

Essential Learning from 2nd Grade to 3rd Grade

(CA Math Framework pp. 151-2)

For more in-depth examples of tasks, expectations, and student reasoning on these topics, refer to the 2nd Grade CA Math Framework at <http://www.cde.ca.gov/ci/ma/cf/documents/mathfwgrade2.pdf>

In kindergarten through grade five, the focus is on the addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals, with a balance of concepts, skills, and problem solving. Arithmetic is viewed as an important set of skills and also as a thinking subject that, when done thoughtfully, prepares students for algebra. Measurement and geometry develop alongside number and operations and are tied specifically to arithmetic along the way.

In kindergarten through grade two, students focus on addition, subtraction, and measurement using whole numbers. To be prepared for grade-three mathematics, students should be able to demonstrate by the end of grade two that they have acquired specific mathematical concepts and procedural skills and have met the fluency expectations for the grade. For grade-two students, the expected fluencies are to add and subtract within 20 using mental strategies and know from memory all sums of two one-digit numbers (2.OA.2), and to add and subtract within 100 using various strategies (2.NBT.5). These fluencies and the conceptual understandings that support them are foundational for work in later grades.

Of particular importance at grade two are concepts, skills, and understandings of addition and subtraction within 20 and representing and solving problems involving addition and subtraction (2.OA.1–2); place value (2.NBT.1–4) and the use of place-value understanding and properties of operations to add and subtract (2.NBT.5–9); measuring and estimating lengths in standard units (2.MD.1–4); and relating addition and subtraction to length (2.MD.5–6).

Place Value

By the end of grade two, students are expected to read, write, and count to 1000, skip-counting by twos, fives, tens, and hundreds. Students need to understand that 100 can be thought of as a bundle of 10 tens and also understand three-digit whole numbers in terms of hundreds, tens, and ones.

Addition and Subtraction

Addition and subtraction are major instructional focuses in kindergarten through grade two. By the end of grade two, students are expected to add and subtract (using concrete models, drawings, and strategies) within 1000 (2.NBT.7). Students should add and subtract fluently within 100 using various strategies (2.NBT.5), and add and subtract fluently within 20 using mental strategies (2.OA.2). Students mentally add and subtract 10 or 100, within the range 100–900 (2.NBT.8). They are expected to know from memory all sums of two one-digit numbers (2.OA.2). Students should also know how to apply addition and subtraction to solve a variety of one- and two-step word problems (within 100) involving add-to, take-from, put-together, take-apart, and compare situations (2.OA.1); refer to table 2-3 for additional information.

Students who have met the grade-two standards for addition and subtraction will be prepared to fluently add and subtract within 1000 using strategies and algorithms, as required in the grade-three

standards. These foundations will also prepare students for concepts, skills, and problem solving with multiplication and division, which are introduced in grade three.

Measurement

By the end of grade two, students can measure lengths using standard units—inches, feet, centimeters, and meters. Students need to know how to use addition and subtraction within 100 to solve word problems involving lengths (2.MD.5). Mastering grade-two measurement standards will prepare students to measure fractional amounts and to add, subtract, multiply, or divide to solve word problems involving mass or volume, as required in the grade-three standards.