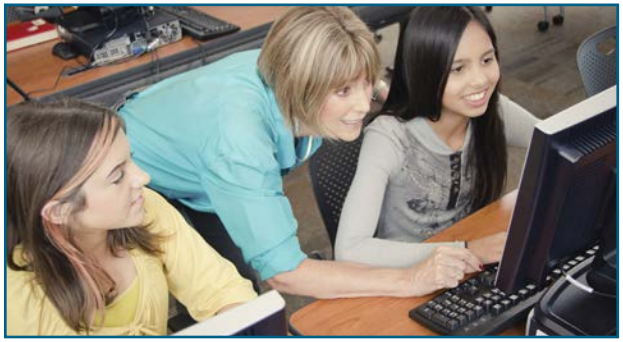
Grade-Level Focus

With the emphasis on students understanding mathematical concepts and achieving deeper learning, teachers will teach mathematics differently than in the past. Students will learn to "do math" through real-world situations and focus on fewer topics that are connected in a coherent progression within and across grade levels.

In grades six through eight, students move from arithmetic to algebra. Learning focuses on ratio and proportional reasoning applied to real-world problems and quantitative relationships, leading to the notion of functions by grade eight. By the end of grade six, students are expected to be fluent with multi-digit division and calculations with multi-digit decimals. By the end of grade eight, students are expected to be fluent with calculations with positive and negative fractions and decimal numbers.

Grade	Major Focus for Instruction and Learning in Grades 6–8
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions



To help your student learn mathematics:

- Talk with your student about the mathematics you use every day (computing gas mileage, the cost of an item after the sales tax is added, or the amount of a tip; mixing solutions such as paint or juice).

- Talk with the teacher about the problem-solving strategies students are learning, and help your student apply them to real-world situations.

For more information on the California Common Core State Standards for Mathematics and ideas for helping your student succeed, check out these resources:

- The Common Core Resources Web page is online at http://www.cde.ca.gov/re/cc/. Start by clicking on the Students/Parents tab.

- The California Common Core State Standards for Mathematics are available online at http://www.cde.ca.gov/be/st/ss/documents/ccssmathstandardaug2013.pdf.

- The Mathematics Framework for California Public Schools is available online at http://www.cde.ca.gov/ci/ma/cf/index.asp.

Produced for the Consortium for the Implementation of the Common Core State Standards under the leadership of the Curriculum Frameworks and Instructional Resources Division of the California Department of Education and the Sacramento County Office of Education.

What Your Student Will Learn:

California Common Core State Standards for Mathematics

The California Common Core State Standards for Mathematics are based on three major principles: focus, coherence, and rigor. There are two types of standards—the Standards for Mathematical Practice and Standards for Mathematical Content—that together define the mathematics students need to understand, know, and be able to do at each grade level.

Thinking Like a Mathematician

The Standards for Mathematical Practice (MP) help students learn to think like mathematicians—to apply mathematics to solve real-world problems, be resourceful, reason about numbers, and explain and defend their solutions and the strategies used to find the solution. When students apply MP.7, they look for patterns and structures to help them solve problems.

Grade	Examples of MP.7: Look for and make use of structure.
6	Students notice patterns that exist in ratio tables, recognizing both the additive and multiplicative properties.
7	Students routinely seek patterns or structures to model or solve problems.
8	Students examine patterns in tables and graphs to generate equations and describe relationships.

Example Problems

1

Students in sixth grade might use the information in the following table to find the number of yards that equals 24 feet. They can notice that 24 feet = 4 × (6 feet), so the answer is 4 × (2 yards) = 8 yards.

Feet	3	6	9	15	24
Yards	1	2	3	5	?

2

In grade seven, students can look for patterns in a table like the one below as they learn how to multiply negative numbers and come to understand that (-1)(-1) = 1. Reasoning about the pattern helps students determine that the missing numbers in the table should be 5, 10, 15, and 20.

5×4	5×3	5×2	5×1	5×0	5×(−1)	5×(−2)	5×(−3)	5×(−4)
20	15	10	5	0	−5	−10	−15	−20
−5×4	−5×3	−5×2	−5×1	−5×0	−5×(−1)	−5×(−2)	−5×(−3)	−5×(−4)
−20	−15	−10	−5	0	?	?	?	?

3

Grade-eight students use reasoning about patterns to explore the properties of exponents as they fill in the blanks in the table below and discuss with classmates the patterns they find. Students can reason about why the value of 2^0 should be 1, based on patterns they may see—for example, in the bottom row of the table, each value is ½ of the value to the left of it.

	2^3	2^2	2^1	2^0	2^{-1}	2^{-2}	2^{-3}
Expanded	2×2×2	2×2	2	?	1÷2	½÷2	?
Evaluate	8	4	2	?	½	¼	?