Dec. 05

MARYLAND MATHEMATICSVOLUNTARY CURRICULUM CORRELATED TO *MOVING WITH MATH®-MATH-BY-TOPIC GRADE 4 (LEVEL B)*

		Student Book	Skill Builders
	STANDARD 1: KNOWLEDGE OF ALGEBRA, PATTERNS, AND FUNCTIONS		
	Students will algebraically represent, model, analyze, or solve mathematical or real-world problems involving patterns or functional relationships		
	A. Patterns and Functions		
1.	**Identify, describe, extend, and create numeric patterns and functions**		
a)	Represent and analyze numeric patterns using skip counting •**Assessment limit:** Use patterns of 3, 4, 6, 7, 8 or 9 starting with any whole number (0 - 100)	**BI:** 12, 14-16	3-1
b)	Create a one-operation (+ or -) function table to solve a real-world problem		
c)	Complete a function table using a one-operation (+, -, x, ÷ with no remainders) rule •**Assessment limit:** Use whole numbers (0-50)	**BI:** 13	
d)	Describe the relationship that generates a one-operation rule	**BI:** 13	
2.	**Identify, describe, extend, analyze, and create a non-numeric growing or repeating pattern**		
a)	Generate a rule for the next level of the growing pattern •**Assessment limit:** Use at least 3 levels but no more than 5 levels		
b)	Generate a rule for a repeating pattern •**Assessment limit:** Use no more than 4 objects in the core of the pattern		
c)	Create a non-numeric growing or repeating pattern		
	B. Expressions, Equations, and Inequalities		
1.	**Write and identify expressions**		
a)	Represent numeric quantities using operational symbols (+, -, x, ÷ with no remainders) •**Assessment limit:** Use whole numbers (0 - 100)	**BII:** 39, 40 **BIII:** 8	9-2

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b)	Determine equivalent expressions •**Assessment limit:** Use whole numbers (0 - 100)	**BI:** 39, 40 **BII:** 8	9-2
2.	**Identify, write, solve, and apply equations and inequalities**		
a)	Represent relationships using relational symbols (>, <, =) and operational symbols (+, -, x, ÷) on either side •**Assessment limit:** Use operational symbols (+, -, x) and whole numbers (0 - 200)	**BI:** 11 **BII:** 77 **BIII:** 16-18	
b)	Find the unknown in an equation with one operation •**Assessment limit:** Use multiplication (x) and whole numbers (0 - 81)	**BI:** 39 **BII:** 37, 50, 77	9-2
	C. Numeric and Graphic Representations of Relationships		
1.	**Locate points on a number line and in a coordinate grid**		
a)	Represent mixed numbers and proper fractions on a number line •**Assessment limit:** Use proper fractions with a denominators of 6, 8, or 10		
b)	Identify positions in a coordinate plane •**Assessment limit:** Use the first quadrant and ordered pairs of whole numbers (0 - 20)	**BII:** 14, 78	
c)	Represent decimals on a number line		
	STANDARD 2: KNOWLEDGE OF GEOMETRY		
	Students will apply the properties of one-, two-, or three-dimensional geometric figures to describe, reason, or solve problems about shape, size, position, or motion of objects		
	A. Plane Geometric Figures		
1.	**Analyze the properties of plane geometric figures**		
a)	Identify properties of angles using maniplatives and pictures	**BIII:** 34	
b)	Identify, compare, classify and describe angles in relationship to another angle •**Assessment limit:** Use acute, right, or obtuse angles		
c)	Identify parallel and intersecting line segments	**BIII:** 32, 35, 36	35-1, 36-1, 37-1
	B. Solid Geometric Figures		
1.	**Analyze the properties of solid geometric figures**		
a)	Identify cones, cylinders, prisms, and pyramids •**Assessment limit:** Use cones or cylinders	**BIII:** 40, 41	40-1

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b)	Describe solid geometric figures by the number of edges, faces, or vertices •Assessment limit: Use triangular pyramids, rectangular pyramids, triangular prisms, or rectangular prisms	BIII: 33, 34, 37	
2.	Analyze the relationship between plane geometric figures and surfaces of solid geometric figures		
a)	Compare a plane figure to surfaces of solid geometric figure •Assessment limit: Analyze or identify the number or arrangement of squares needed to make a cube and triangle/rectangles need to make a triangular pyramid or rectangular pyramid	BIII: 41	
	C. Representation of Geometric Figures		
1.	Represent plane geometric figures		
a)	Sketch acute, right, obtuse angles, and parallel and intersecting line segments	BIII: 33, 34, 37	35-2, 37-1
	D. Congruence		
1.	Analyze geometric figures		
a)	Identify and describe geometric figures as congruent •Assessment limit: Identify the result in a transformation as being congruent to the original figure	BIII: 39	39-1
	E. Transformations		
1.	Analyze a transformation		
a)	Identify and describe the results of translations, reflections, and rotations •Assessment limit Use a horizontal line translation, reflection over a vertical line, or rotation of 90° clockwise around a given point of a geometric figure or picture		
	STANDARD 3: KNOWLEDGE OF MEASUREMENT		
	Students will identify attributes, units, or systems of measurements or apply a variety of techniques, formulas, tools or technology for determining measurements		
	A. Measurement Units		
1.	Read customary and metric measurement units		
a)	Estimate and determine length and height •Assessment limit: Use the nearest millimeter or 1/4 inch	BIII: 48-50, 52, 56, 57	43-1 to 43-4, 45-1
b)	Estimate and determine weight or mass	BIII: 46, 54, 59	42-2, 45-2
c)	Estimate and determine capacity	BIII: 53, 58	44-2, 45-2

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	B. Measurement Tools		
1.	Measure in customary and metric units		
a)	Select and use appropriate tools and units •**Assessment limit:** Use the nearest millimeter or 1/4 inch with a ruler	BIII: 48-50	43-1 to 43-4, 45-1
2.	Compare right angles to a corner		
	C. Applications in Measurement		
1.	Apply measurement concepts		
a)	Determine perimeter •**Assessment limit:** Use polygons with no more than 6 sides given the length of the sides in whole numbers (0 - 100)	BIII: 61-64, 67	46-1, 46-2
b)	Determine area •**Assessment limit:** Use rectangles with the length of the sides in whole numbers (0 - 100)	BIII: 65-67	
c)	Determine start time, elapsed time and end time •**Assessment limit:** Use hour and half hour intervals	BIII: 44, 45	41-1 to 41-3
2	Calculate equivalent measurements		
a)	Determine equivalent units of length •**Assessment limit:** Use 36 inches = 1 yard and whole numbers (0 - 100)	BIII: 51, 54, 55, 57	44-1
b)	Determine equivalent units of time		
c)	Determine equivalent units of capacity and weight within the same system	BIII: 53, 54, 58, 59	44-2, 45-2
	STANDARD 4: KNOWLEDGE OF STATISTICS		
	Students will collect organize, display, analyze, or interpret data to make decisions or predictions		
	A. Data Displays		
1.	Collect, organize, and display data		
a)	Collect data by conducting surveys to answer a question		
b)	Organize and display data in line plots and frequency tables using a variety of categories and sets of data •**Assessment limit:** Use line plots with no more than 20 pieces of unorganized data and a range of no more than 10 and whole numbers (0 - 100)	BIII: 72-74	29-2, 50-2, 50-5
	B. Data Analysis		
1.	Analyze data		

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a)	Interpret line plots •**Assessment limit:** Use no more than 20 pieces of data with a range no more than 10 and whole numbers (0 - 100)			
b)	Interpret line graphs •**Assessment limit:** Use the x-axis representing no more than 6 time intervals, the y-axis consisting of no more than 10 intervals with scales as factors of 100 using whole numbers (0 - 100)			
2.	Describe a set of data			
a)	Determine median, mode, and range •**Assessment limit:** Use no more than 8 pieces of data and whole numbers (0 - 100)			
b)	Model the mean of a set of data			
	STANDARD 5: KNOWLEDGE OF PROBABILITY			
	Students will use experimental methods or theoretical reasoning to determine probabilities to make predictions or solve problems about events whose outcomes involve random variation			
	B. Theoretical Probability			
1.	Determine the probability of one simple event comprised of equally likely outcomes			
a)	Express the probability as a fraction •**Assessment limit:** Use a sample space of no more than 6 outcomes	**BII:** 16 **BIII:** 77-79	50-3, 50-4
	STANDARD 6: KNOWLEDGE OF NUMBER RELATIONSHIPS AND COMPUTATION/ARITHMETIC			
	Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil or technology			
	A. Knowledge of Number and place value			
1.	Apply knowledge of whole numbers and place value			
a)	Read, write, and represent whole numbers using symbols, words, and models •**Assessment limit:** Use whole numbers (0-1,000,000)	**BI:** 26, 27, 32, 33	4-1, 4-2, 5-1, 6-6
b)	Express whole numbers in expanded form •**Assessment limit:** Use whole numbers (0 - 1,000,000)	**BI:** 8, 19, 21	6-2, 6-3
c)	Identify the place value of a digit in a number •**Assessment limit:** Use whole numbers (0 - 1,000,000)	**BI:** 3-7, 9,1 8-20, 28, 29	1-1 to 1-3, 6-1, 6-4, 6-5
d)	Compare, order, and describe whole numbers •**Assessment limit:** Use no more than 4 whole numbers with or without using the symbols (<, >, =) and whole numbers (0 - 1,000,000)	**BI:** 10-12, 22-25, 30, 31	2-1 to 2-4

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2.	**Apply knowledge of fractions and decimals**		
a)	Read, write, and represent proper fractions of a single region using symbols, words, and models •**Assessment limit:** Use denominators 6, 8, 10	BIII: 3-9	30-3, 32-1
b)	Read, write, and represent proper fractions of a set which has the same number of items as the denominator using symbols, words, and models •**Assessment limit:** Use denominators of 6, 8, 10 with sets of 6, 8, and 10 respectively	BIII: 10-14	31-1, 31-2
c)	Find equivalent fractions	BIII: 16, 18, 22-24	30-2, 32-2
d)	Read, write, and represent mixed numbers using symbols, words, and models	BIII: 26-29	
e)	Read, write, and represent decimals using symbols, words and models •**Assessment limit:** Use no more than 2 decimal places and numbers (0 - 100)	BII: 33	
f)	Express decimals in expanded form •**Assessment limit:** Use no more than 2 decimal places and numbers (0 - 100)		
g)	Compare and order fractions and mixed numbers with or without using the symbols (<, >, =) •**Assessment limit:** Use like denominators and no more than 3 numbers (0 - 20)	BIII: 15-18	32-3
h)	Compare, order, and describe decimals with or without using the symbols (<, >, =) •**Assessment limit:** Use no more than 3 decimals with no more than 2 decimal places and numbers (0 - 100)		
3.	**Apply knowledge of money**		
a)	Compare the value of sets of mixed currency •**Assessment limit:** Use 2 sets of mixed currency and money ($0 - $100)	BII: 28, 33, 45 BIII: 68-70	47-1
b)	Determine the change from $100	BIII: 70	47-2
	B. Number Theory		
1.	**Apply number relationships**		
a)	Identify and use divisibility rules •**Assessment limit:** Use the rules for 2, 5, or 10 with whole numbers (0 - 100)		
b)	Identify factors •**Assessment limit:** Use whole numbers (0 - 24)		
c)	Identify multiples •**Assessment limit:** Use the first 5 multiples of any single digit whole number	BII: 12	

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	C. Number Computation		
1.	Analyze number relations and compute		
a)	Add whole numbers •**Assessment limit:** Use up to 3 addends with no more than 4 digits in each addend and whole numbers (0 - 10,000)	**BI:** 43-54, 63	9-1, 9-2, 10-1 to 10-4, 10-6, 10-7, 11-1, 12-1 to 12-3, 13-1, 13-2, 14-1, 18-1
b)	Subtract whole numbers •**Assessment limit:** Use a minuend and subtrahend with no more than 4 digits in each and whole numbers (0 - 999)	**BI:** 55-63, 76-79	10-6, 15-1 to 15-4, 16-1, 16-2, 17-1 to 17-3, 18-1, 18-2, 19-1
c)	Multiply whole numbers •**Assessment limit:** Use a one 1-digit factor by up to a 3-digit factor using whole numbers (0 - 1000)	**BII:** 2-13, 15, 18-36, 38-40	20-1 to 20-7, 21-1 to 21-,8, 22-1,22-2, 23-1 to 23-3, 24-1, 25-2, 25-4
d)	Divide whole numbers •**Assessment limit:** Use up to a 3-digit dividend by a 1-digit divisor and whole numbers with no remainders (0 - 999)	**BII:** 41-44, 46-53, 56, 62-69, 71-73, 75	25-1 to 15-9, 26-1 to 26-4, 27-1 to 27-5, 28-2, 29-1
e)	Add and subtract proper fractions and mixed numbers •**Assessment limit:** Use 2 proper fractions with a single digit like denominators, 2 mixed numbers with single digit like denominators, or a whole number and a proper fraction with a single digit denominator and numbers (0 - 20)	**BIII:** 19-22, 25-27	33-1 to 33-4, 34-1 to 34-4
f)	Add 2 decimals •**Assessment limit:** Use the same number of decimal places but no more than 2 decimal places and no more than 4 digits including monetary notation and numbers (0 - 100)	**BIII:** 68	
g	Subtract decimals •**Assessment limit:** Use the same number of decimal places but no more than 2 decimal places and no more than 4 digits including monetary notation and numbers (0-100)	**BIII:** 68	
2.	Estimation		
a)	Determine the approximate sum and difference of 2 numbers •**Assessment limit:** Use no more than 2 decimal places in each and numbers (0 - 100)	**BI:** 34-38, 70-72	7-1, 7-2, 8-1, 8-2
b)	Determine the approximate product or quotient of 2 numbers •**Assessment limit:** Use a 1-digit factor with the other factor having no more than 2-digits or a 1-digit divisor and no more than a 2-digit dividend and whole numbers (0 - 1000)	**BI:** 34-38, 70 **BII:** 59-61, 74	28-1, 28-3

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	STANDARD 7: PROCESSES OF MATHEMATICS		
	Students demonstrate the processes of mathematics by making connections and applying reasoning to solve problems and to communicate their findings.		
	A. Problem Solving		
1.	Apply a variety of concepts, processes, and skills to solve problems		
a)	Identify the question in the problem	**BI:** 24, 51, 64-69, 73-75 **BII:** 16, 17, 28, 37, 45, 47, 53-55, 57-59, 61, 70, 74, 76, 77, 79 **BIII:** 60, 71	10-5, 15-5 to 15-7, 29-3, 34-5, 48-1, 48-2, 49-1 to 49-7
b)	Decide if enough information is present to solve the problem	**BI:** 24, 51, 64-69, 73-75 **BII:** 16, 17, 28, 37, 45, 47, 53-55, 57-59, 61, 70, 74, 76, 77, 79 **BIII:** 60, 71	10-5, 15-5 to 15-7, 29-3, 34-5, 48-1, 48-2, 49-1 to 49-7
c)	Make a plan to solve a problem	**BI:** 24, 51, 64-69, 73-75 **BII:** 16, 17, 28, 37, 45, 47, 53-55, 57-59, 61, 70, 74, 76, 77, 79 **BIII:** 60, 71	10-5, 15-5 to 15-7, 29-3, 34-5, 48-1, 48-2, 49-1 to 49-7
d)	Apply a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation	**BI:** 24, 51, 64-69, 73-75 **BII:** 16, 17, 28, 37, 45, 47, 53-55, 57-59, 61, 70, 74, 76, 77, 79 **BIII:** 60, 71	10-5, 15-5 to 15-7, 29-3, 34-5, 48-1, 48-2 ,49-1 to 49-7
e)	Select a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation	**BI:** 24, 51, 64-69, 73-75 **BII:** 16, 17, 28, 37, 45, 47, 53-55, 57-59, 61, 70, 74, 76, 77, 79 **BIII:** 60, 71	10-5, 15-5 to 15-7, 29-3, 34-5, 48-1, 48-2, 49-1 to 49-7

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f)	Identify alternative ways to solve a problem	**BI:** 24, 51, 64-69, 73-75 **BII:** 16, 17, 28, 37, 45, 47, 53-55, 57-59, 61, 70, 74, 76, 77, 79 **BIII:** 60.71	10-5,15-5,6,7,29-3,34-5,48-1,2,49-1,2,3,4,5,6,7
g)	Show that a problem might have multiple solutions or no solution		
h)	Extend the solution of a problem to a new problem situation	**BI:** 39 **BII:** 51	
	B. Reasoning		
1.	Justify ideas or solutions with mathematical concepts or proofs		
a)	Use inductive or deductive reasoning	**BI:** 17 **BII:** 16, 77	
b)	Make or test generalizations	**BI:** 39 **BIII:** 22-23	
c)	Support or refute mathematical statements or solutions	**BI:** 39-40	
d)	Use methods of proof, i.e., direct, indirect, paragraph, or contradiction		
	C. Communication		
1.	Present mathematical ideas using words, symbols, visual displays, or technology		
a)	Use multiple representations to express concepts or solutions	**BI:** 36 **BII:** 7, 54	
b)	Express mathematical ideas orally	**BII:** 79	
c)	Explain mathematically ideas in written form	**BI:** 39-40	
d)	Express solutions using concrete materials	**BI:** 18-21 **BII:** 7, 17	
e)	Express solutions using pictorial, tabular, graphical, or algebraic methods	**BI:** 36 **BII:** 9, 15 **BIII:** 4	
f)	Explain solutions in written form	**BI:** 39-40	
g)	Ask questions about mathematical ideas or problems	**BI:** 24 **BII:** 79 **BIII:** 11	
h)	Give or use feedback to revise mathematical thinking	pre/post tests	
	D. Connections		

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1.	Relate or apply mathematics within the discipline, to other disciplines, and to life		
a)	Identify mathematical concepts in relationship to other mathematical concepts	**BI:** 14-15 **BII:** 3-4, 44, 46	
b)	Identify mathematical concepts in relationship to other disciplines	**BI:** 75 **BII:** 14 **BIII:** 67	
c)	Identify mathematical concepts in relationship to life	**BI:** 51 **BII:** 19, 28, 33 **BIII:** 36, 40, 52, 65	
d)	Use the relationship among mathematical concepts to learn other mathematical concepts	**BI:** 11 **BII:** 26 **BIII:** 28	
	BI: *Numeration, Addition & Subtraction*		
	BII: *Multiplication & Division*		
	BIII: *Fractions, Geometry & Measurement*		