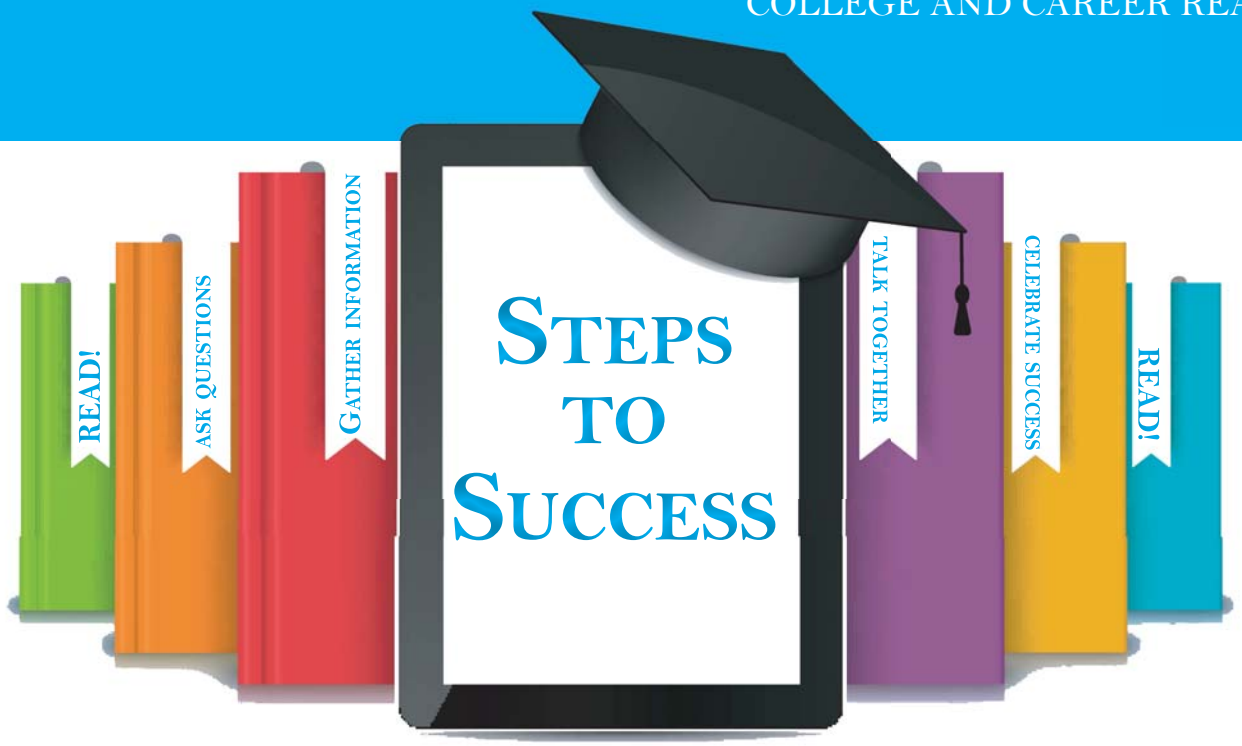
SOUTH CAROLINA STANDARDS
COLLEGE AND CAREER READY



Family-Friendly Guide for Fourth Grade Mathematics

Fourth-grade students begin to develop more advanced problem solving skills. Using this ability, the *South Carolina College- and Career-Ready Standards* have students use the four operations to solve problems with an emphasis on multiplying two-digits by two-digits and division of four-digits by one digit. Fourth graders expand their work with fractions and are introduced to decimals through hundredths. They learn more about Geometry, measurement, and data.

Remember, your child must show the steps, one at a time, needed to solve a math problem. This activity requires students to organize their work. It provides a "trail" for checking answers; shows exactly what was done; and allows for intervention exactly at the point where necessary. By showing their work, students are more accurate and avoid habits that could hinder their math progress.

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 fourth grade
- 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 College- 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 FOURTH GRADE

NUMBER SENSE AND FRACTIONS

Fourth-grade students continue to gain skill in working with fractions and begin to understand the relationship between fractions and decimals. These **Steps to Success** include:

Third Grade	Fourth Grade	Fifth Grade
• Read and write numbers up to 100,000. Start with any number. • Multiply one-digit numbers by multiples of 10 • Compare whole numbers using the symbols > (greater than), = (equal to), or < (less than) • Develop an understanding of what a fraction is • Compare the size of two fractions • Understand that whole numbers can be written as fractions (4=4/1 and 1=4/4)	• Read and write numbers up to 1,000,000 • Use rounding in order to estimate • Compare fractions and use the symbols > (greater than), = (equal to), < (less than) • Add and subtract fractions with the same denominator (bottom number) • Solve real-world problems involving multiplication of a whole number by a fraction • Write a fraction with a denominator of 10 or 100 as a decimal (45/100=.45)	• Understand "place value" using decimals up to a thousandth • Add, subtract, multiply, and divide decimals to hundredths using models and drawings • Add and subtract fractions with unlike denominators (bottom number) to solve real-world problems • Extend knowledge of multiplying fractions to include multiplying fractions by fractions • Solve division problems using unit fractions (1 is the numerator) and whole numbers

MATHEMATICS IN FOURTH GRADE

THINKING AND OPERATIONS

Fourth-grade students move beyond simple multiplication and division questions to solving problems using multi-step operations. Applying math to examine and solve real-life problems is an important skill and the fourth grade focuses on this skill. These **Steps to Success** include:

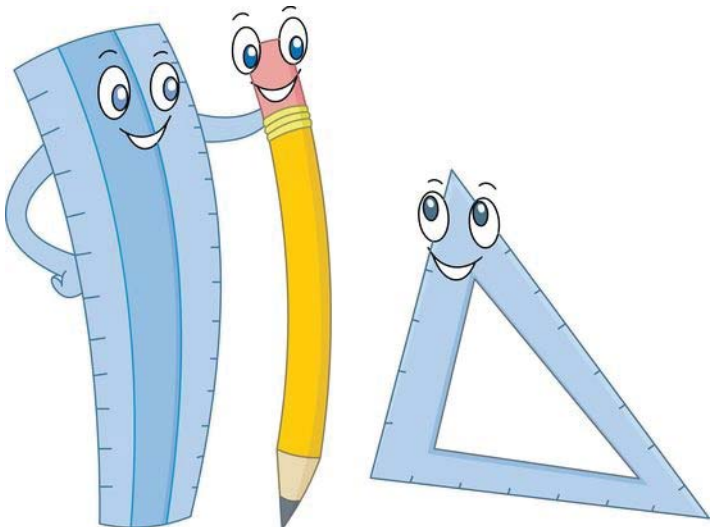
Third Grade	Fourth Grade	Fifth Grade
• Use objects, drawings, and numbers to represent multiplication of two single-digit numbers • Use objects, drawings, and numbers to represent division of whole numbers • Determine the unknown number in a multiplication or division equation • Demonstrate fluency with basic multiplication and division through 100 • Solve two-step, real-world problems using addition, subtraction, multiplication, and/or division • Identify the pattern in a sequence of numbers (with 2, 4, 6, 8, the pattern adds 2 to the previous number)	• Translate multiplication equations into verbal statements (e.g. interpret 35=5x7 as 35 is 5 times as many as 7 and 7 times as many as 5) • Solve multi-step, real-world problems using the four operations • Break a number down into its factors (1, 2, and 3 are factors of 6 because 1x6=6, 2x3=6) • Determine whether a number is a prime number (numbers divisible only by itself or 1) or a composite number (numbers divisible by more numbers than itself or 1) • Examine a pattern/sequence of shapes or numbers and determine what should appear next	• Understand grouping of numbers using parentheses and brackets 4(3+2)=__ • Translate the groupings into verbal statements (four groups of 3+2 equal ?) • Understand and graph ordered pairs: (14,5) means fourteen units to the right on the horizontal axis and five units up on the vertical axis of a coordinate grid • Investigate the relationship between two numerical patterns

MATHEMATICS IN FOURTH GRADE

GEOMETRY

Fourth-grade students delve further into the concepts and skills of geometry. They work with line segments, angles, and rays. These **Steps to Success** include:

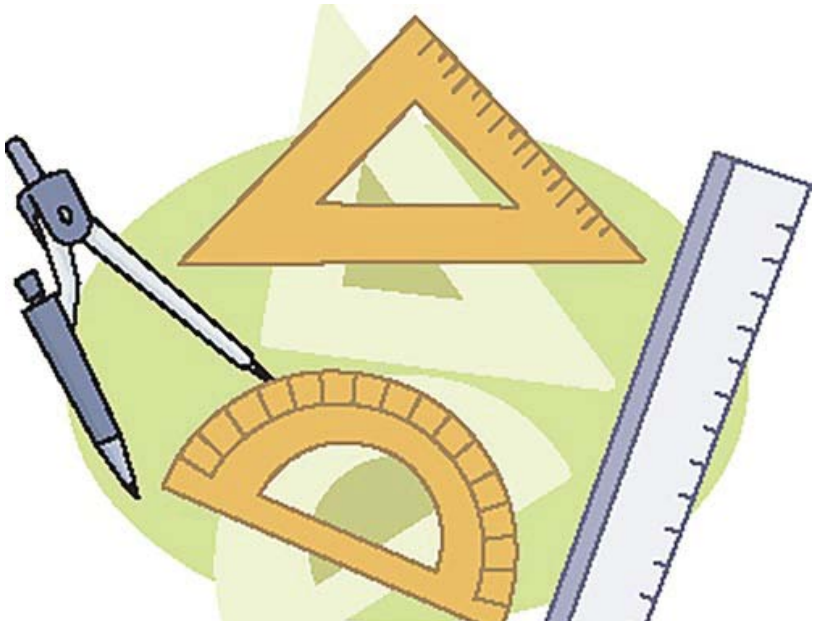
Third Grade	Fourth Grade	Fifth Grade
• Understand that shapes can share features and those features can be part of a larger category. Squares and rectangles are both four sided and they are part of the category "quadrilateral.") • Partition (separate) two-dimensional shapes into 2, 3, 4, 6, 8 equal parts and understand that the equal parts do not have to have the same shape. Half of a circle and half of a rectangle are equal in size because they are halves even though the shape is different. • Identify and draw angles: right (90 degrees), acute (less than 90 degrees), and obtuse (greater than 90 degrees) • Identify a three-dimensional object like a pyramid from a two-dimensional object (flat pattern)	• Identify points, line segments, rays, angles, and parallel lines in 2-dimensional shapes • Classify quadrilaterals based on whether they have parallel or perpendicular lines • Recognize symmetry in a 2-dimensional figure, identify symmetrical figures, and draw lines of symmetry	• Understand ordered pairs and their relationship to the *x* and *y* axes of a coordinate grid like longitude and latitude lines on a map • Plot and interpret points on a coordinate grid to illustrate a real-world situation • Classify two-dimensional shapes into a hierarchy. All rectangles are parallelograms but not all parallelograms are rectangles.



MEASUREMENT AND DATA ANALYSIS

Fourth-grade students solve more complicated problems that may require all of the four math operations: addition, subtraction, multiplication, and division. The problems build on their knowledge of measures and shapes. These **Steps to Success** include:

Third Grade	Fourth Grade	Fifth Grade
• Tell and record time to the nearest minute and solve time problems within the hour using addition and subtraction • Estimate and measure liquid volume (for example, pint, gallon, milliliter, liter) • Create and read scaled bar graphs and line graphs to represent collected data • Understand the difference between area and perimeter and how to measurement each • Solve real-world problems involving the perimeter and area of shapes with straight sides	• Convert measurement from a larger unit to a smaller unit (for example, feet into inches or meters into centimeters) • Solve real-world problems using up to four operations involving length, time, mass, and money • Create a line plot to present data and explain what it shows • Use a protractor to draw and measure angles • Find unknown angles using addition and subtraction	• Convert measurement into a larger or a smaller unit (for example, inches into feet or feet into inches, centimeters into meters, or meters into centimeters) • Create a line with fraction units (such as 1/8 units.) Use the line units to solve problems. • Understand how to measure volume using unit cubes • Determine the difference between perimeter, area, and volume. Know which is appropriate for a given situation.



LEARNING AT HOME

Work with your child at home to help him succeed in fourth-grade math. Be informed about what she is working on and know whether she needs help with specific skills. Your positive attitude makes all the difference to him. Here are some suggestions for things to do at home to help your child learn:

- Have your child determine how long she must save her allowance for a particular game or movie.
- Play board games involving cards (*Yahtzee*) or dice (*Aggregation*). *Monopoly*, anyone? Such games help with addition, subtraction, multiplication, and division.
- Walk around your house looking for angles. Identify which angles are right angles.
- Have your child measure the distance from the door to his room to the kitchen in inches, feet, and yards. How far is it from the kitchen to the street? What is the distance from the front door to the back door?

ADDITIONAL INFORMATION

- For math games and activities, see www.gameclassroom.com.
- *Scholastic* provides "parent refreshers" of the skills your child is expected to learn in each grade in school: http://www.scholastic.com/parents/resources/collection/subject-refreshers/parent-primers.
- There are plenty of math games and worksheets available on http://www.softschools.com/grades/4th_grade/math/.
- Other sites with math games to sharpen fourth-grade skills include http://www.abcya.com/, which also has mobile apps of its games. See also http://www.softschools.com/ or http://www.onlinemathlearning.com/grade-4.html.
- *The Khan Academy* offers tutorials on all aspects of fourth-grade math at https://www.khanacademy.org/math/cc-fourth-grade-math.

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