

Spotlight On: Perseverance

People are rarely proficient when they first try something new—whether it is riding a bike, speaking a new language, or playing a new video game. Learning is about acquiring new skills, knowledge, or ways of understanding. Being unsure, identifying errors, and making mistakes are signs that someone is actively thinking about, and making sense of, new ideas and skills; they are signs that someone is learning and growing.

The National Council of Teachers of Mathematics (NCTM) highlights that math students (and mathematicians) learn by making sense of problems and persevering in solving them. CPM teachers are trained to invite students to engage with challenges productively. Students are encouraged to take risks, try new ideas, and learn from their mistakes.

The Big Picture

Growing From

Data Displays;
Number Lines

Working On

Measures of Center;
Integers;
Absolute Value;
Coordinate Plane

Growing To

Variation in Data Displays;
Coordinate Plane

Need Help?

Methods & Meanings boxes are included in the Mathematician's Notebook as reference.

- 3.1.1: Measurement Conversions
- 3.1.4: Measures of Central Tendency
- 3.2.3: Integers
- 3.2.4: Rational Numbers
- 3.3.3: Absolute Value
- 3.4.1: Opposites
- 3.4.2: Graphing Points on a Coordinate Plane

Current Topics

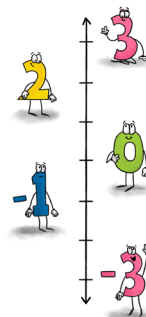
This chapter introduces students to several concepts and skills that will be used this year: measures of center (mean and median), negative numbers, and the coordinate system. Statistical topics will be revisited in Chapter 5 where students will more fully describe the variation of data. Following this chapter's introduction to negative numbers, students will see contextual problems throughout this course that solidify their understanding of negative numbers. They will begin operations on negative numbers (such as adding and subtracting) in a future course. The coordinate system will be a recurring theme as students practice graphing numbers, building up to work with distances between points in Chapter 10.

Measures of Center (Section 3.1)

Students will learn to describe a set of data by its measure of center through either the mean or the median. They will also be introduced to range and outliers.

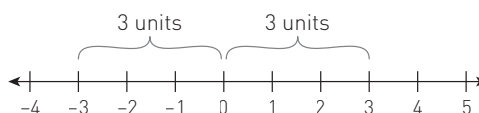
Integers (Section 3.2)

Students discuss contexts such as yardage in a football game and temperature to help build an understanding of zero and positive and negative numbers. Negative numbers are not as physically relatable to students as counting numbers (1, 2, 3...) are, so they are given multiple analogies and plenty of time to develop this foundation.



Absolute Value (Section 3.3)

Many students think that the absolute value symbol simply makes the number positive (negative becomes positive and positive stays a positive), when in fact the absolute value of a number is the distance of the number from zero. Because distance measured is always a positive number, the absolute value of a number will always be positive.



Coordinate Plane (Section 3.4)

The coordinate plane is introduced as an extension of the number line and a means to identify a location on a two-dimensional space. Students will explore movement in the four quadrants and add to their understanding of negative numbers by graphing positive and negative coordinates on the plane.

Try This at Home!

Negative numbers may be unfamiliar to your student, but they are an important part of our number system and our world. Show your student a thermometer that has negative values and talk about the weather. Do you live in or have you ever visited a place with a temperature less than 0 °F? Look at a national weather report together and look for a location where the temperature is negative.

