Bridges in Mathematics
Grade 2 Unit 8

Measurement, Data & Multidigit Computation with Marble Rolls

In this unit, your student will:

- Measure lengths to the nearest inch
- Collect and display data on line plots and bar graphs
- Analyze data to solve problems and draw conclusions
- Add and subtract 3-digit numbers

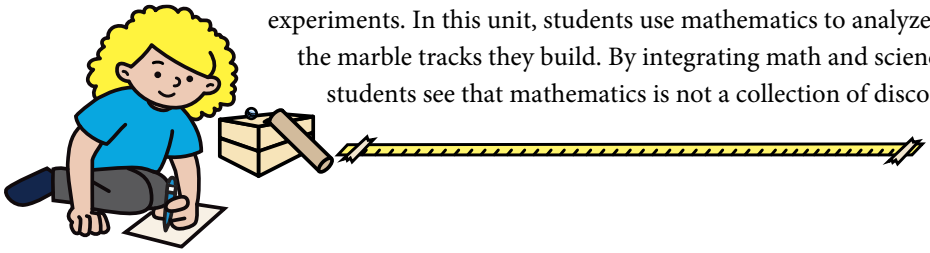
Your student will practice these skills by solving problems such as these:

PROBLEM	COMMENTS
Use a block, cardboard tube, and tape to build a marble track. Measure the distance the marble travels. 	This unit combines math and science concepts. Students create ramps and adjust three variables (ramp height, marble mass, and tube length) to make their marbles roll farther after exiting the track. They collect and graph data and use it to adjust their designs. Later, they work in pairs to solve a variety of marble ramp challenges.
Make a line plot using the data collected from class experiments.  How far do you think a marble would roll from 4 blocks high? Explain your thinking using the information on the graph. *"I think it would go farther than it did from 3 blocks. Maybe it would go about 45 inches. Each time you add a block, the marble goes farther."*	A line plot shows data on a number line with an X to show frequency. After rolling the marble down the ramp, students record their distance on a sticky note and post it on a class line plot. They then transfer the information to their own line plot, like the one shown here, and discuss the results with their classmates. To answer questions like this example one, students must interpret what the graph shows. This student saw that when the marble was rolled from greater heights, it rolled farther after exiting the track.
The Lin family drove to Washington, D.C. On the first day, they drove 275 miles. On the second day, they drove 165 miles. How many miles did they drive in all?  or 	There are multiple ways students might approach this problem. The work on the number line shows the thinking of a student who broke apart 165 and added the parts to 275 in a way that used friendly numbers. The squares, lines, and dots in the second example represent hundreds, tens, and ones. This student first drew a sketch of each addend, then put together 10 tens to make another hundred and put together 10 ones to make a new ten.

Frequently Asked Questions About Unit 8

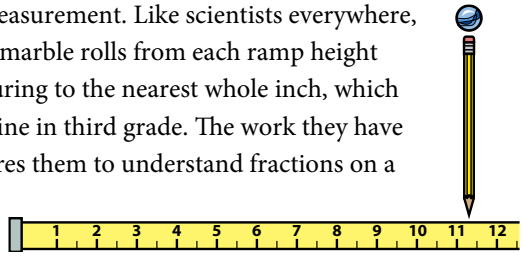
Q: Why are students doing math and science at the same time in this unit?

A: Math and science are closely related. Scientists use mathematics to make sense of data they collect through experiments. In this unit, students use mathematics to analyze and interpret data they collect about the marble tracks they build. By integrating math and science in a purposeful way, Unit 8 helps students see that mathematics is not a collection of disconnected skills and topics but rather a way of using tools to make sense of the world around them.



Q: It seems like students are doing a lot of measuring length and distance. Why? What about different types of measurement?

A: The marble roll project is the culmination of a year filled with linear measurement. Like scientists everywhere, students run multiple trials, measuring and recording the distance the marble rolls from each ramp height three times. In the process, one of the things students practice is measuring to the nearest whole inch, which prepares them for rounding and working with fractions on a number line in third grade. The work they have done with number lines, linear measurement, and fractions also prepares them to understand fractions on a number line or ruler. Students will work with other types of measurement, like temperature, mass (weight), and volume (capacity), in future grades.



Q: What can I do over summer break to help my student continue to grow mathematically?

A: Encourage your student to perform their own experiments, especially ones that include measuring lengths. For example, have them build towers using different kinds of blocks. Which kind of blocks result in the tallest tower? How can they display the results clearly to others?

Summer is the perfect time to show your student how math is used in everyday life. Telling time, counting money, measurement, addition, and subtraction are all key skills they developed this year. Activities that reinforce these life skills are good choices. Ideas include playing games, following recipes, or shopping.

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: Spring Medley and Summer Medley together. These activities extend the learning from all the units and provide fun ways to engage children in mathematical thinking.
- Visit apps.mathlearningcenter.org and invite your student to explore the Number Line and Number Pieces apps. Throughout Unit 8, students explore these tools in their physical forms in the classroom.
- Read books with your student that focus on measuring with inches and feet or multidigit addition and subtraction. It's also a good time to review the math they learned throughout the year and to explore the specific math interests of your student. Some suggestions include:
  - *Carrie Measures Up* by Linda W. Aber, illustrated by Joy Allen
  - *How Long or How Wide?: A Measuring Guide* by Brian P. Cleary, illustrated by Brian Gable
  - *Go Next Door!: Teaching Kids to Regroup with Addition* by Nadine Ebri
  - *The Good Neighbors' Cheese Feast: A Cheesy Mouse Tale of Subtraction with Regrouping* written by Mark Ramsay, illustrated by Susan G. Robinson
  - *Do Not Open This Math Book: Addition + Subtraction* by Danica McKellar