each line. Talk with your child about why this isn't possible. Find all of the ways 12 ants could march in formation with the same number of ants in each row.

Every number, except for zero and one, has at least two factors: the number itself and one. Explore with your child how you can use division and multiplication to find the factors of a number.

To use division to find factors, determine all of the numbers that will divide evenly into 20 with no remainder.

$$20 \div 1 = 20$$

$$20 \div 2 = 10$$

$$20 \div 3 = 6 \text{ with a remainder of } 2$$

$$20 \div 4 = 5$$

$$20 \div 5 = 4$$

$$20 \div 6 = 3 \text{ with a remainder of } 2$$

$$20 \div 7 = 2 \text{ with a remainder of } 6$$

$$20 \div 8 = 2 \text{ with a remainder of } 4$$

$$20 \div 9 = 2 \text{ with a remainder of } 2$$

$$20 \div 10 = 2$$



## DISCOVERING THE MATH: BOOK GUIDE

Through division, we can see that the factors of 20 are the numbers: 20, 10, 5, 4, 2, and 1.

You can use multiplication to find the factors of a number too. For example, to find the factors of the number 12, make a list of all of the numbers that can be multiplied together for a product of 12.

$$1 \times 12 = 12 \qquad 12 \times 1 = 12$$

$$2 \times 6 = 12 \qquad 6 \times 2 = 12$$

$$3 \times 4 = 12 \qquad 4 \times 3 = 12$$

Through multiplication, we can see that the factors of 12 are the numbers: 1, 2, 3, 4, 6, 12.

Notice that the numbers 5, 7, 8, 9, 10, and 11 are missing because they are not factors of 12. You can't multiply these numbers with a whole number to equal twelve.

For example,  $5 \times 2 = 10$  and  $5 \times 3 = 15$

$5 \times 2.4 = 12$  and 2.4 is not a whole number.

Some numbers have many factors. In the story, the ants were able to march in several different formations with the same number of ants in each line because the number 100 has many factors. Other numbers have very few factors and some numbers, which are called prime numbers, have only two factors, the number itself and one.

The numbers 2, 3, 5, 7, 11, 13, and 17 are the first seven prime numbers. The only numbers that divide evenly into these numbers with no remainder are the number itself and one.

For some numbers, it's easy to tell if they have more than two factors. All of the numbers that are larger than the number 2 which end with the number 0, 2, 4, 5, 6, or 8 have more than two factors. Numbers that end with a 1, 3, 7, and 9 may have more than two factors or they may be prime.

For example:

17 is prime. Its only factors are 1 and 17.

27 is not prime. Its factors are 1, 3, 9, and 27.

Challenge your child to find all of the factors of each of the numbers from 2 to 20. Which are prime? Which have more than two factors?

