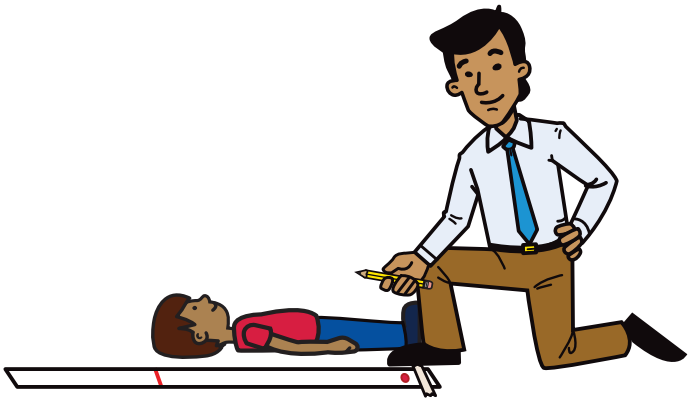
Bridges in Mathematics
Grade 2 Unit 4

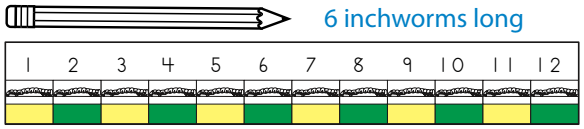
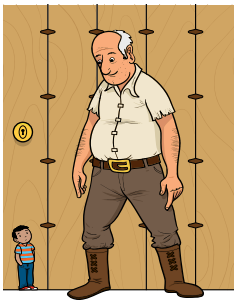
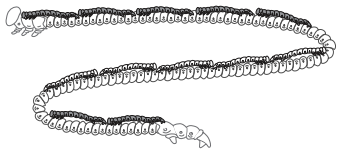
Measurement

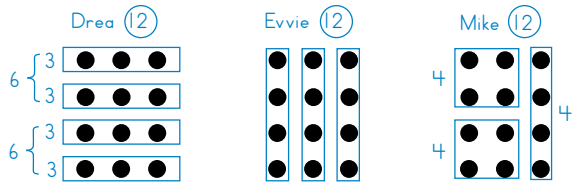


In this unit, your student will:

- Estimate, measure, and compare the lengths of objects in inches, feet, and yards
- Measure the length of an object twice using two different units, such as inches the first time, then feet
- Continue to add and subtract within 100 and begin to explore strategies for 3-digit addition and subtraction.
- Work with arrays

Your student will practice these skills by solving problems such as these:

PROBLEM	COMMENTS
46 + 38 = 84  	Students make and use their own inchworm rulers to measure the lengths of objects throughout this unit. The inchworm rulers are similar standard inch rulers, with each inchworm exactly 1 inch long. To measure the length of an object correctly, it's important to line up one end of the object with the 0 mark on the ruler. Students also measure lengths using square tiles (1 inch each), "teacher feet" (1 foot each), and "giant feet" (1 yard each).
82 – 39 = 43  48 + 48 + 48 + 48 = 192 inches	Jessie and the Giant — two characters based on the fairytale Jack and the Beanstalk — are featured throughout this unit in problem-solving contexts involving inches, feet, and yards. To solve this example problem, some students might reason that Jessie is 48 inches tall and that the Giant is "4 Jessies tall," so the Giant's height is the sum of 48 + 48 + 48 + 48. Other students might start by determining that the Giant is 16 feet tall, then figure out how many inches is equivalent to 16 feet.
In the Giant Kingdom, the longer worms give piggyback rides to the shorter worms. One day, 27 inchworms were waiting for a ride. Along came 2 footworms. Can all 27 inchworms ride piggyback at the same time on 2 footworms? How do you know? 12 + 12 = 24 12 inchworms 12 inchworms 1 footworm 1 footworm 24 inchworms can fit on 2 footworms. 24 < 27, so they can't all ride at the same time.	In the Giant's garden, there are worms of various lengths: inchworms, footworms, and yardworms. Students discover that 12 inchworms can ride on the back of 1 footworm. Likewise, 3 footworms can ride on the back of 1 yardworm. These characters provide a fun context for measuring while helping students remember there are 12 inches in 1 foot and 3 feet in 1 yard. 

PROBLEM	COMMENTS
How many dots do you see? How do you see them?  	During a series of dot talks, students explore strategies for determining the total number of dots in arrays or similar arrangements. For example, to determine the number of dots in this 3-by-4 array, Drea sees 4 groups of 3 dots, while Evvie and Mike see 3 groups of 4 dots.

Frequently Asked Questions About Unit 4

Q: Why is estimating an important part of learning to measure?

A: Estimating prior to measuring helps a student focus on the attribute being measured and the measuring process. For example, when students make an estimate, they need to think about the unit's length. If they are going to estimate the length of something in inches, they need to think about how long 1 inch is. This helps them become more familiar with a unit's size. Once they make an estimate and the item has been measured, they can think about the accuracy of the estimation. This reflection will help with future estimates, number sense, and measurement tasks.

Q: The examples from this unit are all customary units (inches, feet, and yards). Will students learn the metric system as well?

A: Students explore measuring lengths with metric units in Unit 7, with a focus on centimeters and meters.

Q: How can I support my student's learning?

A: Talk about different things that can be measured at home and have your student measure them. Make a list of things that could be measured in inches, feet, or yards. Choose a few items to measure, and discuss which unit is most appropriate. Would you measure the length of a bedroom in inches or feet? Why? Whether you're calculating distance on a map, planning to buy curtains, or measuring garden rows, everyday applications make math meaningful.

To further support your student in learning mathematics, you can:

- Visit mathathome.mathlearningcenter.org and work through some or all of the activities in Grade 2: Set 4 together. These activities complement the learning that takes place in the classroom during Unit 4 and provide fun ways to engage children in mathematical thinking. This set also includes digital versions of familiar games that your student has learned at school, such as Jump-a-Ten or Three Spins to Win.
- Visit apps.mathlearningcenter.org and invite your student to explore the Number Line and Number Pieces apps. Throughout Unit 4, students explore these tools in their physical forms in the classroom.
- Read books with your student that focus on measuring the length of objects using inches, feet, or yards. Some suggestions for this unit include:
  - *Inch by Inch* by Leo Lionni
  - *Twelve Snails to One Lizard: A Tale of Mischief and Measurement* by Susan Hightower, pictures by Matt Novak
  - *How Big Is a Foot?*, written and illustrated by Rolf Myller