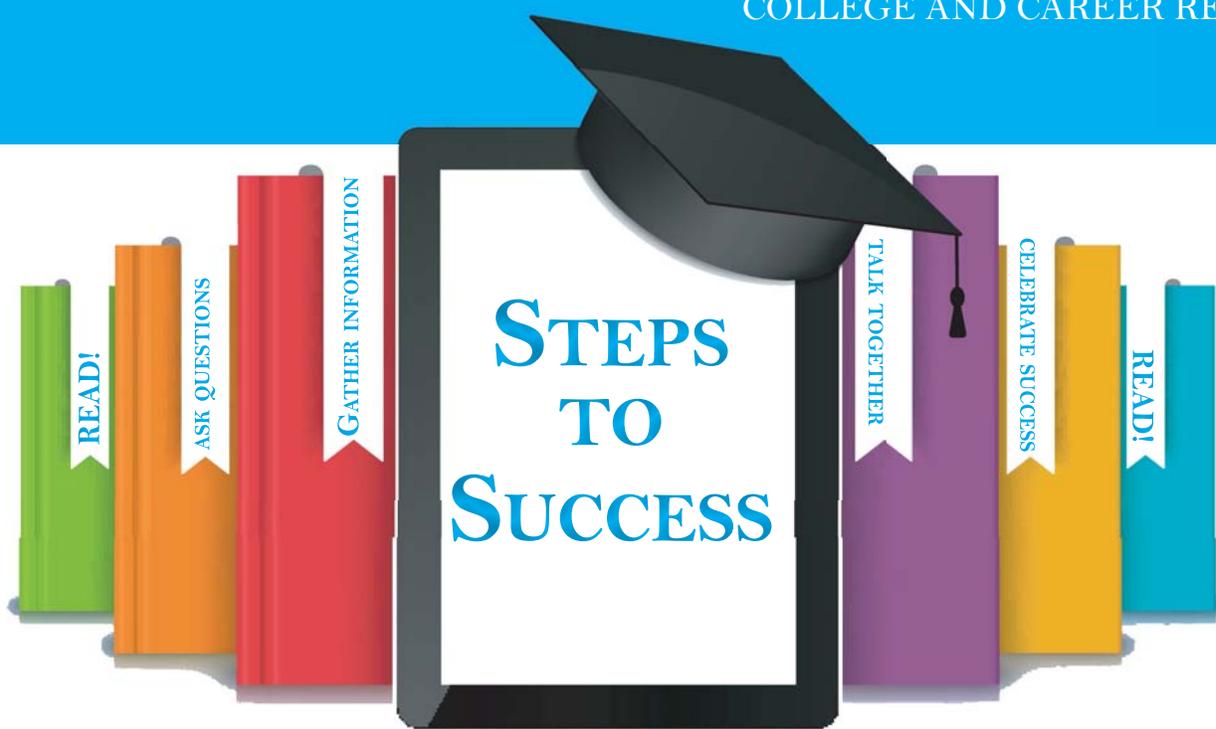


SOUTH CAROLINA STANDARDS

COLLEGE AND CAREER READY



Family-Friendly Guide for Kindergarten Mathematics

Kindergarten children are natural problem solvers and *South Carolina College- and Career-Ready Standards* use this trait to explore mathematics. Kindergarten students think more logically than previously and understand the more abstract concepts of numbers and objects. They will become more sophisticated in their solutions as the year progresses.

Parents, your attitude toward mathematics is crucial in determining your child's achievement in mathematics. If you want your child to be successful in gaining these skills and knowledge, present a positive attitude toward math.



STEPS TO SUCCESS

This document is designed to:

- Provide examples of the standards, skills, and knowledge your child will learn in mathematics and should be able to do upon exiting kindergarten
- Suggest activities on how you can help your child at home
- Offer additional resources for information and help



Log on to the SC Department of Education website, <http://ed.sc.gov/instruction/standards-learning/>, for the complete standards.

LEARN ABOUT THE STANDARDS

The *South Carolina College- and Career-Ready Standards for Mathematics*:

- Outline the knowledge and skills students must master so that, as high-school graduates, they have the expertise needed to be successful in college or careers.
- Provide a set of grade-level standards, “stair steps,” based on the previous grade’s standards which serve as the foundation for the next grade.
- Ensure that no matter where a student lives in South Carolina, the expectations for learning are the same.

Human knowledge now doubles about every three years. Therefore, revision of South Carolina’s standards occurs periodically to respond to this growth of knowledge and increase of needed skills so our students will be ready for college or jobs. *The Col-*

lege- and Career-Ready Standards prepare students for dealing with the growing mass of information by not only emphasizing content knowledge but by also stressing the skills of reasoning, analyzing data, and applying information to examine and solve situations.

South Carolinians developed these academic standards for South Carolina’s children. The Mathematics standards are aligned with the *Profile of the South Carolina Graduate*, which summarizes the knowledge, skills, and habits employers expect. (See http://sc-competes.org/wp-content/uploads/2016/01/Profile-of-the-South-Carolina-Graduate_Updated.pdf) Developed by business leaders, the *Profile* is approved by the South Carolina Chamber of Commerce and endorsed by the Superintendents’ Roundtable as well as South Carolina’s colleges and universities. The *Profile* demands world-class knowledge and skills, and emphasizes critical thinking and problem solving, communication, and interpersonal skills.

MATHEMATICS IN KINDERGARTEN

NUMBER SENSE

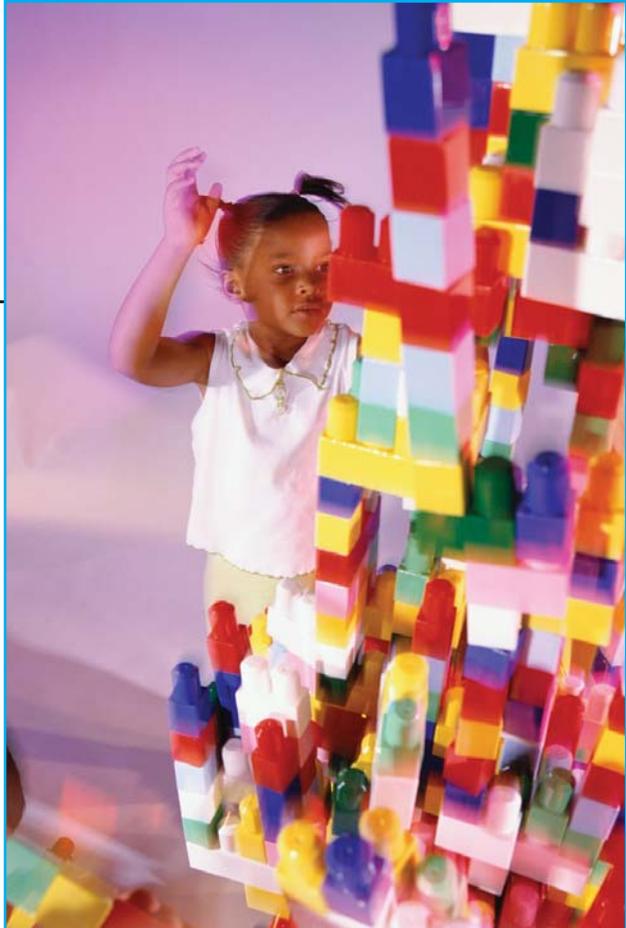
Kindergarten students focus on counting and writing numbers. They investigate organizing and separating objects and building numbers into tens. These **Steps to Success** include:

Preschool	Kindergarten	First Grade
<ul style="list-style-type: none"> • Count verbally forward to 20 and backward from 3 • Understand the relationship between number and quantity through 10 when counting objects • Compare groups with no more than 10 objects using the terms <i>more than</i> or <i>same as</i> • Identify the positions <i>first</i> through <i>tenth</i> using concrete objects <p>(from <i>Good Start Grow Smart, SC Early Learning Standards</i>)</p>	<ul style="list-style-type: none"> • Count by ones and tens to 100 • Read and write numbers 0 to 20 • Understand that when counting objects, the last number said tells the number of objects in a group. The number of objects is the same regardless of their arrangement or the order in which they are counted. • Compare two written numbers up to ten using <i>more than</i>, <i>less than</i>, and <i>equal to</i> • Know that 11 is 1 ten and 1 one, 12 is 1 ten and 2 ones, up to 19 	<ul style="list-style-type: none"> • Count by ones and tens to 120 and by fives to 100. Start with any number. • Understand that a bundle of ten ones is 10 • Understand “place value” up to 99, (for example, 83 is made up of 8 tens and 3 ones) • Understand that two-digit numbers can be broken up in several ways (34 equals 3 tens and 4 ones or 2 tens and 14 ones, etc.) • Compare two-digit numbers up to 99 using <i>more than</i>, <i>less than</i>, and <i>equal to</i>. Explain why. • Add and subtract by tens up to 100 based on place value. Explain the reason for the answer given.

THINKING AND OPERATIONS

Kindergarten students begin to make sense of quantities and patterns and to use written numbers to represent concepts. By the end of the year, they will be able to add and subtract up to 10. These **Steps to Success** include:

Preschool	Kindergarten	First Grade
<ul style="list-style-type: none"> • Begin to show an awareness of numbers in the environment • Recognize a simple pattern and extend • Sort and classify objects by one attribute (e.g., size, shape, or color) • Identify and copy a simple pattern <p>(from <i>Good Start Grow Smart</i>, SC Early Learning Standards, 2009)</p>	<ul style="list-style-type: none"> • Determine the missing number in a math problem that has a sum of 10. ($3 + \underline{\quad} = 10$, $\underline{\quad} + 8 = 10$) • Add and subtract fluently up to 5 (e.g., $6 - 1 = 5$, $4 + 1 = 5$; $7 - 2 = 5$, $3 + 2 = 5$) • Solve real-world problems by adding and subtracting up to 10, using objects and drawings • Describe simple repeating patterns like shapes, colors, and activities found in a shirt, drawing, or game 	<ul style="list-style-type: none"> • Solve real-world problems with addition and subtraction up to 20 • Solve real-world problems that include up to three numbers with a sum of no more than 20 • Understand that changing the order or the grouping of numbers to be added does not change the sum. Use up to three numbers. • Add and subtract fluently up to 20 • Determine the missing number in equations within 20 • Balance both sides of an addition or subtraction problem up to 10 (e.g., $6 = 6$ [true], $5 = 6$ [false], $1 + 5 = 6$ [true], $1 + 5 = 5$ [false], etc.) • Extend and explain repeating and growing patterns



MATHEMATICS IN KINDERGARTEN

GEOMETRY

Kindergarten students learn to identify different shapes, work with shapes, and describe the positions of objects. These **Steps to Success** include:

Preschool	Kindergarten	First Grade
<ul style="list-style-type: none"> Identify flat shapes like circles, squares, triangles, and rectangles Classify objects by colors, shapes, sizes, or functions Understand and use positional words to describe the location of objects (<i>up, down, in, over, under, behind, on top of, and in front of</i>) <p>(from <i>Good Start Grow Smart</i>, SC Early Learning Standards, 2009)</p>	<ul style="list-style-type: none"> Identify shapes from everyday life like triangles, circles, squares, rectangles, hexagons, spheres, cones, cubes, and cylinders Classify shapes as 2-dimensional (flat) or 3-dimensional (solid) Draw 2-dimensional shapes and make models of 3-dimensional shapes Analyze shapes of different sizes and positions. Compare the differences. 	<ul style="list-style-type: none"> Identify additional shapes like hexagons (stop sign), trapezoids (kites), etc. Know that the number of sides define a shape and that color does not define a shape. This is called defining and non-defining attributes. Combine 2-dimensional shapes or 3-dimensional shapes to make new shapes Divide 2-dimensional shapes into 2 or 4 equal parts

MEASUREMENT AND DATA ANALYSIS

Kindergarten students learn concepts of length and weight. They study how to classify and represent data. These **Steps to Success** include:

Preschool	Kindergarten	First Grade
<ul style="list-style-type: none"> Compare the lengths of two objects like a child's shoe and an adult shoe Identify at least two measurement devices with their purposes like a yardstick for height or thermometer for temperature Organize real objects by size from <i>smallest to largest</i> Associate time concepts with a clock, like <i>lunchtime</i> or <i>nighttime</i> Show awareness that money is used to buy things and that coins differ in value <p>(from <i>Good Start Grow Smart</i>, SC Early Learning Standards, 2009)</p>	<ul style="list-style-type: none"> Identify what aspects of an object can be measured like the length and weight of an object Use comparison words to describe objects like <i>lighter/heavier</i> or <i>shorter/longer</i> Sort and classify items into 2 or 3 categories like <i>rough</i> or <i>smooth</i> Use objects and picture graphs to draw conclusions. Use tally marks from 1 to 10 then from 1 to 20. 	<ul style="list-style-type: none"> Put objects in order by length by comparing them to another, selected object. This is an indirect comparison. Use units of length to show the total length of an object Sort and classify items into 3 categories and represent the "data" using graphs and charts Draw conclusions from graphs and charts Tell time to the hour and half hour on digital and face clocks Identify coins by value and use the \neq symbol

LEARNING AT HOME

Learning doesn't end at the school door. Your child needs you to succeed in Kindergarten. Work with your child at home, know what he is working on, and know whether he needs help with specific skills. Parents, your attitude toward mathematics is crucial in determining your child's achievement in mathematics. If you want your child to be successful in gaining these skills and knowledge, present a positive attitude toward math. Here are some suggestions for things to do at home to help your child learn:

- Count, count, count to and with your child. Count fingers, steps, toys, cars, anything and everything. Connect the counting to the number of objects counted.
- Have your child sort toys by type: balls, blocks, model cars, and dolls. Ask if one group has more or has less. Is the pile of blocks bigger than the pile of cars?
- Practice identifying the shapes of objects. Get your child to fold a napkin into a triangle, a square, and then a rectangle. Look for cones and cubes around the house.
- Let your kindergartner sort the laundry. Sort it by types (socks, shirts, pants), by colors, or by a family member.
- Print out from the Internet or buy "connect-the-dots" puzzles with a low number of dots (10 to 20.) Work with your child to connect the numbered dots to make the picture.
- Ask your child questions that require counting and comparing. "How many chairs are in our house?" Listen to see if they understand that when counting, the last number spoken is the quantity counted. Do they continue to recount the group when you ask "How many?" Ask your kindergartner "Which chair is taller, this one or that one?" and "Which book is heavier?"
- Take apart boxes such as a cereal box and practice turning the flattened 2-dimensional box back into its original 3-dimensional shape.



ADDITIONAL INFORMATION

- Download a free copy of *A Family's Guide: Fostering Your Child's Success in School Mathematics*, a publication from the National Council of Teachers of Mathematics, at http://illuminations.nctm.org/uploadedFiles/Activities_Home/FamilyGuide_FullText.pdf.
- *The Kahn Academy* has activities to help master all the kindergarten through second-grade math skills: <https://www.khanacademy.org/math/early-math>.
- *Public Broadcasting* has fun on-line games, puzzles, and activities to use at home to teach math at <http://www.pbs.org/parents/education/math/games/> and <http://www.pbs.org/parents/education/math/activities/preschool-kindergarten/>.
- For math games and activities, see <http://www.turtlediary.com/kindergarten-games.html> or <http://www.gameclassroom.com/kindergarten>.
- Check the children's section of your local library for picture books that use sorting and counting as a part of the story. There are also books that focus on math games.



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