

Essential Learning from Kindergarten to 1st Grade

(CA Math Framework pp. 80-81)

For more in-depth examples of tasks, expectations, and student reasoning on these topics, refer to the Kindergarten CA Math Framework at <http://www.cde.ca.gov/ci/ma/cf/documents/mathfwkindergarten.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, 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-one mathematics, students should be able to demonstrate that they have acquired specific mathematical concepts and procedural skills by the end of kindergarten and have met the fluency expectations. For kindergartners, the expected fluencies are to add and subtract within 5 (K.OA.5). Addition and subtraction are introduced in kindergarten, and these fluencies and the conceptual understandings that support them are foundational for work in later grades.

It is particularly important for kindergarten students to attain the concepts, skills, and understandings necessary to know the number names and the count sequence (K.CC.1–3); count to tell the number of objects (K.CC.4–5); compare numbers (K.CC.6–7); understand addition as putting together and adding to; and understand subtraction as taking apart and taking from (K.OA.1–5). Also, working with numbers to gain foundations for place value (K.NBT.1) is essential to understanding the base-ten number system.

Counting and Cardinality

In kindergarten, students learn to count. Students should connect counting to *cardinality*—knowing that the number word tells the quantity and that the number on which a person ends when counting represents the entire amount counted. Until this concept is developed, counting is merely a routine procedure done when a number is needed, and students will not understand how to apply numbers to solve problems.

By the end of kindergarten, important number concepts and skills for students include counting by ones and tens to 100 (rote counting); continuing a counting sequence when beginning from a number greater than 1 (counting on); counting objects to 20; writing numbers to 20; understanding one-to-one correspondence; identifying a quantity using both numerals and words; representing numbers with numerals (and pictures and words); understanding numbers and the relationships between numbers and quantities; and understanding the concepts of *more* and *less*. Counting to 100 and representing numbers with numerals (0 to 20) will prepare students to read and write numbers to 120 in grade one.

Addition and Subtraction

By the end of kindergarten, students are expected to add and subtract within 10 and solve addition and subtraction word problems. Students are also expected to be fluent with addition and subtraction within 5. Fluency with addition and subtraction will prepare students to add within 100 in grade one. Addition and subtraction constitute a major instructional focus for kindergarten through grade two.