

## Archdiocese of New York Grade 3 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 3 Mathematics learning standards. Learning standards describe the knowledge and skills that students should master by the end of Grade 3. Each standard has a specific code. For example, 3.OA.1 stands for “Grade 3 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 3 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).

## OPERATIONS AND ALGEBRAIC THINKING

Parent Notes	Standard Code	Standard	What does this standard mean?	What can I do at home?	Resources
	Operations and Algebraic Thinking Grade 3 Standard 1 (3.OA.1)	Interpret products of whole numbers.	Students must Interpret $5 \times 7$ as the total number of objects in groups of 7 objects.	<p>Ask your child to describe a situation in which a number of objects can be expressed as <math>5 \times 7</math>? Or <math>3 \times 7</math>.</p> <p>Be sure they know the answer in multiplication is the product.</p>	<p><a href="https://www.youtube.com/watch?v=cBJ9c7Ywh0M">https://www.youtube.com/watch?v=cBJ9c7Ywh0M</a></p> <p>If your child is new to the times table, have them watch the video and work together. You can also view this lesson <a href="https://learnzillion.com/lessons/1392">https://learnzillion.com/lessons/1392</a></p>
	Operations and Algebraic Thinking Grade 3 Standard 2 (3.OA.2)	Interpret whole number quotients of whole numbers.	Students must interpret 56 divided by 8 as the whole number of objects in each share when 56 objects are partitioned into equal shares of 8 objects each.	<p>Ask your child to describe a context in which a number of shares or a number of groups can be described as 56 divided by 8.</p> <p>Be sure they understand that the quotient is the answer you get in division.</p>	<p><a href="https://www.youtube.com/watch?v=mmKiVnCc0JQ">https://www.youtube.com/watch?v=mmKiVnCc0JQ</a></p> <p>Watch the video with your child and walk through the examples discussed on it.</p>

	<p>Operations and Algebraic Thinking Grade 3 Standard 3 (3.OA.3)</p>	<p>Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.</p>	<p>Students must be able to multiply and divide numbers within 100.</p>	<p>Ask your child to use drawings and a symbol ( a letter) for the unknown number to represent problems multiplying and dividing by 100.</p>	<p><a href="https://learnzillion.com/lessonsets/611-solve-multiplication-and-division-word-problems">Grade 3.docx https://learnzillion.com/lessonsets/611-solve-multiplication-and-division-word-problems</a></p> <p>Watch the videos with your child and work through the problems together.</p>
	<p>Operations and Algebraic Thinking Grade 3 Standard 4 (3.OA.4)</p>	<p>Determine the unknown whole number in a multiplication or division equation relating three whole numbers.</p>	<p>Students must be able to determine the unknown number in a multiplication or division problem that relates three whole numbers</p>	<p>Ask your child to determine the unknown number that makes the equation true in each of the equations <math>8 \times \underline{\quad} = 48</math> or <math>5 = \underline{\quad} \text{ divided } 3</math> or <math>6 \times 6 =</math></p>	<p><a href="https://www.youtube.com/watch?v=MIXny_MF_kQ">https://www.youtube.com/watch?v=MIXny_MF_kQ</a></p> <p>Watch the video with your child and work through the problems.</p>
	<p>Operations and Algebraic Thinking Grade 3 Standard 5 (3.OA.5)</p>	<p>Apply properties of operations as strategies to multiply and divide.</p>	<p>Students must know that if <math>6 \times 4 = 24</math> then <math>4 \times 6</math> is also known. This is the commutative property of multiplication</p> <p><math>3 \times 5 \times 2</math> can be found by <math>3 \times 5</math> is 15 then <math>15 \times 2 = 30</math> or by <math>5 \times 2 = 10</math> then <math>3 \times 10 = 30</math>. This is the associative property.</p> <p>One can find that <math>8 \times 7</math> as <math>8 \times (5+2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56</math>. This is the distributive property.</p>	<p>Ask your child to move number orders around to get the same answers.</p> <p>As your child to break numbers apart to arrive at the same answer.</p>	<p><a href="https://www.com/watch?v=NcMrCsaDFHk">https://www.com/watch?v=NcMrCsaDFHk</a></p> <p>Watch the video together with your child and solve the problems together</p>

	Operations and Algebraic Thinking Grade 3 Standard 6 (3.OA.6)	Understand division as an unknown factor problem.	Students must be able to find 32 divided by 8 by finding the number that makes 32 when multiplied by 8	Ask your child to find a number divided by 5 by finding the number that makes that number when multiplied by 5	<a href="https://learnzillion.com/lessonsets/341-understand-division-as-unknown-factor-problems">https://learnzillion.com/lessonsets/341-understand-division-as-unknown-factor-problems</a>
	Operations and Algebraic Thinking Grade 3 Standard 7 (3.OA.7)	Fluently multiply and divide within 100 using strategies such as the relationship between multiplication and division	Students must know from memory all products of two one digit numbers	Ask your child to find products or quotients using flashcards you can create at home	<a href="https://www.yo.com/watch?v=lkGGaOoEJjg">https://www.yo.com/watch?v=lkGGaOoEJjg</a> or listen and follow along with this rap song at the following link <a href="https://www.youtube.com/watch?v=Elm039LrJk4">https://www.youtube.com/watch?v=Elm039LrJk4</a>
	Operations and Algebraic Thinking Grade 3 Standard 8 (3.OA.8)	Solve two-step word problems using the four operations. 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	Students should use all four operations and use a letter for the unknown answer. Their answers should make sense.	Ask your child to solve for a such as $6+3=a$ or $9 \times 3=b$ . Get into the habit of asking your child if the answer makes sense and how do they know it makes sense? (checking their work)	<a href="https://learnzillion.com/lessonsets/318-solving-two-step-word-problems-including-those-with-unknown-quantities">https://learnzillion.com/lessonsets/318-solving-two-step-word-problems-including-those-with-unknown-quantities</a>  There are five videos that address this standard for you and your child to view together..

	<p>Operations and Algebraic Thinking Grade 3 Standard 9 (3.OA.9)</p>	<p>Identify arithmetic patterns (including patterns in the addition or multiplication tables) And explain them using properties of operations.</p>	<p>Students should observe that 4 times a number is always even, and explain why four times a number can be decomposed into equal addends. Addends are the number parts of an addition problem. The sum is the answer in addition.</p>	<p>Ask your child to name the numbers that compose a sum.</p> <p>Help your child see evens and odds, and that multiplying by even numbers will give you an even numbered answer.</p>	<p><a href="http://www.readtennessee.org/math/teachers/k-3_common_core_math_standards/third_grade/operations_algebraic_thinking/3oad9/3oad9_media.aspx">http://www.readtennessee.org/math/teachers/k-3_common_core_math_standards/third_grade/operations_algebraic_thinking/3oad9/3oad9_media.aspx</a></p> <p>Click on media to see three videos about patterns</p>
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## NUMBER AND OPERATIONS IN BASE TEN

Parent Notes	Standard Code	Standard	What does this standard mean?	What can I do at home?	Resources
	Number and Operations in Base Ten Grade 3 Standard 1 (3.NBT.1)	Use place value understanding to round whole numbers to the nearest 10 or 100	Students must know that a three-digit number represent amounts of hundreds, tens, and ones.	Ask your child to round a number to the nearest hundred or tens. Make sure they know the place of hundreds and tens and ones.	<a href="https://learnzillion.com/lessonsets/370-round-whole-numbers-to-the-nearest-10-or-100">https://learnzillion.com/lessonsets/370-round-whole-numbers-to-the-nearest-10-or-100</a>  Review all the videos that begin with knowing place value and progress to understanding rounding.
	Number and Operations in Base Ten Grade 3 Standard 2 (3.NBT.2)	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	Students must have practice in adding and subtracting numbers up to 1000	Ask your child to add or subtract two numbers within 1000. See how many they can do in a minute.	<a href="http://www.readtennessee.org/math/teachers/k-3_common_core_math_standards/third_grade/number_operations_in_base_ten/3nbta2/3nbta2_media.aspx">http://www.readtennessee.org/math/teachers/k-3_common_core_math_standards/third_grade/number_operations_in_base_ten/3nbta2/3nbta2_media.aspx</a>

	Number and Operations in Base Ten Grade 3 Standard 3 (3.NBT.3)	Multiply one digit whole numbers by multiples of ten in the range 10-90 using strategies based on place value and properties of operations.	Students must have practice in the range 10 to 90 such as $9 \times 80$ , $5 \times 60$	Ask your child to multiply numbers in multiples of 10 (20,30,40...up to 90) by a one digit number	<a href="https://learnzillion.com/lessonsets/566-multiply-one-digit-whole-numbers-by-multiples-of-10">https://learnzillion.com/lessonsets/566-multiply-one-digit-whole-numbers-by-multiples-of-10</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
	Number and Operations-Fractions Grade 3 Standard 1 (3.NF.1)	Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into $b$ equal parts; understand a fraction $a/b$ as the quantity formed by $a$ parts of size $1/b$	Students must understand simple fractions such as $\frac{1}{2}$ , $\frac{1}{3}$ , $\frac{1}{4}$ , et. al.	Ask your child to consider a pizza divided into 4 equal sections and your child has 1 section, he has $\frac{1}{4}$ . . If he has two pieces that have been divided into equal pieces, he has $\frac{2}{4}$ which is the same as $\frac{1}{2}$	<a href="https://www.youtube.com/watch?v=nC4PuwFbngA">https://www.youtube.com/watch?v=nC4PuwFbngA</a>

	Number and Operations-Fractions Grade 3 Standard 2 (3.NF.2)	Represent a fraction as a number on the number line; represent fractions on a number line diagram.	Students must represent a fraction $1/b$ on a number line and define 0 to 1 as a whole, and partition it into $b$ equal parts and that each part has size $1/b$	Ask your child what the top number is the numerator, and shows how many parts we have, and the denominator is the bottom number and shows how many parts in all	<a href="https://learnzillion.com/lessonsets/334-represent-fractions-on-a-number-line">https://learnzillion.com/lessonsets/334-represent-fractions-on-a-number-line</a>
	Number and Operations-Fractions Grade 3 Standard 3 (3.NF.3)	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size	Students should understand that two fractions are equivalent if they are the same size, or the same point on a number line. They should also be able to create equivalent fractions, express whole numbers as fractions and compare two fractions with same numerator or denominator. Results of comparisons should be shown with $<$ (less than), $>$ (greater than), or $=$ .	Ask your child to show how a whole numbers can be shown as fractions. 3 can be written as $3/1$ and 6 can be written as $6/1$ . Ask your child... To compare two fractions and ask which one is smaller	<a href="https://www.youtube.com/watch?v=NMTVKb76Nck">https://www.youtube.com/watch?v=NMTVKb76Nck</a>

## MEASUREMENT AND DATA

Parent Notes	Standard Code	Standard	What does this standard mean?	What can I do at home?	Resources
	Measurement and Data Grade 3 Standard 1 (3.MD.1)	Tell time to the nearest minute and measure time intervals in minutes. Solve word problems using addition and subtraction of time intervals in minutes	Students should be able to read an analog clock and measure time to the nearest minute	Ask your child to write the time and help him learn how to add and subtract minutes and hours	<a href="https://www.youtube.com/watch?v=iBTW4JFw-Rs">https://www.youtube.com/watch?v=iBTW4JFw-Rs</a>

	Measurement and Data Grade 3 Standard 2 (3.MD.2)	Measure and estimate liquid volumes and masses of objects using standard units as well as grams, kilograms, and liters	Students should be able to estimate and measure volume using standard and metric units of measurement	Ask your child...  to use a beaker or measuring cup to tell you how many liters can fill a pail.  how to use and measure mass with a scale.	<a href="https://www.youtube.com/watch?v=nACP1VPNfo4">https://www.youtube.com/watch?v=nACP1VPNfo4</a> <a href="https://www.youtube.com/watch?v=bXzdqI-tjW8">https://www.youtube.com/watch?v=bXzdqI-tjW8</a>
	Measurement and Data Grade 3 Standard 3 (3.MD.3)	Draw a scaled picture graph and scaled bar graph to represent a data set with several categories.	Students should create and read a scaled picture graph and bar graph and a scaled line graph.	Ask your child to use items you have on hand such as different colored M&M's to create a graph.	<a href="https://www.youtube.com/watch?v=JASx18I_6BY">https://www.youtube.com/watch?v=JASx18I_6BY</a>
	Measurement and Data Grade 3 Standard 4 (3.MD.4)	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.	Students should be able to measure whole numbers and fractions on a ruler.	Ask your child to measure various objects. Help him to place these measurements on a number line	<a href="https://www.youtube.com/watch?v=HNVlyziB1Qk">https://www.youtube.com/watch?v=HNVlyziB1Qk</a>
	Measurement and Data Grade 3 Standard 5 (3.MD.5)	Recognize area as an attribute of plane figures and understand concepts of area measurement.	Students should understand that a square with side length 1 unit is called a square unit and can be used to measure area.	Ask your child to draw a one-dimensional shape and that the area of the shape can be measured using square units.	<a href="https://www.youtube.com/watch?v=aB7VlBSUqKI">https://www.youtube.com/watch?v=aB7VlBSUqKI</a>

	Measurement and Data Grade 3 Standard 6 (3.MD.6)	Measure areas by counting unit squares, square cm, square m, square in, square ft, and improvised units	Students should use unit squares to measure the area of various figures.	Ask your child to find the area of a rectangle by multiplying its length by its width. Then show them that the number they got for area is the same as the number of one square units that fit in the plane	<a href="https://www.youtube.com/watch?v=pc9NLdcKugE">https://www.youtube.com/watch?v=pc9NLdcKugE</a>
	Measurement and Data Grade 3 Standard 7 (3.MD.7)	Relate area to the operations of multiplication and addition.	Students should find the area of a rectangle with whole number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths.	Ask your child to find the area of a rectangle using unit squares and then checking this with multiplying the side lengths. The results should be the same.	<a href="https://www.youtube.com/watch?v=8frtsQeuBa0">https://www.youtube.com/watch?v=8frtsQeuBa0</a>
	Measurement and Data Grade 3 Standard 8 (3.MD.8)	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the sides lengths, finding an unknown sides length, and exhibiting rectangles with the same perimeter and different areas.	Student should know that perimeter means the distance around a 2 dimensional shape	Ask your child to find the perimeter of various shapes by measuring the distance around the shape using a ruler.	<a href="https://www.youtube.com/watch?v=grS-PxYJHjQ">https://www.youtube.com/watch?v=grS-PxYJHjQ</a>

## GEOMETRY

Parent Notes	Standard Code	Standard	What does this standard mean?	What can I do at home?	Resources
	Geometry Grade 3 Standard 1 (3.G.1)	Understand that shapes in different categories may share attributes and shared attributes can define a larger category (e.g. Quadrilaterals)	Students should recognize rhombuses, rectangles and squares as quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories.	Ask your child to draw examples of different quadrilaterals and to identify their common characteristics or attributes (sides, angles)	<a href="https://www.youtube.com/watch?v=IOD_bJTCTl8">https://www.youtube.com/watch?v=IOD_bJTCTl8</a> This video talks about various shapes that are and are not quadrilaterals
	Geometry Grade 3 Standard 2 (3.G.2)	Partition shapes into parts with equal areas. Express the areas of each part as a unit fraction of the whole.	Students should partition a shape into 4 parts with equal areas and describe the area of each part as $\frac{1}{4}$ the area of the shape	Ask your child to divide a cookie or candy bar into 4 equal parts of equal area.	<a href="https://learnzillion.com/lessonsets/580-partition-shapes-into-parts-with-equal-areas">https://learnzillion.com/lessonsets/580-partition-shapes-into-parts-with-equal-areas</a>