

Archdiocese of New York Grade 4 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 4 Mathematics learning standards. Learning standards describe the knowledge and skills that students should master by the end of Grade 4. Each standard has a specific code. For example, 4.OA.1 stands for "Grade 4 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 4 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
OPERATIONS AND ALGEBRAIC THINKING					
	Operations and Algebraic Thinking Grade 4 Standard 1 (4.OA.1)	Interpret a multiplicative equation as a comparison, e.g. interpret $35=5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	A multiplicative comparison is a situation in which one quantity is multiplied by a specified number to get another quantity (e.g. a is n times as much as b). students should be able to identify and verbalize which quantity is being multiplied and which number tells how many times	Ask your child to write an explanation for the mathematical expression 5 times 8, such as Sally is five years old and her mom is eight times older. How old is Sally's mom (40)? Or an explanation for 5 times 5 being the same as: Sally has five times as many pencils as Mary. If Mary has 5 pencils, how many does Sally have? (25)	https://learnzillion.com/lessons/2543-see-multiplication-as-a-comparison-using-number-sentences

	<p>Operations and Algebraic Thinking Grade 4 Standard 2 (4.OA.2)</p>	<p>Multiply or divide to solve word problems involving multiplicative comparison ,e.g. by using drawings and equations with a symbol for the unknown number to represent the problem , distinguishing multiplicative comparison from additive comparison.</p>	<p>This standard calls for students to translate comparative situations into equations with an unknown and solve. Students need many opportunities to solve contextual problems. In an additive comparison, the underlying question is “what amount would be added to one quantity in order to result in the other”. In a multiplicative comparison, the underlying question is “what factor would multiply one quantity in order to result in the other?”. An additive comparison focuses on the difference between two quantities whereas a multiplicative comparison focuses on comparing two quantities by showing one quantity is a specified number of times larger or smaller than the other.</p>	<p>Ask your child...</p> <p>If Deb has 3 apples and Karen has 5 apples, how many more apples does Karen have? (an additive comparison)</p> <p><i>And/or</i></p> <p>If Deb ran 3 miles and Karen ran 5 times as many miles as Deb, how many miles did Karen run? (a multiplicative comparison)</p>	<p>https://learnzillion.com/lessonsets/615-solve-word-problems-using-multiplicative-comparisons</p>
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	<p>Operations and Algebraic Thinking Grade 4 Standard 3 (4.OA.3)</p>	<p>Solve multi-step word problems posed with whole numbers and having whole number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p>	<p>The focus on this standard is to have students use and discuss various strategies. It refers to estimation strategies, including using compatible numbers (numbers that sum to 10 or 100) or rounding. Problems should be structured so that all acceptable estimation strategies will arrive at a reasonable answer. Students need many opportunities solving multistep story problems using all four operations.</p>	<p>Ask your child to estimate how many miles you travel each week based on the number of miles travelled (ex.267 miles) on each of the 5 days. The child should round 267 to about 300 and multiply by 5 to arrive at about 1500 miles. Provide up to 3 different numbers in the hundreds and have your child estimate the sum.</p> <p>Ask your child...</p> <p>If there are 128 children going on a trip and each bus holds 30 students, how many buses are needed? They will need 5 buses because 4 buses will not hold all the children. An extra bus is needed for the 8 students that are left over.</p>	<p>https://learnzillion.com/lessonsets/415</p>
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	<p>Operations and Algebraic Thinking Grade 4 Standard 4 (4.OA.4)</p>	<p>Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of its factors. Determine whether a given whole number in the range 1-100 is prime or composite.</p>	<p>This standard requires students to demonstrate understanding factors and multiples of whole numbers. This standard also refers to prime and composite numbers. Prime numbers have exactly two factors, the number one and their own number. For example, the number 17 has the factors 1 and 17. Composite numbers have more than two factors. For example, 8 has the factors 1,2,4,and 8. A common misconception is that 1 is prime, when it is, in fact, neither prime nor composite. Another misconception is that all prime numbers are odd numbers. This is not true, since the number 2 has more than two factors, 1 and 2 and is also an even number.</p>	<p>Ask your child if a number is prime or composite and to tell you the factor pairs . For example, the factor pairs for 96 are: 1 and 96, 2 and 48, 3 and 32, 4 and 24, 6 and 16, 8 and 12.(When you multiply the factor pairs, you get the number which in this case is 96)</p>	<p>https://learnzillion.com/lessonsets/123</p>
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	Operations and Algebraic Thinking Grade 4 Standard 5 (4.OA.5)	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself	Patterns involve numbers or symbols that repeat or grow. Patterns and rules are related. A pattern is a sequence that repeats the same process over and over. A rule dictates what the process will look like. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers.	Ask your child to use the following rule: Starting at 1 create a pattern that starts at 1 and multiplies each number by 3. Stop when you have 6 numbers. Your child should write: 1,3,9,27,81, and 243.	https://learnzillion.com/lessonsets/195
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NUMBER AND OPERATIONS - BASE TEN

Parent Notes	Standard Code	Standard	What does this standard mean?	What can I do at home?	Resources
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	<p>Number and Operations-Base Ten Grade 4 Standard 1 (4.NBT.1)</p>	<p>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.</p>	<p>For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division. In the base ten system, the value of each place is 10 times the value of the place to the immediate right.</p>	<p>Ask your child how the number 2 in the number 582 is similar or different than the number 2 in the number 528? In 582 the number is 2 units or ones, whereas in 528 it is twenty or two tens.</p>	<p>https://learnzillion.com/lessons/16-understand-place-value-multiplying-by-a-power-of-10</p> <p>http://www.commoncoresheets.com/SortedByGrade.php?Sorted=4nbt1</p> <p>https://www.khanacademy.org/math/pre-algebra/order-of-operations/place_value/e/understanding-place-value-1</p>
	<p>Number and Operations-Base Ten Grade 4 Standard 2 (4.NBT.2)</p>	<p>Read and write multi-digit whole numbers using base ten numerals, number names, and expanded form. Compare two digit numbers based on meanings of the digits in each place using $>$, $=$, and $<$ symbols to record the results of comparisons.</p>	<p>This standard refers to various ways to write numbers. Students should have flexibility with the different number forms. Traditional expanded form is $285 = 200 + 80 + 5$. Written form or number name is “two hundred eighty”. Students should also have opportunities to explore the idea that 285 could also be 28 tens plus 5 ones or 1 hundred, 18 tens, and 5 ones. Students also need to know the role of commas in numbers between 1,000 and 1,000,000. Each sequence of 3 zeros</p>	<p>Ask your child to write a number in expanded form and its number name. For example 457: Expanded form is $400 + 50 + 7$ and its written name is four hundred fifty seven. Ask your child to read numbers that have commas. For example 457,000 is read four hundred fifty seven thousand.</p>	<p>https://learnzillion.com/lessonsets/167-read-write-and-compare-multi-digit-whole-numbers</p> <p>https://www.youtube.com/watch?v=OLZAPvpQQks</p>

	<p>Number and Operations-Base Ten Grade 4 Standard 3 (4.NBT.3)</p>	<p>Use place value understanding to round multi-digit whole numbers to any place.</p>	<p>This standard refers to place value understanding, which extends beyond a procedure for rounding. The expectation is that students have a deep understanding of place value and number sense and can explain and reason about answers they get when they round. Students should have the chance to use a number line and hundreds chart as tools to support their work.</p>	<p>Ask your child to draw a number line from 0 to 10 and place the number 8 at its correct position. Do this for larger numbers as well by extending the number line..</p>	<p>https://www.youtube.com/watch?v=HOXpPnQu3zI&list=PL_VIRrzCIHHYiYVYt1tPH_ICQceXBbOzWU</p> <p>http://www.commoncoresheets.com/SortedByGrade.php?Sorted=4nbt3</p> <p>http://en.wikipedia.org/wiki/Number_line</p>
	<p>Number and Operations-Base Ten Grade 4 Standard 4 (4.NBT.4)</p>	<p>Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p>	<p>Students build their understanding of addition and subtraction, their use of place value and their flexibility with multiple strategies to make sense of the standard algorithm. They continue to use place value in describing and justify the processes they use to add and subtract.</p>	<p>Ask your child to explain how they add or subtract. Their explanations may seem quite lengthy as they justify their steps with place value and explain why the standard algorithm works.</p>	<p>https://www.youtube.com/watch?v=Qf1405wJl1s</p>

	<p>Number and Operations-Base Ten Grade 4 Standard 5 (4.NBT.5)</p>	<p>Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.</p>	<p>Students who develop flexibility in breaking numbers apart have a better understanding of the importance of place value and the distributive property in multi-digit multiplication. Students should use the terms factor and product when communicating their reasoning. The distributive property allows numbers to be decomposed into base ten units, products of the units to be computed , and then combined. By decomposing the factors into like base ten units and applying the distributive property, multiplication computations are reduced to single digit multiplication and products of numbers with multiples of 10, of 100, and 1,000. Computing products of two two-digit numbers requires using the distributive property several times when the factors are decomposed into base ten units.</p>	<p>Ask your child to solve the following word problem. There are 25 dozen cookies in the bakery. What is the total number of cookies in the bakery? The answer is 300. Have your child consider alternative ways of getting the same answer.</p>	<p>https://www.youtube.com/watch?v=Vgi2WJJDxK4</p>
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	<p>Number and Operations-Base Ten Grade 4 Standard 6 (4.NBT.6)</p>	<p>Find whole number quotients and remainders with up to four digit dividends and one-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, and/or area models.</p>	<p>In fourth grade, students build on their third grade work with division within 100. Students need opportunities to develop their understanding by using problems in and out of context. General methods for computing quotients of multi-digit numbers and one-digit numbers rely on the same understanding as for multiplication, but cast in terms of division. One component is quotients of multiples of 10, 100, or 1000 and one-digit numbers. For example, 42 divided by 6 is related to 420 divided by 6 and 4200 divided by 6. Students can draw on their work with multiplication to reason that 4200 divided by 6 means partitioning 42 hundreds into 6 equal groups., so there are 7 hundreds in each group. Multi digit division involves work with remainders. In preparation for work with remainders, students can compute sums of a product and a number, such as</p> $4 \times 8 + 3$ <p>In multi-digit division, students will need to find the greatest multiple less than a given number. For</p>	<p>Ask your child to divide 745 by 3 which can be viewed as allocating 745 objects bundled in 7 hundreds, 4 tens, and 3 ones equally among 3 groups.</p>	<p>https://www.youtube.com/watch?v=bJCDoBTBnG8</p> <p>https://www.youtube.com/watch?v=ArTCLaLZ6Vk&list=PLGkml0KJJrVgJDa8Go-9xmVN-zpXlrzLZ</p> <p>https://www.youtube.com/watch?v=erpHiUHK-3A</p>
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NUMBER & OPERATIONS-FRACTIONS

Parent Notes	Standard Code	Standard	What does this standard mean?	What can I do at home?	Resources
	Number and Operations-Fractions Grade 4 Standard 1 (4.NF.1)	Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this process to recognize and generate equivalent fractions.	This standard addresses equivalent fractions by examining the idea that equivalent fractions can be made by multiplying the numerator (the top number) and denominator (the bottom number) by the same number.	Ask your child to find equivalent fractions for various fractions such as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$. Ask your child to name the numerator (the number on top of the fraction bar) and the denominator (the number on the bottom of the fraction bar)	https://www.youtube.com/watch?v=z25feAkNunk&list=PL_VIRrzCIHHZi26jXXObc6DuA1Yu7ZjNZ https://www.youtube.com/watch?v=NmFxTRYMsMc

	<p>Number and Operations-Fractions Grade 4 Standard 2 (4.NF.2)</p>	<p>Compare two fractions with different numerators and different denominators, e.g. by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. Recognize that comparisons are valid only when two fractions refer to the same whole. Record the results of comparisons with symbols, $<$, $>$, or $=$ and justify the conclusions, e.g. by using a visual fraction model.</p>	<p>This standard calls for students to recognize that they must consider the size of the whole when comparing fractions. For example, $\frac{1}{2}$ and $\frac{1}{8}$ of a medium pizza is very different from $\frac{1}{2}$ and $\frac{1}{8}$ of one large pizza.</p>	<p>Ask your child to create grids of different sizes and to shade in $\frac{1}{4}$ of each grid. For example, Mary has a 12 by 12 grid (144 squares) and Janet has a 10 by 10 grid (100 squares). If $\frac{1}{4}$ of each is shared, Mary will have 36 grid squares shaded and Janet will have 25 grid squares. The total number of grid squares will be different, so $\frac{1}{4}$ of each total number is different. Use candies such as M&M's to do the same thing. Count out 12 and 20. Ask your child to make into 4 equal portions and to determine which portion is larger even though they divided them into equal groups. The group with more M&M's has more in it.</p>	<p>https://www.youtube.com/watch?v=rPFxFNDosu4</p> <p>https://www.youtube.com/watch?v=1qqL9fbT6OE&list=PLnlkFmW0ticM_NYushq8EfTzqYLyFlwA1</p> <p>https://www.youtube.com/watch?v=QOOGjsKQOkM&index=3&list=PLnlkFmW0ticM_NYushq8EfTzqYLyFlwA1</p> <p>https://www.youtube.com/watch?v=fiwsw-WvWvo&index=5&list=PLnlkFmW0ticM_NYushq8EfTzqYLyFlwA1</p>
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	<p>Number and Operations-Fractions Grade 4 Standard 3 (4.NF.3)</p>	<p>Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.</p> <ol style="list-style-type: none"> Understand addition and subtraction as joining and separating parts referring to the same whole. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Add and subtract mixed numbers with like denominators, e.g. by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g. by using visual fraction models and 	<p>A fraction with a numerator of one is called a unit fraction. When investigating fractions other than the unit fraction, students should be able to join (compose) or separate (decompose) the fractions of the same whole. For example, $2/3 = 1/3 + 1/3$</p>	<p>Ask your child if Mary and Lacey decide to share a pizza and Mary ate $3/6$ and Lacey ate $2/6$ of the pizza, how much of the pizza did the girls eat together? ($5/6$)</p>	<p>https://www.youtube.com/watch?v=FQ-B2209qcA</p> <p>https://www.illustrativemathematics.org/4.NF.B.3</p>
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	<p>Number and Operations- Fractions Grade 4 Standard 4 (4.NF.4)</p>	<p>Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <ol style="list-style-type: none"> Understand a fraction a/b as a multiple of $1/b$. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. Solve word problems involving multiplication of a fraction by a whole number, e.g. by using visual fraction models and equations to represent the problem. 	<p>This standard builds on students' work of adding fractions and extending that work to multiplication. Student should see a fraction as a numerator times the unit fraction with the same denominator. For example, $7/5 = 7 \times 1/5$</p> <p>This standard also extends the idea of multiplication as repeated addition. For example $3 \times (2/5) = 2/5 + 2/5 + 2/5 = 6/5 = 6 \times (1/5)$</p>	<p>Ask your child if each person at a party eats $3/8$ of a pound of roast beef, and there are 5 people at the party, how many pounds of roast beef are needed. Between what two numbers does your answer lie?</p> <p>$3/8 + 3/8 + 3/8 + 3/8 + 3/8 = 15/8 = 1 \frac{7}{8}$ so the solution lies between 1 and 2 pounds, but closer to 2 pounds.</p>	<p>https://www.youtube.com/watch?v=d3azHmrqtMU</p> <p>http://www.commoncoresheets.com/SortedByGrade.php?Sorted=4nf4c</p>
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	<p>Number and Operations-Fractions Grade 4 Standard 5 (4.NF.5)</p>	<p>Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add to fractions with respective denominators 10 and 100.</p>	<p>This standard continues the work of equivalent fractions by having students change fractions with a 10 in the denominator into equivalent fractions that have a 100 in the denominator. Students need to extend the place value system to the right of the decimal point. The first position after the decimal point is the tenths, the second position on the right of the decimal point is the hundredths. This continues the rule of each column being 10 times the value of the column to the right. This work also lays the foundation for decimals.</p>	<p>Ask your child to express $\frac{3}{10}$ as $\frac{30}{100}$. Continue asking them examples such as these to practice making fractions with a denominator of 10 to an equivalent fraction of a denominator with 100.</p>	<p>https://learnzillion.com/lessonsets/523</p> <p>http://www.mathsisfun.com/convert-fractions-decimals.html</p>
	<p>Number and Operations-Fractions Grade 4 Standard 6 (4.NF.6)</p>	<p>Use decimal notation for fractions with denominators 10 or 100.</p>	<p>Decimals are introduced for the first time and students should have ample time to explore and reason about the idea that a number can be represented as a fraction and a decimal. Students should make connections between fractions with a denominator of 10 and 100 and the place value chart. By reading fraction names students say $\frac{32}{100}$ as thirty-two hundredths and rewrite this as .32</p>	<p>Ask your child to represent different fractions with denominators of 10 and 100 as a decimal. For example $\frac{45}{100} = .45$ $\frac{5}{10} = .5$</p>	<p>https://learnzillion.com/lessonsets/292</p> <p>https://learnzillion.com/lessonsets/292-use-decimal-notation-for-fractions-with-denominators-10-or-100</p>

	Number and Operations-Fractions Grade 4 Standard 7 (4.NF.7)	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $<$, $>$, $=$ and justify the conclusions, e.g. by using a visual model.	Students should reason that comparisons of decimals are only valid when they apply to the same whole. Ways of reading decimal s aloud vary. Mathematicians and scientists read .15 aloud as “zero point one five” or “point 15”. Other ways to read .15 are “15 hundredths”. Just as 15 is understood as 15 ones and as 1 ten and 5 ones in computations with whole numbers, .15 is viewed as 15 hundredths and as one tenth and 5 hundredths in computations with decimals.	Ask your child to read decimals written to the tenths and hundredths place.	https://learnzillion.com/lessonsets/672 http://www.mathsisfun.com/convert-fractions-decimals.html http://www.dositey.com/2008/Products/Content/Include/decfrac/1/4/launch.php
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MEASUREMENT & DATA

Parent Notes	Standard Code	Standard	What does this standard mean?	What can I do at home?	Resources
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	<p>Measurement And Data Grade 4 Standard 1 4.MD.1</p>	<p>Know relative sizes of measurement units within one system of units including km, m, cm, kg, g, lb, oz, l, ml, hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.</p>	<p>Students should know that 1 ft is 12 times as long as 1 inch. They should be able to express the length of a 4-foot object as 48 inches. Students begin to develop mental images as to how large a meter is compared to a centimeter or an inch.</p>	<p>Ask your child to make a table that shows measurements of the same length in cm and meters or inches and feet Your child may also use a two-column table to convert from larger to smaller units and record equivalent measurements. They make statements such as if one foot is 12 inches then 3 feet is 36 inches.</p>	<p>https://www.youtube.com/watch?v=gzWPM6hW70M</p> <p>https://www.khanacademy.org/math/cc-fourth-grade-math/cc-4th-measurement-topic/cc-4th-unit-conversion/v/feet-to-inches-exercise-example</p> <p>https://www.khanacademy.org/math/cc-fifth-grade-math/cc-5th-measurement-topic/cc-5th-unit-conversion/v/cm-to-meters</p> <p>https://www.khanacademy.org/math/cc-fifth-grade-math/cc-5th-measurement-topic/cc-5th-unit-conversion/v/minutes-to-hours</p> <p>https://www.khanacademy.org/math/cc-sixth-grade-math/cc-6th-ratios-prop-topic/cc-6th-unit-conversion/v/convert-pounds-to-ounces</p>
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	<p>Measurement And Data Grade 4 Standard 2 (4.MD.2)</p>	<p>Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money including problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as a number line diagram that feature a measurement scale.</p>	<p>This standard includes multi-step word problems related to expressing measurement from a larger unit in terms of a smaller unit (e.g. feet to inches, meters to centimeters, and dollars to cents)</p>	<p>Ask your child the following problem to solve: Charlie and 10 friends are planning a party. They purchased 3 quarts of milk. If each glass holds 8 ounces of milk, will everyone get at least one glass of milk? $11 \text{ people} \times 8 \text{ ounces} = 88 \text{ ounces}$ $1 \text{ qt} = 2 \text{ pints} = 4 \text{ cups}$ so 3 quarts are equal to 6 pints which is the same as 12 cups.</p> <p>If each person drank one cup they would have one cup left over.</p>	<p>https://learnzillion.com/lessonsets/627-solve-word-problems-involving-distance-time-volume-mass-and-money</p>
	<p>Measurement And Data Grade 4 Standard 3 (4.MD.3)</p>	<p>Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length by viewing the area formula as a multiplication equation with an unknown factor.</p>	<p>The area of a rectangle formula is $A = l \times w$ where A is the area, l is the length and w is the width. The product of this formula gives the area in square units. These square units are derived from the length and width units. Perimeter is the distance around the rectangle and its formula is $P = 2l + 2w$ where l is the length and w is the width.</p>	<p>Ask your child to find the area and perimeter of the living room. (Be sure they give the answer in square units for area.)</p> <p>Ask your child to explain the difference between perimeter and area of a rectangle.</p>	<p>https://learnzillion.com/lessonsets/380</p> <p>http://www.coolmath.com/reference/rectangles</p> <p>http://www.mathplayground.com/area_perimeter.html</p>

	Measurement And Data Grade 4 Standard 4 (4.MD.4)	Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.	This standard provides a context for students to work with fractions by measuring objects to an eighth of an inch. Students make a line plot of this data and then add and subtract fractions based on the data in the line plot.	Ask your child to measure several objects in the living room or kitchen to the nearest $\frac{1}{2}$, $\frac{1}{4}$, or $\frac{1}{8}$ inch. Display this data on a line plot for every object. Challenge them to put all the objects together end to end and determine the total length.	https:// learnzillion.com/ lessonsets/384
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	<p>Measurement And Data Grade 4 Standard 5 (4.MD.5)</p>	<p>Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:</p> <ol style="list-style-type: none"> a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called “a one degree angle” and can be used to measure angles. b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees. 	<p>This standard brings up a connection between angles and circular measurement. which is 360 degrees. Angle measure is a turning point in the study of geometry. An angle is the union of two rays, a and b, with the same initial point P. the rays can be made to coincide by rotating one to the other about P. This rotation determines the size of the angle between a and b. the rays are sometimes called the sides of the angle. Another way to say this is that each ray determines a direction and the angle size measures the change from one direction to another. Degrees are the units used to measure angles. Angle measures can be added. Angle measure is not related to area .</p>	<p>Ask your child if a water sprinkler rotates one degree at each interval of time, how many one-degree turns does it make if the sprinkler rotates a total of 100 degrees. (The answer is one hundred.)</p>	<p>http://www.commoncoresheets.com/SortedByGrade.php?Sorted=4md5a</p> <p>http://www.homeschoolmath.net/teaching/g/angles.php</p>
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	<p>Measurement And Data Grade 4 Standard 6 (4.MD.6)</p>	<p>Measure angles in whole number degrees using a protractor. Sketch angles of specified measure.</p>	<p>Students must first understand that 360 degrees is a full circle rotation around a point. They extend this understanding to measure and sketch angles that measure 45 and 30 degrees. They use appropriate terminology such as right angle, acute angle, and obtuse angles</p>		<p>https://learnzillion.com/lessonsets/593</p> <p>http://www.mathplayground.com/my_using_protractor.html</p> <p>https://www.khanacademy.org/math/geometry/parallel-and-perpendicular-lines/Angle_basics/v/measuring-angles-in-degrees</p> <p>https://www.khanacademy.org/math/geometry/parallel-and-perpendicular-lines/Angle_basics/v/measuring-angles</p>
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	Measurement And Data Grade 4 Standard 7 (4.MD.7)	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g. by using an equation with a symbol for the unknown angle measure.	This standard addresses the idea of decomposing angles (breaking it apart) into smaller angles. As with length, volume, and area when an angle is decomposed into non-overlapping parts, the angle measure is the sum of the parts. Students can then solve interesting and challenging addition and subtraction problems to find the measurements of unknown angles on a diagram in real world and mathematical problems. They can use a protractor to check. Students should have an idea of benchmark angles such as 30, 45, 60, and 90 degrees.	Ask your child to solve the following problem: A lawn sprinkler rotates 65 degrees and then pauses. It then rotates an additional 25 degrees. What is the total degree of the water sprinkler rotation? (90 degrees) To cover a full 360 degrees how many times will the water sprinkler need to be moved? (4 times)	https://learnzillion.com/lessonsets/595 http://www.commoncoresheets.com/SortedByGrade.php?Sorted=4md7 http://www.helpingwithmath.com/printables/worksheets/geometry/4md7measuring_angles_01.htm
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GEOMETRY

Parent Notes	Standard Code	Standard	What does this standard mean?	What can I do at home?	Resources
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	<p>Geometry Grade 4 Standard 1 (4.G.1)</p>	<p>Draw points, lines, line segments, rays, angles(right, acute, obtuse) , and perpendicular and parallel lines. Identify these in two-dimensional figures.</p>	<p>This standard asks students to draw two-dimensional geometric objects and to also identify them in two-dimensional figures. This is the first time a child is exposed to rays, angles, and perpendicular and parallel lines. Examples of these can be seen daily. Students should be able to use side length to classify triangles as equilateral, equiangular, isosceles, or scalene and can use angle size to classify them as acute, obtuse, and right angles. They learn to cross classify such as a right isosceles triangle. Thus, students develop explicit awareness and vocabulary for many concepts that have been developing, including points, lines, line segments, rays, angles, and perpendicular and parallel lines.</p>	<p>Ask your child to draw two-dimensional figures and associate the proper name for each.</p> <p>Ask how many acute, obtuse, and right triangles are in the trapezoid below. (2 acute and 2 obtuse)</p>	<p>https://www.youtube.com/watch?v=9W6BFGGrFGF0</p> <p>https://learnzillion.com/lesson_plans/471</p> <p>https://www.illustrativemathematics.org/content-standards/tasks/1263</p> <p>https://www.illustrativemathematics.org/content-standards/tasks/1272</p> <p>https://www.illustrativemathematics.org/content-standards/tasks/909</p>
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	<p>Geometry Grade 4 Standard 2 (4.G.2)</p>	<p>Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.</p>	<p>Two-dimensional figures may be classified using different characteristics such as parallel or perpendicular lines or by angle measurement. Students should become familiar with perpendicular and parallel lines. Two lines are parallel if they never intersect and are always equidistant. Two lines are perpendicular if they intersect in right angles (90 degrees)</p>	<p>Ask your child to identify which of these shapes have perpendicular or parallel sides.</p>	<p>https://learnzillion.com/lessonsets/756</p>
	<p>Geometry Grade 4 Standard 3 (4.G.3)</p>	<p>Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line symmetric figures and draw lines of symmetry.</p>	<p>Students need experiences with figures that are symmetrical and asymmetrical. Figures include both regular and non-regular polygons.</p>	<p>Ask your child to draw all the lines of symmetry for the following figure:</p>	<p>https://learnzillion.com/lessonsets/426</p> <p>http://www.ixl.com/math/grade-4/lines-of-symmetry</p> <p>http://www.mathsisfun.com/geometry/symmetry-line-plane-shapes.html</p>