Bridges in Mathematics, Grade 2

Unit 7: Measurement, Fractions & Multi-Digit Computation with Hungry Ants
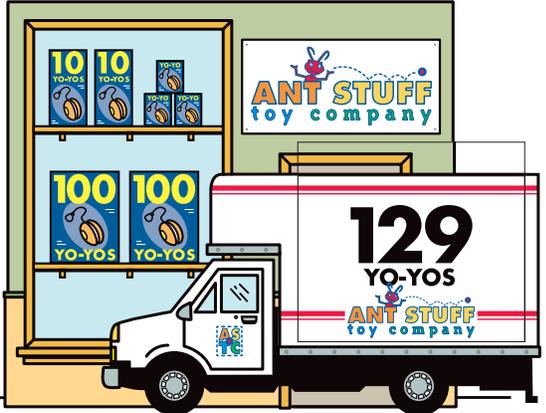
In this unit, your child will:

▪ Estimate, measure, and compare the lengths of objects in centimeters and meters

▪ Split whole shapes into 2, 3, 4, or 8 equal parts called halves, thirds, fourths/quarters or eighths

▪ Solve, pose, and write addition, subtraction, and money story problems involving 2- and 3-digit numbers

Your child will practice these skills by solving problems like those shown below.

PROBLEM	COMMENTS
2 The army ants want to get the scorpion. They can use Path A, B, or C. **a** Use the centimeter side of your ruler to measure each path. Write each length on the lines below. Path A __13__ Path B __12__ Path C __15__ **b** If you were an army ant, which path would you use? Path __A__ Why? *I would choose Path A. It's 1 centimeter longer than Path B, but he won't see me coming.*	Students create army ant rulers to estimate and measure the lengths of objects in centimeters. The average length of an actual army ant is 1 centimeter. Students learn that 10 army ant rulers are equal to 1 meter, and 1 meter is equal to 100 centimeters. This metric conversion fosters place value relationships. Students also use meters to measure the length of larger objects.
What happens when 4 ants share 1 granola bar? *"I cut the granola bar into 4 pieces. Each ant gets $\frac{1}{4}$."* How much more is needed to fill the fraction strip? *"I just need $\frac{1}{4}$ or two $\frac{1}{8}$ s to win."*	Hungry ants are headed to the picnic, marching in rows of 2, 4, 5, and 10 lines. But how many ants are in each line? How will the ants evenly share 1, 2, or 3 granola bars? These are some problems students solve in Unit 7. Students also make fraction pieces like those above, and use them in the game Fraction Races. This game looks at fraction relationships. For example, the pieces allow students to see that $\frac{1}{8}$ is half of $\frac{1}{4}$. The pieces also show that $\frac{2}{8}$ plus $\frac{1}{4}$ is equal to $\frac{1}{2}$.

PROBLEM	COMMENTS
It is spring and suddenly everyone wants a yo-yo. The toy store already has 223 yo-yos in stock, but they decide to order 129 more. How many yo-yos will they have in all?	There are several strategies second graders may use to solve this problem. In the example on the left the student added the hundreds first (200 + 100), next the tens (20 + 20), and then the ones (3 + 9). Lastly, she added the partial sums together as shown.

"I added the hundreds, tens, and ones:
200 + 100 = 300; 20 + 20 = 40; 3 + 9 = 12.
Then I added them together:
300 + 40 + 12 = 352."

$$223$$
$$+129$$
$$352 \text{ yo-yos}$$

I grouped 10 ones together to make a new 10
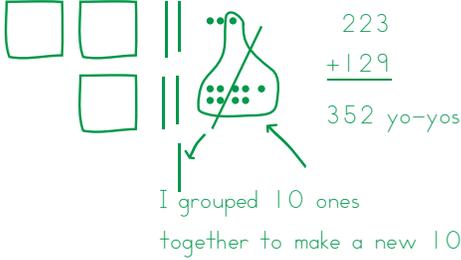
This student sketched a place value model for the numbers, 223 and 129. Then he added the hundreds, tens, and ones separately, including trading the 12 ones for 1 ten and 2 ones.

Another student used the open number line starting with 223. Then she added on 130 and then subtracted 1 because 129 is 1 less than 130.
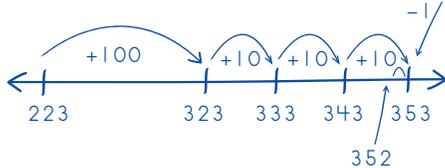
FREQUENTLY ASKED QUESTIONS ABOUT UNIT 7

Q: Why does a math unit focus on ants?

A: Students are more engaged when topics are interesting to them. Mathematics is certainly an interesting topic in its own right, but second graders are especially interested in the creatures that inhabit the world around them. In fact, they are becoming very social creatures themselves, and much of their daily interests involve playing and sharing with friends. Students delve into the fascinating world of army ants and use this context to learn about metric measurement. Then, they're off to a picnic (with ants, of course) and explore ways to share a granola bar among friends. Finally, they meet ants that run their own toy store! This factual and fanciful unit on ants taps into students' natural interests by offering meaningful contexts for problem solving with measurement, fractions, addition and subtraction. Along the way, students see how math is used outside of school on a daily basis.

Q: Why aren't students using regular rulers for measuring activities?

A: Centimeter and inch units of measurement are quite abstract for young children. The fact that students now associate centimeters with the army ant and associate inches with the inchworm helps them distinguish between the two units and remember that a centimeter is smaller than an inch. Unlike regular rulers, there are no additional markings showing $\frac{1}{2}$ or $\frac{1}{4}$. This helps the students see that the unit, 1 centimeter, is the length of the army ant and not just the tick mark labeled 1. Students also use regular measuring tapes and rulers. They may just need more support to use and read these correctly until all the tick marks have meaning.

1 centimeter

1 inch