

## Archdiocese of New York Grade 5 Mathematics Parent Matrix

This parent matrix is intended to be a tool for you as a parent to help support your child’s learning. The table below contains all of the Grade 5 Mathematics learning standards. Learning standards describe the knowledge and skills that students should master by the end of Grade 5. Each standard has a specific code. For example, 5.OA.1 stands for “Grade 5 Operations and Algebraic Thinking Standard 1.” You will often see these standards referenced on your child’s quizzes, worksheets, tests, etc.

You should access the recommended resources in the right hand “Resources” column electronically by clicking on the hyperlinks provided. *However, we suggest that you also download and print this matrix.* You will notice that the column all the way to the left is marked “Parent Notes.” You can use this column to take notes on your child’s progress. You may wish to check off each standard after you have worked on it with your child.

In Grade 5 Mathematics, there are five main domains of standards. These include Operations & Algebraic Thinking, Number & Operations in Base Ten, Number & Operations – Fractions, Measurement & Data, and Geometry. Each category is highlighted in a different color. *Your child’s teacher will be able to tell you which standards you should focus on with your child throughout the year.*

We hope that this parent matrix is a valuable resource for you. If you find that you would like additional practice materials to work on you can use the standard codes provided below to search for additional resources.

Operations & Algebraic Thinking	Number & Operations – Base Ten	Number & Operations – Fractions	Measurement & Data	Geometry
These standards focus on relationships among numbers and quantities – including patterns, functions, and operations (addition, subtraction, etc).	These standards pertain to representations of numbers and the relationships between them. They focus on place value and number systems (the way we name and represent numbers).	These standards focus on students’ understanding of the concept that parts of a whole number can be represented by fractions. Over time, they will learn to compare and solve problems involving fractions.	These standards pertain to students’ ability to use different strategies and mathematical tools such as rulers and clocks to measure lengths and time and interpret and represent data in different ways (e.g. on a number line, bar graph, picture graph, etc).	These standards require students to examine, describe, and produce both 2-D and 3-D geometric shapes (e.g. circles, triangles, rectangles).

Parent Notes	Standard Code	Standard	What does this standard mean?	What can I do at home?	Resources
<b>OPERATIONS &amp; ALGEBRAIC THINKING</b>					

	<p>Operations and Algebraic Thinking Grade 5 Standard 1 (5.OA.1)</p>	<p>Use parenthesis, brackets or braces in numerical expressions, and evaluate expressions with these symbols.</p>	<p>This standard calls for students to evaluate expressions with parenthesis and brackets and braces. In upper levels evaluate means to substitute for a variable and simplify the expression. However, at this level, students are only to simplify the expressions because there is no variable (an unknown that is represented by a letter ). Students need to solve what is in the parenthesis first, then the brackets, and then the braces.</p>	<p>Ask your child to tell you the priority and order of evaluating numbers in parenthesis, brackets, and braces. Identify what each one looks like.</p>	<p><a href="https://learnzillion.com/lessonsets/546-use-parentheses-and-interpret-and-evaluate-expressions-with-parentheses">https://learnzillion.com/lessonsets/546-use-parentheses-and-interpret-and-evaluate-expressions-with-parentheses</a></p> <p><a href="https://www.illustrativemathematics.org/content-standards/tasks/555">https://www.illustrativemathematics.org/content-standards/tasks/555</a></p> <p><a href="http://www.mathworksheetsland.com/5/1usepar.html">http://www.mathworksheetsland.com/5/1usepar.html</a></p>
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	<p>Operations and Algebraic Thinking Grade 5 Standard 2 (5.OA.2)</p>	<p>Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.</p>	<p>This standard refers to expressions. Expressions are a series of numbers and symbols (+, -, x) without any equals sign. <math>4(5+3)</math> is an expression. <math>4(5+3)=32</math> is an equation. Equations results when two expressions are set equal to each other. For example, <math>(2 + 3 = 4 + 1)</math>. This standard calls for students to verbally describe the relationship between expressions without actually calculating them. This standard calls for students to apply their reasoning of the four operations as well as place value while describing the relationship between numbers. The standard does not include the use of variables, only numbers and signs for operations.</p>	<p>Ask your child to write an expression for “double five and then add 26” <math>(2 \times 5) + 26</math></p>	<p><a href="https://learnzillion.com/lessonsets/648-write-interpret-describe-and-reason-about-expressions">https://learnzillion.com/lessonsets/648-write-interpret-describe-and-reason-about-expressions</a></p> <p><a href="http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5oa2">http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5oa2</a></p>
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	Operations and Algebraic Thinking Grade 5 Standard 3 (5.OA.3)	Generate two numerical patterns using two different rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule “add three” and the starting number 0, and given the rule “add 6” and the starting number 0, generate terms in the resulting sequences and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.	This standard extends work from fourth grade, where students generate numerical patterns when given a rule. In fifth grade, students are given two rules and generate two numerical patterns. The graphs that should be created should be line graphs to represent the pattern. This is a linear function, which is why we get straight lines.	Ask your child to describe the pattern:  Since Terri catches 4 fish per day and Sam catches 2 fish per day, the amount of fish Terri catches is always greater. Terri’s fish is also twice as much as Sam’s fish. Today, both Sam and Terri have no fish. They both go fishing each day. Sam catches 2 fish each day and Terri catches 4 fish each day. How many fish do they catch after five days? (Sam catches 10 fish and Terri catches 20 fish)	<a href="https://learnzillion.com/lessons/3194-identify-the-relationship-between-two-numerical-patterns">https://learnzillion.com/lessons/3194-identify-the-relationship-between-two-numerical-patterns</a>  <a href="http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5oa3">http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5oa3</a>
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**NUMBER & OPERATIONS IN BASE TEN**

<b>Parent Notes</b>	<b>Standard Code</b>	<b>Standard</b>	<b>What does this standard mean?</b>	<b>What can I do at home?</b>	<b>Resources</b>
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	<p>Number and Operations in Base Ten Grade 5 Standard 1 (5.NBT.1)</p>	<p>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.</p>	<p>This standard calls for students to reason about the magnitude of numbers. Students should work with the idea that the tens place is ten times as much as the ones place and the ones place is 1/10<sup>th</sup> the size of the tens place.</p>	<p>Ask your child how the number 2 in 542 is different from the value of the 2 in 324. (The 2 in 542 represents 2 ones or 2 while the 2 in 324 represents 2 tens or 20. Since the two in 324 is one place to the left of the 2 in 542, the value of the 2 is 10 times greater.)</p>	<p><a href="https://www.youtube.com/watch?v=Cn9ebzYE1Kk">https://www.youtube.com/watch?v=Cn9ebzYE1Kk</a></p> <p><a href="http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5nbt1">http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5nbt1</a></p>
	<p>Number and Operations in Base Ten Grade 5 Standard 2 (5.NBT.2)</p>	<p>Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of ten.</p>	<p>Whole number exponents denote powers of ten. Multiplying by a power of ten shifts the digits of a whole number or decimal that many places to the left.</p>	<p>Ask your child how multiplying by 10 shifts every digit of the multiplicand (one place to the left)</p>	<p><a href="https://www.youtube.com/watch?v=ibq7e5MOxVY&amp;list=PLnIkFmW0ticPNj9D2p0_Vujh0PEYIbR9O">https://www.youtube.com/watch?v=ibq7e5MOxVY&amp;list=PLnIkFmW0ticPNj9D2p0_Vujh0PEYIbR9O</a></p>

	<p>Number and Operations in Base Ten Grade 5 Standard 3 (5.NBT.3)</p>	<p>Read, write, and compare decimals to thousandths.  a. Read and write decimals to thousandths using base ten numerals, number names, and expanded form.  b. Compare two decimals to thousandths based on meanings of the digits in each place using <math>&lt;</math>, <math>&gt;</math>, <math>=</math> symbols to record the results of comparisons.</p>	<p>This standard references expanded form of decimals with fractions included. Students read decimals using fractional language and write decimals in fractional form, as well as in expanded notation. This leads to understanding equivalence of decimals (<math>0.8 = .80 = .800</math>). Students should begin to understand the size of decimals and relate them to common benchmarks such as 0.5, .50, and .500.</p>	<p>Ask your child to compare .25 and .17 (25 hundredths is more than 17 hundredths).</p> <p>Ask them to represent the comparison using the greater than or less than signs: <math>.25 &gt; .17</math> and <math>.17 &lt; .25</math> is another way to express the comparison.</p>	<p><a href="https://www.youtube.com/watch?v=DzfS6sjn2_Y&amp;list=P LnIkFmW0ticNgFOdoET62HdEP88VHzUDM &amp;index=1">https://www.youtube.com/watch?v=DzfS6sjn2_Y&amp;list=P LnIkFmW0ticNgFOdoET62HdEP88VHzUDM &amp;index=1</a></p>
	<p>Number and Operations in Base Ten Grade 5 Standard 4 (5.NBT.4)</p>	<p>Use place value understanding to round decimals to any place.</p>	<p>This standard refers to rounding. The expectation is that students have a deep understanding of place value and number sense and can explain and reason about the answers they get when rounding .</p>	<p>Ask your child to round a number to the nearest hundredth.</p>	<p><a href="https://learnzillion.com/lessonsets/212-round-decimals-to-any-place-using-number-lines">https://learnzillion.com/lessonsets/212-round-decimals-to-any-place-using-number-lines</a></p>

	Number and Operations in Base Ten Grade 5 Standard 5 (5.NBT.5)	Fluently multiply multi-digit whole numbers using the standard algorithm.	This standard refers to fluency, which means accuracy (correct answers), efficiency (a reasonable amount of steps), and flexibility (using diverse strategies). This standard builds on students' understanding of multiplication in the lower grades and the use of alternative strategies	Ask your child to multiply $225 \times 12$ in more than one way. Make sure they check their work using another method.	<a href="https://learnzillion.com/lessonsets/789-use-the-standard-algorithm-for-multiplication-of-multi-digit-numbers">https://learnzillion.com/lessonsets/789-use-the-standard-algorithm-for-multiplication-of-multi-digit-numbers</a>
	Number and Operations in Base Ten Grade 5 Standard 6 (5.NBT.6)	Find whole number quotients of whole numbers with up to four digit dividends and two digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.. Illustrate and explain the calculation by using equations, rectangular arrays, or area models.	This standard references various strategies for division that includes remainders. Make sure students are exposed to problems where the divisor is the number of groups and where the divisor is the size of the groups.	Ask your child to divide 1716 by 16 and to state it in another way. For example, how many 16s are in 1716?	<a href="https://learnzillion.com/lessons/552-use-an-area-model-for-division-of-4-digit-dividends-by-2-digit-divisors">https://learnzillion.com/lessons/552-use-an-area-model-for-division-of-4-digit-dividends-by-2-digit-divisors</a>  <a href="http://www.commoncoresheet.com/SortedByGrade.php?Sorted=5nbt6">http://www.commoncoresheet.com/SortedByGrade.php?Sorted=5nbt6</a>

	Number and Operations in Base Ten Grade 5 Standard 7 (5.NBT.7)	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	General methods applied to computing with whole numbers are applied to decimals. This work should concentrate on concrete models and pictorial representations. Before students give an exact answer they should estimate answers based on their understanding of place value and operations.	Ask your child to estimate the answer before they actually solve any operation problems with decimals. When adding and subtracting be mindful that they write numbers with the same place value beneath each other.	<a href="https://learnzillion.com/lessonsets/229-multiply-and-divide-by-decimals-to-the-hundredths">https://learnzillion.com/lessonsets/229-multiply-and-divide-by-decimals-to-the-hundredths</a>  <a href="http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5nbt7">http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5nbt7</a>
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## NUMBER AND OPERATIONS-FRACTIONS

Parent Notes	Standard Code	Standard	What does this standard mean?	What can I do at home?	Resources
	Numbers and Operations-Fractions Grade 5 Standard 1 (5.NF.1)	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.	Students need to find a common denominator before they can add or subtract fractions with unlike denominators. For example: $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$	Ask your child to add $\frac{1}{3}$ to $\frac{1}{6}$ . Have them use the face of a clock as a model for solving the problem.	<a href="https://learnzillion.com/lessonsets/216-add-and-subtract-fractions-with-unlike-denominators">https://learnzillion.com/lessonsets/216-add-and-subtract-fractions-with-unlike-denominators</a>  <a href="https://www.illustrativemathematics.org/5.NF.A.1">https://www.illustrativemathematics.org/5.NF.A.1</a>  <a href="https://www.youtube.com/watch?v=pmJHyJ0zpw4">https://www.youtube.com/watch?v=pmJHyJ0zpw4</a>

	<p>Numbers and Operations-Fractions Grade 5 Standard 2 (5.NF.2)</p>	<p>Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result <math>2/5 + 1/2 = 3/7</math>, by observing that <math>3/7 &lt; 1/2</math>.</p>	<p>This standard refers to number sense, which means students' understanding of fractions as whole numbers that lie between whole numbers on a number line. Number sense in fractions also means moving between decimals and fractions to find equivalents, also being able to reason that <math>7/8</math> is greater than <math>3/4</math> because <math>7/8</math> is missing only <math>1/8</math> and <math>3/4</math> is missing <math>1/4</math> so <math>7/8</math> is closer to 1. Students should also use benchmark fractions to estimate and examine the reasonableness of their answers</p>	<p>Ask your child to solve the following problem: Jerry was making two types of cookies. If one type called for <math>3/4</math> cup of sugar and the other needed <math>2/3</math> cup of sugar, how much did he need to make both types of cookies. Mentally, students should estimate that the answer should be less than 2 cups. The answer is <math>1\ 5/12</math></p>	<p><a href="https://learnzillion.com/lessons/89-break-fractions-down-into-their-component-parts">https://learnzillion.com/lessons/89-break-fractions-down-into-their-component-parts</a></p> <p><a href="http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5nf2">http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5nf2</a></p> <p><a href="https://www.youtube.com/watch?v=jryJu6UJ4iM">https://www.youtube.com/watch?v=jryJu6UJ4iM</a></p>
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	<p>Numbers and Operations-Fractions Grade 5 Standard 3 (5.NF.3)</p>	<p>Interpret a fraction as division of the numerator by the denominator (<math>a/b = a \div b</math>). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret <math>3/4</math> as the result of dividing 3 by 4, noting that <math>3/4</math> multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size <math>3/4</math>. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?</p>	<p>Students should connect fractions with division, understanding that 5 divided by 3 = <math>5/3</math>. They should explain this by working with their understanding of division as equal sharing. Students should also create story contexts to represent problems involving division of whole numbers. A numerator is the top number of a fraction; a denominator is the bottom number of a fraction.</p>	<p>Ask your child to solve the following problem:</p> <p>Six classrooms have a total of 27 boxes of pencils. How many boxes will each classroom receive? Your child may explain that each class gets 27 divided by 6 boxes of pencils and can further determine that each classroom gets <math>4 \frac{3}{6}</math> or <math>4 \frac{1}{2}</math> boxes of pencils.</p>	<p><a href="https://learnzillion.com/lessonsets/65-understand-fractions-as-a-division-of-the-numerator-by-the-denominator">https://learnzillion.com/lessonsets/65-understand-fractions-as-a-division-of-the-numerator-by-the-denominator</a></p> <p><a href="https://www.illustrativemathematics.org/content-standards/tasks/858">https://www.illustrativemathematics.org/content-standards/tasks/858</a></p> <p><a href="https://www.youtube.com/watch?v=PsIV4o0N7N8">https://www.youtube.com/watch?v=PsIV4o0N7N8</a></p>
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	<p>Numbers and Operations-Fractions Grade 5 Standard 4 (5.NF.4)</p>	<p>Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.</p> <p>a. Interpret the product <math>(a/b) \times q</math> as a parts of a partition of <math>q</math> into <math>b</math> equal parts; equivalently, as the result of a sequence of operations <math>a \times q</math> divided by <math>b</math>.</p> <p>b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.</p>	<p>Students develop an understanding that the multiplication of a fraction by a whole number could be represented as repeated addition of a unit fraction (e.g. <math>2 \times \frac{1}{4} = \frac{1}{4}</math> and <math>\frac{1}{4}</math>). Students should also be able to create story problems that require multiplication of fractions using a whole number</p>	<p>Ask your child to create a story problem that involves multiplying <math>\frac{3}{5}</math> by 6 such as the following “Everyday Tim ran <math>\frac{3}{5}</math> of a mile. How far did he run after 6 days?”</p>	<p><a href="https://learnzillion.com/lessonsets/66-multiply-fractions">https://learnzillion.com/lessonsets/66-multiply-fractions</a></p> <p><a href="https://www.illustrativemathematics.org/5.NF.B.4">https://www.illustrativemathematics.org/5.NF.B.4</a></p>
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	<p>Numbers and Operations-Fractions Grade 5 Standard 5 (5.NF.5)</p>	<p>Interpret multiplication as scaling (resizing) by:</p> <p>a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.</p> <p>b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number, and relating the principle of fraction equivalence <math>\frac{a}{b} = \frac{n \times a}{n \times b}</math> to the effect of multiplying <math>\frac{a}{b}</math> by 1.</p>	<p>Students are really examining how a number changes when we multiply by fractions that are more than 1 and less than 1. This standard is typically taught in conjunction with 5.NF.4</p>	<p>Ask your child to compare the products of the same number when it is multiplied by a fraction greater than 1 and a number smaller than 1.</p>	<p><a href="http://quizlet.com/13164188/5th-grade-common-core-5nf5-flash-cards/">http://quizlet.com/13164188/5th-grade-common-core-5nf5-flash-cards/</a></p> <p><a href="https://www.youtube.com/watch?v=DC5mbZHOkw8">https://www.youtube.com/watch?v=DC5mbZHOkw8</a></p> <p><a href="https://learnzillion.com/lessons/3439-interpret-multiplication-as-scaling-using-visual-models">https://learnzillion.com/lessons/3439-interpret-multiplication-as-scaling-using-visual-models</a></p>
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	<p>Numbers and Operations-Fractions Grade 5 Standard 6 (5.NF.6)</p>	<p>Solve real world problems involving multiplication of fractions and mixed numbers, e.g. by using visual fraction models or equations to represent the problem.</p>	<p>This standard builds on all the work done in this cluster of standards. Students should have ample opportunity to use various strategies to solve word problems involving multiplication of a fraction by a mixed number. This standard could also include fraction by a fraction, fraction by a mixed number or mixed numbers by a mixed numbers.</p>	<p>Ask your child to explain how they will multiply two mixed numbers. First, they must convert these fractions to improper fractions. For example <math>3\frac{1}{2}</math> is the same as <math>\frac{7}{2}</math>.</p>	<p><a href="https://learnzillion.com/lessons/129-multiply-mixed-numbers-using-pictures">https://learnzillion.com/lessons/129-multiply-mixed-numbers-using-pictures</a></p> <p><a href="https://www.youtube.com/watch?v=ICbswBRIGyY">https://www.youtube.com/watch?v=ICbswBRIGyY</a></p>
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	Numbers and Operations-Fractions Grade 5 Standard 7 (5.NF.7)	<p>Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.</p> <p>a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.</p> <p>b. Interpret division of a whole number by a unit fraction, and compute such quotients.</p> <p>c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g. by using visual fraction models and equations to represent the problem.</p>	<p>This standard introduces students to division with fractions. The concept of a unit fraction is a fraction that has one in the numerator (the top number of a fraction; the bottom number is the denominator). For example, the fraction <math>\frac{3}{5}</math> is 3 copies of the unit fraction <math>\frac{1}{5}</math>.</p>	<p>Ask your child to create a story context for <math>\frac{1}{3}</math> divided by 4 (For example, four students are given a <math>\frac{1}{3}</math> a tray of brownies to share. How much did each student Receive? (<math>\frac{1}{12}</math>))</p>	<p><a href="https://www.youtube.com/watch?v=Xda7b7wq2-w">https://www.youtube.com/watch?v=Xda7b7wq2-w</a></p> <p><a href="http://www.onlinemathlearning.com/divide-fractions-5nf7a.html">http://www.onlinemathlearning.com/divide-fractions-5nf7a.html</a></p>
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**MEASUREMENT AND DATA**

<b>Parent Notes</b>	<b>Standard Code</b>	<b>Standard</b>	<b>What does this standard mean?</b>	<b>What can I do at home?</b>	<b>Resources</b>
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	Measurement and Data Grade 5 Standard 1 (5.MD.1)	Convert among different sized standard measurement units within a given measurement system (e.g. convert 5 cm to 0.05 m) and use these conversions in solving multi-step, real world problems.	This standard calls for students to know how to convert measurements within the same system of measurements, both metric and customary units. They should see how the base ten system supports conversions within the metric system.	Ask your child to tell you how many centimeters are in a meter. (100)  How many inches are in a foot? (12)  How many pints in a quart? (2)	<a href="https://www.youtube.com/watch?v=Y6LSdsOb-mE">https://www.youtube.com/watch?v=Y6LSdsOb-mE</a>  <a href="https://www.studyzone.org/mtestprep/math8/g/convertmetricprac.cfm">https://www.studyzone.org/mtestprep/math8/g/convertmetricprac.cfm</a>
	Measurement and Data Grade 5 Standard 2 (5.MD.2)	Make a line plot to display a data set of measurements in fractions of a unit( $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{8}$ ). Use operations on fractions for this grade to solve problems involving information presented in line plots.	This standard provides a context for students to work with fractions by measuring objects to one-eighth of a unit. This includes length, mass, and liquid volume. Students are making a line plot of their data and adding and subtracting fractions based on the data in the line plot.	Ask your child to measure objects in the kitchen (forks, spoons, etc) to the nearest $\frac{1}{2}$ , $\frac{1}{4}$ , or $\frac{1}{8}$ of an inch and then display the data on a line plot.	<a href="https://www.youtube.com/watch?v=eoYai5rdTB4">https://www.youtube.com/watch?v=eoYai5rdTB4</a>
	Measurement and Data Grade 5 Standard 3 (5.MD.3)	Recognize volume as an attribute of solid figures and understand concepts of volume measurement a. A cube with side length unit 1 unit called a “unit cube” is said to have “one cubic unit” of volume and can be used to measure volume. b. A solid figure that can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.	This is the first time students begin to explore the notion of volume. The concept should extend from the concept of area with the idea that students are covering an area with a layer of unit cubes. They begin to understand that a 1 unit by 1 unit by 1 unit is the standard unit for measuring volume.	Ask your child to explain what volume is and what are its units (the amount of space an object takes up in cubic units). The cubic unit is written with an exponent of 3. For example cubic inches is written as in <sup>3</sup> .	<a href="https://www.youtube.com/watch?v=NgrLkekFXA">https://www.youtube.com/watch?v=NgrLkekFXA</a>

	<p>Measurement and Data Grade 5 Standard 4 (5.MD.4)</p>	<p>Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.</p>	<p>Volume introduces a third dimension and thus a significant challenge to some students. Solid units are packed, whereas a liquid fills a three dimensional space. Students should have an opportunity to build models of cubic inches, centimeters, and feet .</p>	<p>Ask your child to estimate how many cubic centimeters would fill a shoe box or a pencil box. Allow students to estimate and then measure to check their estimates.</p>	<p><a href="http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5md4">http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5md4</a></p> <p><a href="https://www.youtube.com/watch?v=3ZioQ71VrXc">https://www.youtube.com/watch?v=3ZioQ71VrXc</a></p> <p><a href="https://www.youtube.com/watch?v=jQqLHSnewz4">https://www.youtube.com/watch?v=jQqLHSnewz4</a></p>
		<p>Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.</p> <p>a. Find the volume of a right rectangular prism with whole number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole number products as volumes, e.g. to represent the associative property of</p>	<p>Volume not only introduces a third dimension, but a significant challenge to students' spatial structuring . the emphasis here is that</p>		

Measurement and Data  
Grade 5 Standard 5  
5.MD.5

multiplication.  
b. Apply the formulas  $V=l \times w \times h$  and  $V=b \times h$  for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.  
c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding volumes of the non-overlapping parts, applying this technique to solve real world problems.

emphasis here is that solid units are packed such as cubes in a three-dimensional array, whereas a liquid fills three-dimensional space, taking the shape of the container. Students then learn to determine the volumes of several right rectangular prisms, using centimeters, cubic inches, and cubic feet. With guidance, they learn to apply multiplicative reasoning to determine volumes, looking for and making use of structure.

Ask your child how many cubic yards would be needed to fill the living room or how many cubic centimeters would fill a pencil case.

<https://learnzillion.com/lessonsets/365-relating-volume-to-the-operations-of-multiplication-and-addition>

<http://www.commoncoresheets.com/SortedByGrade.php?Sorted=5md5c>

## GEOMETRY

Parent Notes	Standard Code	Standard	What does this standard mean?	What can I do at home?	Resources
	<p>Geometry Grade 5 Standard 1 (5.G.1)</p>	<p>Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g. x-axis and x coordinate, y- axis and y coordinate)</p>	<p>These standards deal only with the first quadrant (positive numbers only) in the coordinate plane. When locating points, the first number is associated with movement along the x-axis, while the second number is associated with the y-axis. They are referred to as coordinates. The x-axis is the line that is left to right, or horizontal. The y-axis is positioned up and down.</p>	<p>Ask your child if they can plot some points in the first quadrant and then to connect the points in order to form a trapezoid: Point A (2,6) Point B(4,6) Point C (6,3) Point D (2,3)</p>	<p><a href="https://learnzillion.com/lessons/1702-read-coordinates-of-a-point-on-the-coordinate-plane">https://learnzillion.com/lessons/1702-read-coordinates-of-a-point-on-the-coordinate-plane</a></p> <p><a href="https://www.youtube.com/watch?v=R3XLbjCxuH8">https://www.youtube.com/watch?v=R3XLbjCxuH8</a></p> <p><a href="http://quizlet.com/18722893/5th-grade-common-core-5g1-and-5g2-flash-cards/">http://quizlet.com/18722893/5th-grade-common-core-5g1-and-5g2-flash-cards/</a></p>

	Geometry Grade 5 Standard 2 (5.G.2)	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	This standard references real world mathematical problems, including the traveling from one point to another and identifying the coordinates of missing points in geometric figures such as squares, rectangles, and parallelograms.	Ask your child to identify points placed on the coordinate plane using the x and y coordinates. Be sure they can identify the x and y-axis as well as the first quadrant region where there are all positive numbers.	<a href="https://learnzillion.com/lessonsets/347">https://learnzillion.com/lessonsets/347</a> <a href="https://www.youtube.com/watch?v=R3XLbjCxuH8">https://www.youtube.com/watch?v=R3XLbjCxuH8</a>
	Geometry Grade 5 Standard 3 (5.G.3)	Understand that attributes belong to a category of two dimensional figures also belong to all subcategories of that category. For example, all rectangles have four angles and squares are rectangles, so all squares have four right angles.	This standard calls for students to reason about the attributes (properties) of shapes and reasoning about them. An example of this might be to examine whether all quadrilaterals have right angles, giving examples and non-examples of this.	Ask your child to tell you when rectangles are parallelograms (if both sets of the opposite sides are parallel then rectangles are parallelograms)	<a href="https://learnzillion.com/lessonsets/345-understand-attributes-of-two-dimensional-figures-and-classifying-figures-in-a-hierarchy">https://learnzillion.com/lessonsets/345-understand-attributes-of-two-dimensional-figures-and-classifying-figures-in-a-hierarchy</a>  <a href="https://learnzillion.com/lessonsets/345">https://learnzillion.com/lessonsets/345</a>
	Geometry Grade 5 Standard 4 (5.G.4)	Classify two-dimensional figures in a hierarchy based on properties.	This standard builds on what was done in the 4 <sup>th</sup> grade where students can classify polygons (multi-sided figures) For example, that a rectangle and a rhombus are both quadrilaterals (but Are not squares)	Ask your child to define the term polygon (a closed plane figure formed from line segments that meet at only their endpoints). Explore why a square is also a parallelogram (with 4 equal sides and 4 right sides. The term congruent means equal size and shape).	<a href="https://learnzillion.com/lessons/3513-classify-quadrilaterals-in-a-hierarchy">https://learnzillion.com/lessons/3513-classify-quadrilaterals-in-a-hierarchy</a>  <a href="https://www.youtube.com/watch?v=9sCfL_B1WSg">https://www.youtube.com/watch?v=9sCfL_B1WSg</a>