

**Spark Curiosity and Wonder**

The main focus in first grade is to develop a solid understanding of place value through addition and subtraction. Your child will add and subtract up to twenty, and make larger numbers out of tens and ones. In second grade mathematics, children will not only learn their number facts, but see them as related. This will help your child not only learn these facts, but to build number sense.

For example, a child might learn their “doubles”, such as  $8 + 8 = 16$  and from there know close facts such as  $8 + 7 = 15$  because it must be one less than  $8 + 8$ . Another child might prefer to see  $8 + 7$  as  $8 + 2 + 5$  and then see that as  $10 + 5$  to get 15. This last approach of “making a ten” is key. Finding it this way will help your child remember it and will also be important for knowing the rules of arithmetic and eventually algebra.

Your child will be working in concrete ways with tens and ones, often with blocks or pictures, so that they know what it means to make a ten or break one apart. This process is called “regrouping” to emphasize that the value of the number has not changed. Encourage your child to use blocks or other objects and pictures when doing math at home. Eventually your child will be proficient with pencil-and-paper and mental math that builds upon the conceptual understanding they developed when using objects and pictures. This gives them a solid foundation for understanding place value.

One of the most important skills in math that children learn in first grade is flexibility with different types of addition equations like  $3 + 2 + 5$ , also  $5 + 3 + 2$  and even  $3 + 2 = 1 + 4$ . For example, you can use a variety of word problems ([Addition and subtraction situations by grade level](#)) when doing math with your child. This will reinforce their understanding of the equal sign.

Major Work - Addition and Subtraction		
Operations & Algebraic Thinking	Number & Operations in Base Ten	Measurement and Data
<ul style="list-style-type: none"> <li>● Represent and solve problems involving addition and subtraction.</li> <li>● Understand and apply properties of operations and the relationship between addition and subtraction.</li> <li>● Add and subtract within 20.</li> <li>● Work with addition and subtraction equations.</li> </ul> <p><a href="#">Addition and subtraction situations by grade level</a></p>	<ul style="list-style-type: none"> <li>● Extending the counting sequence.</li> <li>● Understand place value.</li> <li>● Use place value understanding and properties of operations to add and subtract.</li> </ul>	<ul style="list-style-type: none"> <li>● Measure lengths indirectly and by iterating length units.</li> </ul>
Required Fluency Expectations		
Add/Subtract within 10		

For more details see [CA Mathematics Standards, First Grade, p. 14-17](#)

**Speak Like a Mathematician**

Mathematical discussion is key to making meaning. You can support your child’s mathematical thinking by having informal conversations about mathematics. Encourage your child to articulate their thinking about number quantities, comparisons, patterns, and solving problems when doing daily tasks, playing games, going on walks, or errands together.

- [Growth Mindset Feedback Tool](#)  
Growth mindset language motivates learners to ensure they remain persistent, resilient, and focused on the process of learning. It is important to give learners feedback about how their process leads to a result so they can understand that their abilities will develop with effort.
- Talk about arithmetic out loud as it comes up in daily life.
- Count collections of objects. ([Teaching Channel Video - Counting Collections to 100](#)) Counting provides the foundation for understanding numbers and for computation skills (addition, subtraction, multiplication, and division). Counting teaches children the names of numbers, the sequence of number, one-to-one correspondence, relative size, efficient and accurate counting strategies It’s easier to keep track of groups of ten, than to count 170 single objects!
- Practice counting starting at different numbers. For example, ask your child what number comes after seven and then invite them to begin counting from there. This will help them with addition and subtraction.
- Verbalize mathematical thinking when playing games, for example, play the card game “War” but use two cards instead, so your child’s  $5 + 3 = 8$  and the parents  $2 + 5 = 7$ . Child shares how they thought about the solution, for example,  $5 + 3$  wins because both have 5’s but the three is greater than the 2.
- For teen numbers, you may sometimes even count in the unit-form way that emphasizes the ten (e.g., eight, nine, ten, ten-and-one, ten-and-two, ten-and-three...) as well as with standard names. This will help build understanding of place value, which is the key to knowing how numbers work.
- Skills practice should encourage reflection. Provide practice which has your child do a “ plus three” right next to a corresponding “plus two” to encourage them to make connections that reinforce noticing patterns when decomposing and composing numbers. Ask your child to share what they notice.

**Think Like a Mathematician** ([Standards for Mathematical Practice, see p. 3, 6-8](#))

The Standards for Mathematical Practice go hand-in-hand with the content standards, describing varieties of expertise that learners are expected to practice when learning and doing mathematics throughout K-12.

Standards for Mathematical Practice	Examples - What you can do at home
Make sense of problems and persevere in solving them.	Encourage your child to solve problems and discuss how they solved them. This will help your child verbalize and internalize the meaning of a problem and look for ways to solve it. Encourage your child to use concrete objects or math drawings to help them conceptualize and solve problems. The important thing is to ask questions, “Does this make sense?” that supports your child to come to their own understanding, rather than telling.

## Supporting my Child's Mathematical Growth in Grade 1

<p>Reason abstractly and quantitatively.</p>	<p>Grade one children make sense of quantities and relationships while solving tasks. They represent situations by decontextualizing tasks into numbers and symbols. For example, "There are 14 children on the playground, and some children go line up. If there are 8 children still playing, how many children lined up?" Children translate the problem into the situation equation <math>14 - \square = 8</math>, then into the related equation <math>8 + \square = 14</math>, and then solve the task. Children also contextualize situations during the problem-solving process. For example, children refer to the context of the task to determine they need to subtract 8 from 14, because the number of children in line is the total number less the 8 who are still playing. To reinforce reasoning and understanding, you might ask your child, "How do you know" or "What is the relationship of the quantities?"</p>
<p>Construct viable arguments and critique the reasoning of others.</p>	<p>Encourage your child to construct arguments using concrete objects, pictures, drawings, and actions. Help your child practice mathematical communication skills as they participate in mathematical discussions involving questions such as "How did you get that?" or "Explain your thinking" and "Why is that true?" They explain their own thinking and listen to the explanations of others. For example, "There are 9 books on the shelf. If you put some more books on the shelf and there are now 15 books on the shelf, how many books did you put on the shelf?" Encourage your child to use a variety of strategies to solve the task and then share and discuss their problem-solving strategies.</p>
<p>Model with mathematics.</p>	<p>Grade one children need opportunities to experiment with representing problem situations in multiple ways, including writing numbers, using words (mathematical language), drawing pictures, using objects, acting out, making a chart or list, or creating equations. Children need opportunities to connect the different representations and explain the connections. They should be able to use any of these representations as needed.</p> <p>Encourage your child to model mathematical situations with an equation and check to make sure equation accurately matches the problem context. Also, invite your child to use concrete models and pictorial representations while solving tasks and also write an equation to model problem situations. For example, to solve the problem, "There are 11 bananas on the counter. If you eat 4 bananas, how many are left?", a child might write the equation <math>11 - 4 = 7</math>. Encourage your child to answer questions such as "What math drawing or diagram could you make and label to represent the problem?" or "What are some ways to represent the quantities?"</p>
<p>Use appropriate tools strategically.</p>	<p>Encourage your child to consider the available tools (including estimation) when solving a mathematical problem and decide when particular tools might be helpful. For instance, first-graders decide it might be best to use colored chips to model an addition problem. Children use tools such as counters, place-value (base-ten) blocks, hundreds number boards, concrete geometric shapes (e.g., pattern blocks or three-dimensional solids), and virtual representations to support conceptual understanding and mathematical thinking. For example, when solving <math>12 + 8 = \square</math>, a child might explain why place-value blocks are appropriate to use to solve the problem. Encourage your child to answer questions such as "Why was it helpful to use?"</p>
<p>Attend to precision.</p>	<p>As children begin to develop their mathematical communication skills, they try to use clear and precise language in their discussions with others and when they explain</p>

	<p>their own reasoning.</p> <p>In grade one, children use precise communication, calculation, and measurement skills. Ask your child to describe their solution strategies for mathematical tasks using grade-level-appropriate vocabulary, precise explanations, and mathematical reasoning. Encourage your child to regularly check their work to ensure the accuracy and reasonableness of solutions.</p>
<p>Look for and make use of structure.</p>	<p>Encourage your child to look for patterns and structures in the number system and other areas of mathematics. While solving addition problems, children begin to recognize the commutative property, for example, <math>7 + 4 = 11</math>, and <math>4 + 7 = 11</math>. While decomposing two-digit numbers, children realize that any two-digit number can be broken up into tens and ones (e.g., <math>35 = 30 + 5</math>, <math>76 = 70 + 6</math>). Grade-one children make use of structure when they work with subtraction as an unknown addend problem. For example, <math>13 - 7 =</math> can be written as <math>7 + \underline{\quad} = 13</math> and can be thought of as “How much more do I need to add to 7 to get to 13?”</p>
<p>Look for and express regularity in repeated reasoning.</p>	<p>When counting and playing computation games with your child ask them to notice and talk about repetitive patterns they see. When children have multiple opportunities to add and subtract 10 and multiples of 10, they notice the pattern and gain a better understanding of place value. Encourage your child to continually check their work by asking themselves, “Does this make sense?”</p> <p>Grade-one children begin to look for regularity in problem structures when solving mathematical tasks. For example, a child might add three one-digit numbers by using strategies such as “make a ten” or doubles. Children recognize when and how to use strategies to solve similar problems. For example, when evaluating <math>8 + 7 + 2</math>, a child might say, “I know that 8 and 2 equals 10, then I add 7 to get to 17. It helps if I can make a ten out of two numbers when I start.” Encourage your child to use repeated reasoning while solving a task with multiple correct answers, for example, the problem “There are 12 crayons in the box. Some are red and some are blue. How many of each color could there be?” For this particular problem, children use repeated reasoning to find pairs of numbers that add up to 12 (e.g., the 12 crayons could include 6 of each color [<math>6 + 6 = 12</math>], 7 of one color and 5 of another [<math>7 + 5 = 12</math>], and so on). Encourage your child to answer questions such as “What is happening in this situation?” or “What predictions or generalizations can this pattern support?”</p>

Table above IUSD adapted from [CA Mathematics Framework, Grade 1](#)

**Course Materials**

- [IUSD Mathematics TextBooks 2016-17](#) (List of current textbooks)

**Math Literature**

Books create contexts for math. The mathematical problems and solutions that children encounter in books are deeper and more nuanced than most of the word problems they encounter, thus providing opportunity for children to be captivated by the problem and eager to devise a solution.

- University of Chicago [School Math Project - First Grade Reading List](#) (organized by topic)
- Marilyn Burns List of [Math and Literature for Kindergarten - 1st Grade](#)
- Marilyn Burns List of [Math Literature \(All ages\)](#)

### **Additional Parent Resources**

#### Math Tasks, Games, Apps

- Khan Academy - [First Grade](#)
- Illustrative Mathematics - [Grade 1 Tasks](#)
- YouCube - [Mathematical Tasks for Grade 1](#)
- Math App and Games - [YouCube Recommendations](#)

#### Parent Guides

- [CA PTA Kindergarten - Grade Two Brochure for Parents/Guardians](#)  
These brochures on the mathematics standards showcase example problems and highlight the progression of learning through the grade levels. The brochures also offer suggestions for parents/guardians to support their child's' learning and a list of additional resources
- [CALIFORNIA'S NEW STATE STANDARDS: THE FUTURE BELONGS TO YOUR CHILD](#)  
Parents' guide available in multiple languages, by grade level, includes information about state assessments
- [Jo Boaler, YouCube Parent Resources](#)  
Articles, research on growth mindset, how brain learns mathematics, etc...