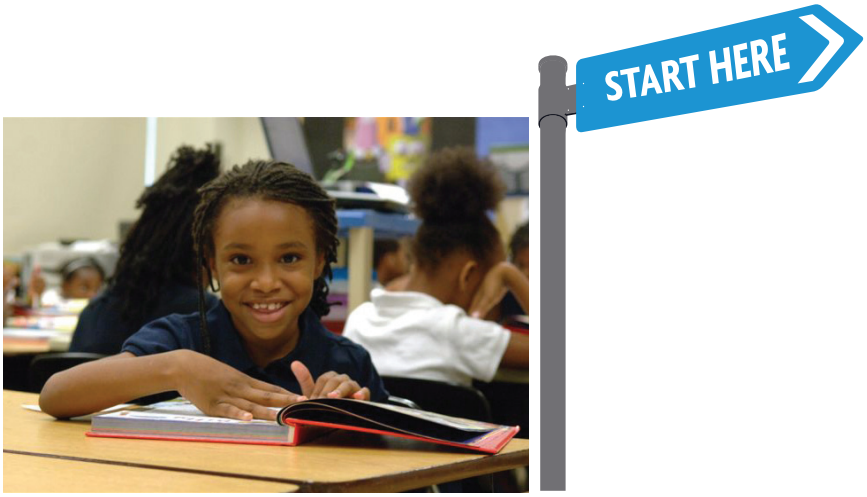
NYC Department of Education
Carmen Fariña, Chancellor

Council of the Great City Schools

parent ROADMAP

SUPPORTING YOUR CHILD IN GRADE FIVE

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 five mathematics.

In grade five, students will build their understanding of the place value system by working with decimals up to the hundredths place. Students will also add, subtract, and multiply fractions, including fractions with unlike denominators. They will continue to expand their geometry and measurement skills, learning the concept of volume and measuring the volume of a solid figure. Activities in these areas will include:

- Quickly and accurately multiplying multi-digit whole numbers
- Dividing numbers with up to four digits by two digit numbers
- Using exponents to express powers of 10 (in 10^2, 2 is the exponent)
- Reading, writing, and comparing decimals to the thousandths place
- Adding, subtracting, multiplying, and dividing decimals to the hundredths place
- Writing and interpreting mathematical expressions using symbols such as parentheses. For example, "*add 8 and 7, then multiply by 2*" can be written as $2\times(8+7)$.
- Adding and subtracting fractions with unlike denominators (bottom numbers) by converting them to fractions with matching denominators
- Multiplying fractions by whole numbers and other fractions
- Dividing fractions by whole numbers and whole numbers by fractions
- Analyzing and determining relationships between numerical patterns
- Measuring volume using multiplication and addition

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?
- 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 five.

Grade Four Mathematics	Grade Five Mathematics	Grade Six Mathematics
• Use place value understanding to round multi-digit whole numbers to any place • 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 meanings of the digits in each place, using the symbols > (more than), = (equal to), and < (less than)	• Use place value understanding to round decimals to any place • Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left • Read, write, and compare decimals based on the meanings of the digits in the tenths, hundredths, and thousandths place	• Understand that positive and negative numbers are used together to describe quantities having opposite directions or values • Understand a rational number (fraction, decimal, and percent) as a point on the number line • Understand ordering and absolute value of rational numbers

Students use place value understanding to figure out that, based on where the digits are located within the number, 0.115 is less than 0.151.

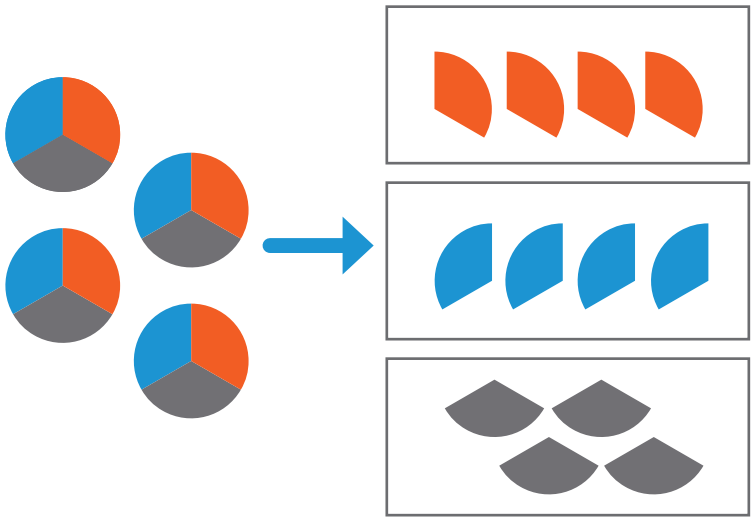
Students recognize that a 5 in the thousandths place is only one tenth the value of a 5 in the hundredths place.

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

Grade Four Mathematics	Grade Five Mathematics	Grade Six Mathematics
• Break apart a fraction into smaller fractions with the same denominator, or bottom number, in more than one way. For example, $\frac{3}{8}=\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=\frac{2}{8}+\frac{1}{8}$ • 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	• Interpret a fraction as division of the numerator (the top number) by the denominator (the bottom number) • Add and subtract fractions with different denominators • Multiply a fraction by a whole number or another fraction • Divide fractions by whole numbers and whole numbers by fractions	• Divide fractions by fractions using visual models and equations to show the problem

Understanding how to divide objects into equal shares prepares students for the division of fractions.

Students will use pictures such as this to see that 4÷3 is the same as dividing 4 objects equally among 3 shares, or having 4 thirds ($\frac{4}{3}$).



Helping your child learn outside of school

1. Use everyday objects to allow your child to explore the concept of fractions. For example, have your child divide a candy bar (or a healthy snack) between three people. Ask, "*How much does each person receive?*" (Each person would receive $1/3$). Suppose there are three candy bars that you plan to share with two friends. Have your child describe the amount that each person will receive.

2. Have your child explain how to write fractions in different ways. For example, what are some different ways to write $4/3$? He or she could answer $4 \div 3$, $1\,1/3$, $2/3 + 2/3$, $2 \times 2/3$, $8/6$, $4 \times 1/3$, etc.

3. Ask your child to give you a fraction equal to a decimal. For example, what are two fractions that can be used to represent 0.6? Answers could include $6/10$, $60/100$, $12/20$, or $3/5$.

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.