

Spark Curiosity and Wonder

The main focus in second grade is to continue building an understanding of the way our number system works using place values of ones, tens, hundreds, etc. This includes ideas of counting in fives, tens, and multiples of hundreds, tens, and ones, as well as number relationships involving these units, including comparing.

Your child will learn to both write and build numbers (i.e. with objects, [base-ten blocks](#), etc.), Encourage your child to tell you what they notice. A child might recognize that the 3 in the number 357 represents 3 hundreds rather than “just being a three” and that 12 tens is the same as 1 hundred and 2 tens. Later this will make it clear that adding two hundreds (or 200) to 357 is just a matter of adding 2 hundreds to the 3 hundreds in the hundreds place.

Second grade measurement concepts reinforce this number sense, providing real world contexts, and a foundation for understanding more advanced concepts. For instance, you might notice that your child might add two different lengths together or compare the lengths of two objects (which would require subtraction). Using bar graphs, clocks, or money they might practice these same skills. In second grade they also do things like partition rectangles into squares and other equal shapes in preparation for understanding both multiplication and fractions. ([Arrays](#))

Encourage flexibility with different types of addition equations like $12 + 15$, also $10 + 10 + 2 + 5$ and even $20 + 7 = 12 + 15$. 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 that they developed in first grade.

Play skip counting games with your child by various numbers including tens and hundreds both to increase skill for addition and subtraction using three place values, but also as a foundation for multiplication. This can be connected to the clock because in second grade they will be reading time to the nearest five minutes.

One of the most important skills in math that children learn in second grade is to continue to use many different strategies for adding and subtracting. Your child will use their understanding of the way numbers are built to move toward methods that will always work quickly and accurately. For example, [Bundling and Unbundling](#), you can ask your child to break apart numbers in a variety of different ways.

Major Work - Addition and Subtraction		
Operations & Algebraic Thinking	Number & Operations in Base Ten	Measurement and Data
<ul style="list-style-type: none">• Represent and solve problems involving addition and subtraction.• Add and subtract within 20. Addition and subtraction situations by grade level	<ul style="list-style-type: none">• Understand place value.• Use place value understanding and properties of operations to add and subtract.	<ul style="list-style-type: none">• Measure and estimate lengths in standard units.• Relate addition and subtraction to length.

Required Fluency Expectations

Single-digit sums and differences (sums from memory by end of Grade 2)

Add/subtract within 100

For more details see [CA Mathematics Standards, Second Grade, p. 18-22](#)

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.
- Ask your child to compare the price of two different items and decide how much you would save by buying one of them. Count by 2's, 5's, 10's, etc. to figure out how many there are of something rather than counting one at a time.
- Encourage your child to solve one- and two-step word problems by adding and subtracting numbers within 100. Have your child explain how they thought about the problem and found an answer. Ask open-ended questions that encourage them to determine if their strategy worked and/or what they can refine further.
- Design a sequence of true/false and/or open number sentences that you might use to engage your child in mental math and explaining their thinking about the equal sign.
 - Open number sentences: $3 + 5 = \underline{\quad}$, $8 = 3 + \underline{\quad}$, $8 = \underline{\quad}$, $3 + 5 = \underline{\quad} + 5$, $3 + 5 - \underline{\quad} + 3$
 - True/false: $3 + 5 = 8$, $8 = 3 + 5$, $8 = 8$, $3 + 5 = 3 + 5$, $3 + 5 = 4 + 4$
- Use open-ended questions to encourage your child's use of academic language and verbalizing their mathematical thinking. [Teaching Channel Video, Encouraging Math Conversation](#)

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.	In grade two, children realize that doing mathematics involves reasoning about and solving problems. When doing math together at home, ask your child to explain to themselves the meaning of a problem and look for ways to make sense of solve it. Encourage them to use concrete objects or pictures to help them conceptualize and

Supporting my Child's Mathematical Growth in Second Grade

	<p>solve problems and problems. Remind them to check their thinking by asking themselves, "Does this make sense?" After your child has completed the mathematical task, ask your child to share with you their selection of tools and process of solving the problem. By listening to your child's thinking and asking open-ended questions, your child will be encouraged to make conjectures about the solution and plan out a problem-solving approach.</p>
Reason abstractly and quantitatively.	<p>Children recognize that a number represents a specific quantity. They connect the quantity to written symbols. Quantitative reasoning entails creating a representation of a problem while attending to the meanings of the quantities.</p> <p>Children represent situations by decontextualizing tasks into numbers and symbols. For example, a task may be presented as follows: "There are 25 children in the cafeteria, and they are joined by 17 more children. How many children are in the cafeteria?" A child might translate the situation into an equation (such as $25 + 17 = _$) and then solve the problem. Children also contextualize situations during the problem-solving process. To reinforce your child's reasoning and understanding, you might ask, "How do you know?" or "What is the relationship of the quantities?"</p>
Construct viable arguments and critique the reasoning of others.	<p>Second graders may construct arguments using concrete referents, such as objects, pictures, math drawings, and actions. They practice their mathematical communication skills as they participate in mathematical discussions involving questions such as "How did you get that?", "Explain your thinking," and "Why is that true?" They not only explain their own thinking, but also listen to others' explanations. They decide if the explanations make sense and ask appropriate questions.</p> <p>You can do problems with your child, taking turns explaining thinking and why the solution is correct or not correct. Have your child ask you questions and critique the strategies and reasoning of you or others. For example you and your child, solve $74 - 18$, using a variety of strategies, then discuss and critique each other's reasoning and strategies.</p>
Model with mathematics.	<p>In early grades, children 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.</p> <p>Provide opportunity at home for your child to model real-life mathematical situations with an equation and check to make sure that their equation accurately matches the problem context. Encourage your child to use concrete manipulatives, math drawings (or both) to explain the equation. Ask them to critique if they have created an appropriate problem situation from an equation. For example, a child might create a story problem for the equation $43 + _ = 82$, such as "There were 43 mini-balls in the machine. Tom poured in some more mini-balls. There are 82 mini-balls in the machine now. How many balls did Tom pour in?" 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>
Use appropriate	<p>Second graders consider the available tools (including estimation) when solving</p>

Supporting my Child’s Mathematical Growth in Second Grade

<p>tools strategically.</p>	<p>a mathematical problem and decide when certain tools might be better suited than others. For instance, a child may decide to solve a problem by making a math drawing rather than writing an equation. Children may use tools such as snap cubes, place-value (base-ten) blocks, hundreds number boards, number lines, rulers, virtual manipulatives, diagrams, and concrete geometric shapes (e.g., pattern blocks, three-dimensional solids). Provide a variety of experiences using and selecting tools which will support your child in developing an understanding of which tools are the most appropriate to use. For example, while measuring the length of the hallway, a child can explain why a yardstick is more appropriate to use than a ruler. 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 their own reasoning.</p> <p>Encourage your child to communicate clearly, using grade-level-appropriate vocabulary accurately and precise explanations and reasoning to explain their process and solutions. For example, when measuring an object, a child might carefully line up the tool correctly to get an accurate measurement. During tasks involving number sense, remind your child to ask, “is this answer reasonable?”, “Does my solution answer the question?”, “Is my work and solution accurate?”</p>
<p>Look for and make use of structure.</p>	<p>Talk to your child about the patterns and structures they see in the number system. For example, a child might notice number patterns within the tens place as they connect counting by tens to corresponding numbers on a hundreds chart. Children see structure in the base-ten number system as they understand that 10 ones equal a ten, and 10 tens equal a hundred. You might ask your child, “What do you notice when?” or “How do you know if something is a pattern?” Children adopt mental math strategies based on patterns (making ten, fact families, doubles). They use structure to understand subtraction as an unknown addend problem (e.g., $50 - 33 = \text{—}$ can be written as $33 + \text{—} = 50$ and can be thought of as “How much more do I need to add to 33 to get to 50?”).</p>
<p>Look for and express regularity in repeated reasoning.</p>	<p>Second graders notice repetitive actions in counting and computation (e.g., number patterns to count by tens or hundreds). Encourage your child to continually check for the reasonableness of their solutions during and after completion of a task by asking themselves, “Does this make sense?” Children should be encouraged 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 2](#)

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.

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- University of Chicago [School Math Project - Second Grade Reading List](#) (organized by topic)
- Marilyn Burns List of [Math Literature \(All ages\)](#)

Additional Parent Resources

Math Tasks, Games, Apps

- Khan Academy - [Second Grade](#)
- Illustrative Mathematics - [Grade 2 Tasks](#)
- YouCube - [Mathematical Tasks for Grade 2](#)
- 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...