

Supporting my Child’s Mathematical Growth in Kindergarten

Spark Curiosity and Wonder

The main focus in kindergarten is a solid understanding of numbers up to twenty. Your child will work on counting, which will include counting starting from numbers other than one. This will help your child develop conceptual understandings about addition and subtraction that form the building blocks for later grades.

Your child will represent and compare whole numbers with groups of things to decide which is bigger. They will combine groups together or take some away from a group. Encourage your child to use pictures, and eventually written numbers to describe what’s happening.

One of the most important skills in math that children learn in kindergarten is putting things together and taking them apart in various ways. They will build and think about different ways that a number can be made from two other numbers. By encouraging your child to construct and deconstruct numbers with manipulatives (such as snap cubes or groups of objects) they begin to make meaning of addition and subtraction. They notice patterns and attributes of numbers. The geometry your child is learning in kindergarten reinforces this idea of putting together and taking apart. For example, you can ask your child to make two triangles by breaking apart a square or to put together shapes to form a new one.

Major Work - Addition and Subtraction		
Counting & Cardinality	Operations & Algebraic Thinking	Number & Operations in Base Ten
<ul style="list-style-type: none">• Know number names and the counting sequence• Count to tell the number of objects• Compare numbers	<ul style="list-style-type: none">• Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.• Addition and subtraction situations by grade level	Work with numbers 11–19 to gain foundations for place value.
Required Fluency Expectations		
Add/Subtract within 5		

For more details see [CA Mathematics Standards, Kindergarten, p. 10-13](#)

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.

- Count with your child as much as possible.

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- Count collections of objects. 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 numbers, 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.
- Play games that encourage breaking apart numbers in different ways. Point out how a group of objects can also be broken down into smaller groups. Ask them to explain what they notice. For example, you could see that a group of five plates, when setting the table, contains four big plates and one little plate.
- 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.

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.	Real-life experiences should be used to support your child's ability to connect mathematics to the world. To help, ask child to gather, sort, or stack ___ number of items. Encourage them to use concrete objects or pictures to solve problems. They may check their thinking by asking themselves, "Does this make sense?", or they may try another strategy.
Reason abstractly and quantitatively.	Children begin to recognize that a number represents a specific quantity and connect the quantity to written symbols. Quantitative reasoning entails creating a representation of a problem while attending to the meanings of the quantities. Encourage your child to both write numbers and draw pictures, manipulate objects, or use diagrams or charts to express quantitative ideas. Children need to be encouraged to answer questions such as "How do you know?"—which reinforces their reasoning and understanding and helps your child develop mathematical language.
Construct viable arguments and critique the reasoning of others.	Children construct arguments using actions and concrete materials, such as objects, pictures, and drawings. They begin to develop their mathematical communication skills as they participate in mathematical discussions. Encourage your child to answer questions such as "How did you get that?" and "Why is that true?" By encouraging your child to explain their thinking to others and respond to others' thinking they develop the ability to reason and analyze situations as they consider questions such as "Are you sure that?", "Do you think that would happen all the time?", and "I wonder why?"
Model with mathematics.	Invite your child to represent problem situations in multiple ways—by using numbers, objects, words, or mathematical language, acting out the situation, making a chart or list, drawing pictures, creating equations, and so forth. For example, a child may use

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	cubes or tiles to show the different number pairs for 5, or place three objects on a 10-frame and then determine how many more are needed to “make a ten.” Children rely on manipulatives (or other visual and concrete representations) while solving tasks and record an answer with a drawing or equation.
Use appropriate tools strategically.	Provide a variety of tools...counters, blocks, linking cubes, etc.. Encourage your child to consider tools available to them when solving a mathematical problem and decide when certain tools might be helpful. Observe what tool they select. For instance, kindergartners may decide to use linking cubes to represent two quantities and then compare the two representations side by side, or later, make math drawings of the quantities. Encourage your child to decide which tools may be helpful to use depending on the problem or task and explain to you their thinking in why they used particular mathematical tools.
Attend to precision.	Kindergartners begin to develop precise communication skills, calculations, and measurements. Ask your child to describe their own actions, strategies, and reasoning using grade-level-appropriate vocabulary. Opportunities to work with pictorial representations and concrete objects can help your child develop understanding and descriptive vocabulary. For example, children analyze and compare two- and three-dimensional shapes and sort objects based on appearance. Encourage your child to check their work to ensure the accuracy and reasonableness of solutions. Ask questions such as, “How do you know your answer is reasonable?”
Look for and make use of structure.	Your child will begin to discern a pattern or structure in the number system. For instance, children recognize that $3 + 2 = 5$ and $2 + 3 = 5$. Children use counting strategies, such as counting on, counting all, or taking away, to build fluency with facts to 5. Children notice the written pattern in the “teen” numbers—that the numbers start with 1 (representing 1 ten) and end with the number of additional ones. Ask your child to verbalize their thinking, “What do you notice when?”
Look for and express regularity in repeated reasoning.	In the early grades, children notice repetitive actions in counting, computations, and mathematical tasks. For example, the next number in a counting sequence is 1 more when counting by ones and 10 more when counting by tens (or 1 more group of 10). Encourage your child to answer questions such as, “What would happen if?” and “There are 8 crayons in the box. Some are red and some are blue. How many of each could there be?” Kindergartners realize 8 crayons could include 4 of each color ($8 = 4 + 4$), 5 of one color and 3 of another ($8 = 5 + 3$), and so on. For each solution, children repeatedly engage in the process of finding two numbers to join together to equal 8.

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

Course Materials

- [IUSD Mathematics TextBooks 2016-17](#) (List of current textbooks)
- Marilyn Burns List of [Math and Literature for Kindergarten - 1st Grade](#)

Additional Parent Resources

Book Lists

- [IUSD Mathematics Book List](#)

Math Tasks, Games, Apps

- Khan Academy - [Kindergarten](#)

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- YouCube - [Mathematical Tasks for Kindergarten](#)
- 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...