

**DIOCESE OF HARRISBURG  
MATHEMATICS CURRICULUM - GRADE 3**

Anchor	Third Grade Expectations	Every third grader should be able to:	Text pages or supplementary materials	Date Assessed
<b>3A.Numbers and Operations</b>				
1.	Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems	Apply place-value concepts and numeration to counting, ordering, grouping, and equivalency.	1. Count, read, and write whole numbers to 100,000.	
			2. Identify the place value of each digit for numerals through 100,000. (Include matching base ten block representation).	
			3. Express 4-digit whole numbers in standard, expanded, and word form.	
			4. Identify a number as even, odd, or the multiple of a number through 10 (e.g., 25 is an odd number and a multiple of 5.)	
			5. Order a set of whole numbers (four numbers) from least to greatest or greatest to least through 10,000.	
			6. Compare whole numbers using =, <, and > to 10,000.	
	Use fractions to represent quantities as part of a whole or part of a set.	1. Match physical models, illustrations, and abstract representations to appropriate fractions through 12ths.		
		2. Compare a given pair of fractions using physical models (equivalent, greater than, or less than.)		
		3. Express the appropriate fraction or mixed number for a given physical model or illustration. (Denominators through 8)		
	Count, compare, and make change using a collection of coins and one-dollar bills.	1. Count a collection of bills and coins up to a total of \$20.00.		
		2. Represent money in words, cent notation, and dollar notation. (e.g., 15 cents, 15 ¢, or \$0.15)		
		3. Compare total values of combinations of coins and bills up to \$20.00.		
		4. Make change for an amount up to \$20.00.		

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<b>3A .Numbers and Operations</b>					
2	Understand meanings of operations, use operations and understand how they relate to each other.	a. Understand various meanings of operations and the relationship between them.	1. Understand and use the inverse relationship between addition and subtraction and between multiplication and division using fact families.		
			2. Represent multiplication as repeated addition, skip counting, with arrays, and as the area of a rectangle.		
			3. Model and explain division in a variety of ways, including repeated subtraction, sharing, rectangular arrays, and by its inverse relationship to multiplication.		
		b. Apply appropriate operations to solve word and real-life problems	1. Solve problems (word or computation) involving addition, subtraction and multiplication of whole numbers and explain the solution.		
			2. Choose the correct operation(s) and solve one-or two-step word problems involving addition, subtraction and multiplication.		
			3. Write a story problem that models a simple addition, subtraction, multiplication, or division (with and without a remainder) expression.		
			4. Write a mathematical expression that models a simple story problem.		
		c. Understand and use properties of operations.	1. Recognize and use commutative, associative, identify property of addition and multiplication; and zero property of multiplication.		

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<b>3A. Numbers and Operations</b>				
3.	Compute accurately and fluently and make reasonable estimates.	a. Solve problems using addition, subtraction, and multiplication, for both computation and word problems.		
			1. Demonstrate mastery of all basic multiplication and division facts. (0-10).	
			2. Develop strategies for mental math to solve addition, subtraction and multiplication problems..	
			3. Solve addition and subtraction problems for up to 4 digits with and without regrouping in vertical and horizontal form.	
			4. Multiply up to four digits by a one-digit multiplier with and without renaming.	
			5. Divide two-digit numbers by a one-digit divisor with and without a remainder. (one-step only)	
			6. Solve addition, subtraction, and multiplication of money.	
			b. Use estimation skills to reach reasonable conclusions..	
			1. Round whole numbers through 10,000 to the nearest 10, 100, or 1000. Round amounts of money to the nearest dollar..	
			2. Estimate sums and differences of quantities by rounding.	
	3. Use estimation to determine whether an answer is reasonable.			

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<b>3B. Measurement</b>				
1.	Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.	a. Determine or calculate time and elapsed time.	1. Recognize, show, and tell time to the minute on an analog and on a digital clock, and identify time as A.M. or P.M.	
			2. Calculate elapsed time in increments of hours and 5-minute intervals.	
			3. Identify and order the months and tell the number of days in each month.	
		b. Use attributes of length, weight, area, and capacity of objects.	1. Select an appropriate standard unit and tool for the attribute being measured.	
			2. Compare and order objects of the same dimension according to length, area, volume or capacity, and weight (mass),	
			3. Identify equivalent customary or metric units and carry out simple conversions within a system. (e.g., hours to minutes, feet to inches.)	
2.	Apply appropriate techniques, tools, and formulas to determine measurements.	a. Determine the measurement of objects with standard and non-standard units.	1. Use a ruler to measure to the nearest ½ inch or centimeter.	
			2. Measure capacity of containers in cups, pints, quarts, gallons, and/or liters	
			3. Use spring scale or pan balance to measure and compare weight (mass) of objects. (oz./lbs., grams/kilograms) Estimate, find, and compare areas/perimeters of polygons drawn on a grid.	
			4. Use a thermometer to measure temperature on the Celsius and Fahrenheit scales.	
		b. Estimate measurements of familiar objects.	1. Estimate, find, and compare areas/perimeters of polygons drawn on a grid.	
			2. Match objects with appropriate measurements.	
			3. Develop and use common referents and benchmarks to make reasonable estimates of weight, length, and/or capacity of familiar objects.	

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<b>3C. Geometry</b>					
1.	Analyze characteristics and properties of two-and three-dimensional geometric shapes and demonstrate understanding of geometric relationships.	a. Identify and/or describe two-and three-dimensional objects.	1. Identify, name and describe attributes for 2-dimensional shapes: circle, polygon, triangle, quadrilateral, square, rectangle, rhombus, trapezoid, parallelogram pentagon, hexagon, octagon.		
			2. Identify points, lines, line segments or rays; parallel, intersecting, and perpendicular lines. Use these terms to describe 2-dimensional figures.		
			3. Identify, name and describe attributes for 3-dimensions shapes: sphere, cube, cone, cylinder, pyramid, and rectangular prism.		
			4. Find and describe geometric shapes and structures in the real world.		
			5. Build, draw, and measure geometric figures in the real world.		
		b. Identify/draw right angles and right triangles.	1. Identify/draw/model right angles and right triangles using line segments, in geometric figures, on a geoboard, and/or in the real world.		
2.	Identify and/or apply concepts of transformation or symmetry.	a. Apply the concepts of transformations and symmetry.	1. Use flips (reflections), slides (translations), and turns (rotations) of simple 2-dimensional figures to describe the concepts of congruence, symmetry, and similarity.		
			2. Identify and draw a line of symmetry in a 2-dimensional figure.		
			3. Identify symmetrical 2-dimensional figures.		
3.	Locate points or describe relationships using the coordinate plane.	a. Identify locations on a simple grid.	1. Match points or objects located on a simple grid to an ordered pair.		

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<b>3D. Algebraic Concepts</b>					
1.	Demonstrate an understanding of patterns, relations, and functions.	a. Recognize, describe, extend, create, and replicate a variety of patterns.	1. Identify the rule for a numerical or geometric pattern.		
			2. Recognize, describe, extend, create, and replicate a variety of patterns including attribute, activity number and geometric patterns.		
		b. Apply simple function rules.	1. Determine the missing element in a function table (In/Out table).		
			2. Identify simple function rules when the table is provided – (e.g., Solve “What’s My Rule?” function problems.)		
2.	Represent and/or analyze mathematical situations using numbers, symbols, words, tables, and/or graphs.	a. Create/model expressions, equations, and inequalities to match a problem situation.	1. Create or match a story to a given combination of symbols (+, -, x, ÷, <, =, >) and numbers.		
			2. Match a number sentence using a combination of symbols (+, -, x, ÷, <, =, >) and numbers for a given story.		
			3. Use concrete objects and/or “trial and error” to solve number sentences and check if solutions are reasonable and accurate.		
			4. Determine when sufficient information is present to solve a problem and explain how to solve a problem.		
		b. Determine the missing number or symbol in a number sentence.	1. Find a missing number or symbol that makes a number sentence true.		
			2. Write number sentences using a combination of symbols (+, -, x, ÷, <, =, >) and numbers to represent mathematical relationships in everyday situations.		
3.	Describe or use models to represent quantitative relationships.	a. Use mathematical patterns and properties to represent quantitative relationships	1. Recognize and use the commutative, associative, and identity properties of addition.		
			2. Recognize and use the commutative, associative, zero, and identity properties of multiplication.		

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<b>3E. Data Analysis and Probability</b>				
1.	Formulate or answer questions that can be addressed with data and/or collect, organize, and display relevant data to answer them.	a. Answer questions based on data shown on tables, charts, bar graphs, and pictographs.	1. Make predictions and pose questions to investigate a topic using data collection.	
			2. Explain a data display or write a story based on information from a graph.	
			3. Formulate, interpret, and answer questions based on data shown on tables, charts, bar graphs, and/or pictographs.	
		b. Organize or display data using tables, charts, bar graphs, or pictographs.	1. Collect, organize, and display data using pictographs, tallies, line plots, bar graphs, line graphs, or circle graphs.	
2. Translate information from one type of data display to another. (e.g., tally charts to bar graphs)				
2.	Select and/or use appropriate statistical methods to analyze data.	a. Describe and analyze data using grade-appropriate vocabulary.	1. Analyze data shown on tables, tally charts, pictographs, Venn diagrams or bar graphs using the vocabulary: largest, smallest, most often, least often, and middle.	
3.	Understand and/or apply basic concepts of probability or outcomes.	a. Predict and/or determine the likelihood of events.	1. Collect and record data, look at the frequency of events, and make predictions for outcomes in simple probability experiments.	
			2. Use the language of probability to describe the likelihood of an event: more/most likely, less/least likely, equally likely, or impossible.	