Department of Education
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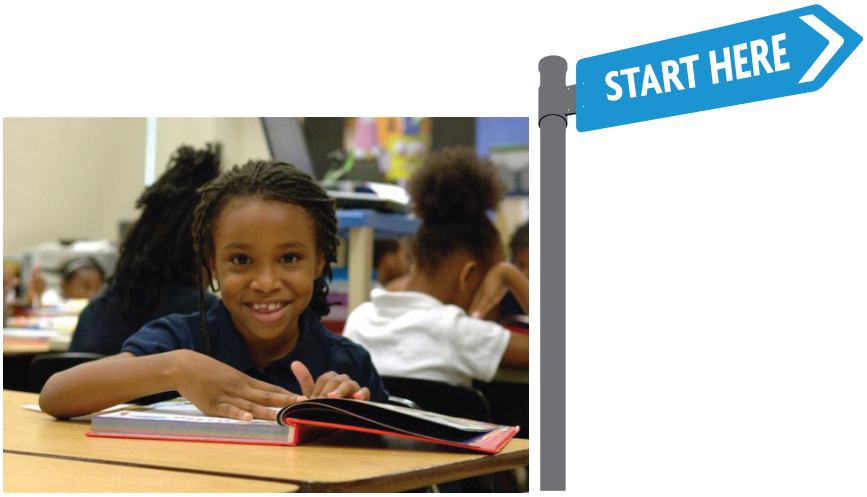
Council of the Great City Schools

parent ROADMAP

SUPPORTING YOUR CHILD IN GRADE THREE

MATHEMATICS



America's schools are working to provide higher quality instruction than ever before.

The way we taught students in the past simply does not prepare them for the higher demands of college and careers today and in the future. Your school and schools throughout the country are working to improve teaching and learning to ensure that all children will graduate high school with the skills they need to be successful.

In mathematics, this means three major changes. Teachers will concentrate on teaching a more focused set of major math concepts and skills. This will allow students time to master important ideas and skills in a more organized way throughout the year and from one grade to the next. It will also call for teachers to use rich and challenging math content and to engage students in solving real-world problems in order to inspire greater interest in mathematics.

What your child will be learning in grade three mathematics

In grade three, students will continue to build their concept of numbers, developing an understanding of fractions as numbers. They will learn the concepts behind multiplication and division and apply problem-solving skills and strategies for multiplying and dividing numbers up through 100 to solve word problems. Students will also make connections between the concept of the area of a rectangle and multiplication and addition of whole numbers. Activities in these areas will include:

- Understanding and explaining what it means to multiply or divide numbers
- Multiplying all one-digit numbers from memory (knowing their times table)
- Multiplying one-digit numbers by multiples of 10 (such as 20, 30, 40)
- Solving two-step word problems using addition, subtraction, multiplication, and division
- Understanding the concept of area
- Relating the measurement of area to multiplication and division
- Understanding fractions as numbers
- Understanding and identifying a fraction as a number on a number line
- Comparing the size of two fractions
- Expressing whole numbers as fractions and identifying fractions that are equal to whole numbers (for example, recognizing that $3/1$ and 3 are the same number)
- Measuring weights and volumes and solving word problems involving these measurements
- Representing and interpreting data

Partnering with your child's teacher

Don't be afraid to reach out to your child's teacher—you are an important part of your child's education. Ask to see a sample of your child's work or bring a sample with you. Ask the teacher questions like:

- Is my child at the level where he/she should be at this point of the school year?
- Where is my child excelling? How can I support this success?
- What do you think is giving my child the most trouble? How can I help my child improve in this area?
- What can I do to help my child with upcoming work?

Here are just a few examples of how students will develop and use their understanding of place value in grade three.

Grade Two Mathematics	Grade Three Mathematics	Grade Four Mathematics
• Understand that 100 can be thought of as a bundle of ten tens—called a "hundred" • Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones (place value) • Add and subtract numbers through 1000 using what students have learned about place value	• Use place value understanding to round whole numbers to the nearest 10 or 100 • Quickly and accurately add and subtract numbers through 1000 using knowledge of place value • Use place value understanding to multiply and divide numbers up through 100 • Multiply one-digit whole numbers by multiples of 10 between 10 and 90. For example, 9×80 or 5×60	• Use place value understanding to round multi-digit whole numbers to any place • Use place value understanding to find the product of two multi-digit numbers • Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right • Compare two multi-digit numbers based on the meanings of the digits in each place, using the symbols > (more than), = (equal to), and < (less than)

Students understand that 15 tens = 5 tens + 10 tens (or 1 hundred).

5 x 30 = 5 groups of 3 tens = 15 tens

15 = 1 5 0

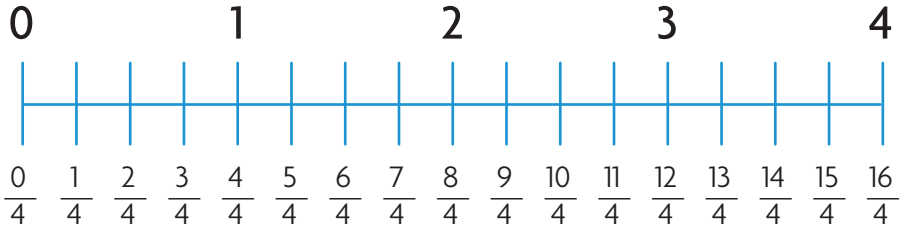
15: tens; 1: hundreds; 5: tens; 0: ones

Students use their understanding of place value as a strategy for multiplying one-digit numbers by multiples of ten. This will prepare them to multiply two multi-digit numbers in grade four.

Here are just a few examples of how students will learn about and work with fractions in grade three.

Grade Two Mathematics	Grade Three Mathematics	Grade Four Mathematics
• Break circles and rectangles into two, three, or four equal parts • Describe parts of a whole using the words halves, thirds, half of, a third of, etc. • Describe a whole as two halves, three thirds, four fourths	• Determine a fraction's place on a number line by defining the length from 0 to 1 as the whole and "cutting it" into equal parts • Understand two fractions as equal if they are the same size or at the same point on a number line • Compare the size of two different fractions of the same size object. For example, which is bigger, $\frac{1}{8}$ of a pizza or $\frac{1}{6}$ of that same pizza?	• Break down a fraction into smaller fractions with the same denominator, or bottom number, in more than one way ($\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{2}{8} + \frac{1}{8}$) • Explain why a fraction is equal to another fraction • Add and subtract mixed numbers (whole numbers mixed with fractions, such as $1\frac{1}{5}$) with the same denominators • Multiply a fraction by a whole number

Using a number line helps students think of a fraction as a number.



Students begin to understand that fractions are sometimes the same quantity as a whole number ($\frac{8}{4} = 2$) and whole numbers can be expressed as fractions ($3 = \frac{12}{4}$).

Helping your child learn outside of school

1. Play math games with your child. For example, "*I'm thinking of two numbers whose product is between 20 and 30. How many pairs can you think of that would satisfy this problem?*" Answers will include 8 x 3 = 24, 7 x 4 = 28, etc. Have your child explain the solutions. How does he or she know that all the number pairs have been identified?
2. Encourage your child to write or describe numbers in different ways. For example, what are some different ways to make 1450? 1450 = 1 thousand, 4 hundreds, 5 tens, and 0 ones, or 1000 + 450, 14 hundreds and 50 ones, 13 hundreds + 15 tens, etc.
3. Use everyday objects to allow your child to explore the concept of fractions. For example, use measuring cups to have students demonstrate how many ⅓'s are in a whole, how many ¼ cups you need to make 1¼ cups, and how many times you have to refill a ½ cup measure to make 1½ cups.
4. Encourage your child to stick with it whenever a problem seems difficult. This will help your child see that **everyone** can learn math.
5. Praise your child when he or she makes an effort and share in the excitement when he or she solves a problem or understands something for the first time.

Additional Resources

For more information on the Common Core State Standards for mathematics, go to http://www.corestandards.org/about-the-standards/key-points-in-mathematics or http://www.commoncoreworks.org.

For more information on the standards in mathematics related to place value (Number and Operations in Base Ten) or fractions, go to http://commoncoretools.me/category/progressions/.

For more information on helping your child learn mathematics (with activities from pre-school to grade five), go to http://www2.ed.gov/parents/academic/help/math/index.html.