

KLSD

# Parental Reference Guide Grade 5

A mathematics guide for parents

[Including website references]

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# Parental Reference Guide: Mathematics Grade 5

[\\*Please see Vocabulary Guide as appropriate](#)

Educators throughout the country are working to improve teaching and learning to ensure that all students master skills they need to be successful. In mathematics, three significant changes will be reflected in this shift:

- Teachers will concentrate on teaching a more focused set of major math concepts and skills.
- Students will have time to master concepts and skills in a more organized way, building deeper-level understanding from one grade to the next.
- Teachers will use rich and challenging math content and will engage students in problem solving that reflects the real-world.

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## Grade 5 Mathematics

**In mathematics, fifth grade students will:**

- Build their understanding of place value by working with decimals up to the hundredths place.
- Add, subtract, and multiply fractions, including fractions with unlike denominators.
- Expand their geometry and measurement skills, learning the concept of volume and measuring the volume of a solid figure.

**Mathematics activities in these areas include:**

- Quickly and accurately multiplying multi-digit whole numbers
- Dividing numbers with up to four digits by two digit number
- Using exponents to express powers of 10
- 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
- Adding and subtracting fractions with unlike denominators 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

**Examples of how students will develop their understanding of place value in grade five:**

- 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  $\frac{1}{10}$  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

**Examples of how fifth grade students will work with fractions:**

- 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

The following is a fifth grade example of decomposing numbers to make multiplication easier:

- Students are asked to create an area model to solve  $64 \times 73$ , breaking down both 64 and 73 to facilitate mental math.

	70	+	3		
4	280	+	12		292
+					+
60	4200	+	180		<u>4380</u>
					4,672

The following is a fifth grade example of an application problem:

Scientists are creating a material that may replace damaged cartilage in human joints. This *hydrogel* can stretch to 21 times its original length. If a strip of hydrogel measures 3.2 cm, what would its length be when stretched to capacity?

This problem is designed to reflect a previous lesson where students were multiplying without renaming; however, in addition, students are being asked to multiply by a decimal.

$$\begin{array}{r} 32 \text{ tenths} \\ \times \underline{21} \\ 32 \\ + \underline{640} \\ 672 \text{ tenths} \\ \\ 672 \text{ tenths} = 67.2 \text{ cm} \end{array}$$

*Answer:*

*The hydrogel's length when stretched would be 67.2 cm.*

Students should be encouraged to estimate for a reasonable product:

$$3.2 \approx 3$$

$$3 \times 21 = 63$$

Therefore 67.2 cm is reasonable.

**The following are mathematics activities you can engage in with your fifth grade child outside of school:**

- Use everyday objects to allow your child to explore the concept of fractions
- Invite your child explain how to write fractions in different ways (For example,  $\frac{4}{3} = 1 \frac{1}{3}$ ,  $2 \times \frac{2}{3}$ , or  $\frac{8}{6}$ )
- Ask your child to give you a fraction equal to a decimal (For example,  $0.6 = \frac{6}{10}$ ,  $\frac{60}{100}$ , or  $\frac{3}{5}$ )
- Ask your child to explain his or her reasoning and thinking when solving problems; students are required to Read Draw Write (RDW) to show their mathematical thinking for word problems.
- Encourage your child to stick with a challenging problem, allowing your child to see that everyone can learn math
- Praise your child's effort.

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## Mathematics Reference Websites

<http://www.engageny.org/parent-and-family-resources>

<http://www.corestandards.org/math/practice>

<http://www.ixl.com/math/>

<http://illuminations.nctm.org>

[http://www.mathplayground.com/common\\_core\\_state\\_standards\\_for\\_maths.html](http://www.mathplayground.com/common_core_state_standards_for_maths.html)

\*These guides were created with the help of many resources available on EngageNY.org including, but not limited to *Parent Roadmaps to Common Core Standards* from the Council of the Great City Schools."