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correlated to

Maryland Voluntary State Curriculum Mathematics Grades K-8

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**correlated to
Maryland Voluntary State Curriculum-Mathematics
Kindergarten**

STANDARD 1.0: 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

Standard	AA Instructor's Guide (Kdg)
1. Identify and copy numeric patterns a) Use manipulatives with numeric with qualities to build patterns	50, 57, 72, 75, 97, 100, 121, 126, 131, 136
2. Identify, copy, describe, create, and extend non-numeric patterns a) Represent patterns kinesthetically such as: clap/snap/clap	No specific activity addresses this standard.
b) Represent and analyze repeating patterns using no more than 3 objects in the core of the pattern	50, 57, 72, 75, 97, 100, 121, 126, 131, 136
c) Sort a collection of objects according to a rule	1, 3, 6, 8, 11, 13, 16, 18, 21, 25
d) Identify patterns in real life situations	13, 18, 25, 28, 33, 41, 46, 51, 52, 56
e) Recognize the difference between patterns and non-patterns	13, 18, 28, 33, 41, 46, 50, 51, 52, 56
f) Continue patterns	50, 57, 72, 75, 97, 100, 121, 126, 131, 136

B. Expressions, Equations, and Inequalities

Standard	AA Instructor's Guide (Kdg)
1. Write and identify expressions a) Represent numeric quantities using concrete and pictorial representations to model addition expressions with a value of no more than 10	10, 61, 67, 85, 110, 135, 144, 149, 154, 159
2. Identify equations and inequalities a) Represent relationships by comparing groups of no more than 10 objects to determine more or less	104, 109, 114, 124, 129, 134, 139
b) Model and name the value of the missing part in a part-part-whole situation using no more than 10 manipulatives	60, 85, 110, 135, 144, 149, 154, 159, 164, 169
c) Describe addition using terms such as: and, add, plus, join, equal	127, 162

C. Numeric and Graphic Representations of Relationships

Standard	AA Instructor's Guide (Kdg)
1. Locate points on a number line a) Identify and represent whole numbers up to 10 on a number line using manipulatives, symbols, and one-to-one correspondence	No specific activity addresses this standard.

STANDARD 2.0: KNOWLEDGE 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

Standard	AA Instructor's Guide (Kdg)
1. Recognize and describe the attributes of plane geometric figures a) Sort and regroup everyday objects and geometric figures according to attributes such as: shape, color, size	1, 6, 11, 16, 20, 21, 23, 26, 53, 61
b) Describe plane figures and their attributes such as: shape, color, size	1, 6, 11, 16, 20, 21, 23, 26, 45, 53
c) Identify triangles, circles, squares, and rectangles	1, 6, 11, 16, 20, 21, 23, 26, 45, 53
d) Compare, trace, and reproduce triangles, circles, squares, and rectangles	1, 6, 11, 16, 20, 21, 26, 45, 53, 61

B. Solid Geometric Figures

Standard	AA Instructor's Guide (Kdg)
1. Recognize, describe, and use the attributes of solid geometric figures a) Match, sort, and regroup objects according to attributes	63, 87, 113, 120, 145, 170
b) Describe solid figures	63, 87, 113, 120, 145, 170
c) Identify solid geometric figures in the environment	63, 87, 113, 120, 145, 170

C. Representation of Geometric Figures

Standard	AA Instructor's Guide (Kdg)
none	none

D. Congruence

Standard	AA Instructor's Guide (Kdg)
1. Recognize congruent objects a) Identify everyday objects which have the same size and shape	120, 145, 170

E. Transformations

Standard	AA Instructor's Guide (Kdg)
1. Begin to recognize a transformation a) Use position words such as: over, under, above, on, next to, below, beside, behind	42, 95, 125
b) Use spatial reasoning to solve simple puzzles	
c) Demonstrate slides using simple objects	No specific activity addresses this standard.
2. Analyze geometric figures and pictures a) Recognize the concept of symmetry using pictures	No specific activity addresses this standard.

STANDARD 3.0: KNOWLEDGE OF MEASUREMENT

Students will identify attributes, units or systems of measurement or apply a variety of techniques, formulas, tools, or technology for determining measurements.

A. Measurement Units

Standard	AA Instructor's Guide (Kdg)
1. Explore measurements units a) Order, compare, and describe objects by attributes such as: length/height, weight, capacity	15, 40, 47, 65, 90, 92, 180
b) Recognize time by identifying days of the week and by using terms such as: yesterday, today, tomorrow, morning, afternoon, night, before, after	No specific activity addresses this standard.
c) Compare and describe temperature such as: temperature in January as compared to temperature in July	No specific activity addresses this standard.

B. Measurement Tools

Standard	AA Instructor's Guide (Kdg)
1. Measure in non-standard units a) Measure length of objects and pictures of objects	132
b) Explore and compare the capacity of containers	47, 92, 140, 165
c) Explore and compare weight of objects	47, 65, 90, 92

STANDARD 4.0: KNOWLEDGE OF STATISTICS

Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

A. Data Displays

Standard	AA Instructor's Guide (Kdg)
1. Collect, organize, and display data	93
a) Collect data by answering a question	
b) Organize and display data to make real graphs	93
c) Organize and display data to make picture graphs	93

B. Data Analysis

Standard	AA Instructor's Guide (Kdg)
1. Analyze data	93
a) Compare and describe data from real graphs to answer a question	
b) Compare and describe data from a picture graph to answer a question	93

STANDARD 5.0: 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.

There are no kindergarten standards for standard 5.0.

STANDARD 6.0: 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

Standard	AA Instructor's Guide (Kdg)
1. Apply knowledge of whole numbers and place value	2, 4, 7, 9, 12, 14, 17, 19, 22, 24
a) Extend concept of number	
b) Construct relationships between and among quantities using language such as: more than, less than, fewer than, as many as, one more, one less	104, 109, 114, 124, 129, 134, 139
c) Demonstrate cardinality by answer of how many	2, 4, 5, 7, 9, 12, 14, 17, 19, 22, 24
d) Build meaningful relationships by using 5 and 10 frames	5, 35, 105, 110, 155
e) Use concrete materials to build sets 0 to 10	2, 4, 5, 7, 9, 12, 14, 17, 19, 22, 24
f) Use concrete materials to compose and decompose quantities up to 10	2, 4, 5, 7, 9, 12, 14, 17, 19, 22, 24
g) Match a numeral to a set	32, 62, 64, 69, 74, 79, 84, 89, 94, 99
h) Count to 31	152
i) Count backward from 10	No specific activity addresses this standard.
j) Use ordinal numbers to indicate position such as: first, second, third, fourth, fifth	163
2. Recognize fractions	No specific activity addresses this standard.
a) Show initial awareness of fractional parts (halves) using concrete materials	
3. Recognize and use money	122
a) Identify and name the value of pennies, nickels, and dimes	
b) Choose the coin named from a given set of mixed coins	122
c) Use money in real-world situations such as a classroom store	No specific activity addresses this standard.

B. Number Theory

Standard	AA Instructor's Guide (Kdg)
none	none

C. Number Computation

Standard	AA Instructor's Guide (Kdg)
1. Analyze number relations and compute	60, 85, 110, 135, 144, 149, 154, 159, 164, 169
a) Model addition by combining sets of concrete objects and describe the results using words and pictures	
b) Model subtraction by separating sets of concrete objects and describe the results using words and pictures	142, 160, 177
c) Solve a given story problem cooperatively that is based on the combining and separating of models	60, 85, 110, 135, 159, 164, 169, 174, 177, 179

STANDARD 7.0: PROCESSES OF MATHEMATICS

Students demonstrate the processes of mathematics by making connections and applying reasoning to solve and to communicate their findings.

A. Problem Solving

Standard	AA Instructor's Guide (Kdg)
1. Apply a variety of concepts, processes, and skills to solve problems	No specific activity addresses this standard.
a) Identify the question in the problem	
b) Decide if enough information is present to solve the problem	No specific activity addresses this standard.
c) Make a plan to solve the problem	No specific activity addresses this standard.
d) Apply a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	The opportunity to address this standard is available throughout the text.
e) Select a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	The opportunity to address this standard is available throughout the text.
f) Identify alternative ways to solve a problem	The opportunity to address this standard is available throughout the text.
g) Show that a problem might have multiple solutions or no solution	No specific activity addresses this standard.
h) Extend the solution of a problem to a new problem situation	No specific activity addresses this standard.

B. Reasoning

Standard	AA Instructor's Guide (Kdg)
1. Justify ideas or solutions with mathematical concepts or proofs	No specific activity addresses this standard.
a) Use inductive or deductive reasoning	
b) Make or test generalizations	No specific activity addresses this standard.
c) Support or refute mathematical statements or solutions	No specific activity addresses this standard.
d) Use methods of proof, i.e., direct, indirect, paragraph, or contradiction	No specific activity addresses this standard.

C. Communication

Standard	AA Instructor's Guide (Kdg)
1. Present mathematical ideas using words, symbols, visual displays, or technology	The opportunity to address this standard is available throughout the text.
a) Use multiple representations to express concepts or solutions	
b) Express mathematical ideas orally	The opportunity to address this standard is available throughout the text.
c) Explain mathematically ideas in written form	The opportunity to address this standard is available throughout the text.
d) Express solutions using concrete materials	The opportunity to address this standard is available throughout the text.
e) Express solutions using pictorial, tabular, graphical, or algebraic methods	The opportunity to address this standard is available throughout the text.
f) Explain solutions in written form	The opportunity to address this standard is available throughout the text.
g) Ask questions about mathematical ideas or problems	The opportunity to address this standard is available throughout the text.
h) Give or use feed back to revise mathematical thinking	The opportunity to address this standard is available throughout the text.

D. Connections

Standard	AA Instructor's Guide (Kdg)
1. Relate or apply mathematics within the discipline, to other disciplines, and to life a) Identify mathematical concepts in relationships to other mathematical concepts	The opportunity to address this standard is available throughout the text.
b) Identify mathematical concepts in relationship to other disciplines	No specific activity addresses this standard.
c) Identify mathematical concepts in relationship to life	The opportunity to address this standard is available throughout the text.
d) Use the relationship among mathematical concepts to learn other mathematical concepts	The opportunity to address this standard is available throughout the text.



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Grade 1**

STANDARD 1.0: 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

Standard	AA Instructor's Guide (Grade 1)
1. Identify, describe, extend, and create numeric patterns. a) Represent and analyze numeric patterns using skip counting by multiples of 2 and 10 starting with any whole number, and using manipulatives and the 100 chart	111, 116, 121, 125, 156, 161, 172, 176
b) Represent and analyze numeric patterns using skip counting backward by 10s starting with a multiple of 10, and using manipulatives.	The opportunity to address this standard is available in the following activities: 126, 156
2. Identify, copy, describe, create, and extend non-numeric patterns a) Represent and analyze growing patterns kinesthetically such as: clap/snap, clap/snap/snap, clap/snap/snap/snap...	No specific activity addresses this standard.
b) Represent and analyze repeating patterns using no more than 3 different objects in the core of the pattern	511, 16, 26, 31, 36, 41, 46, 51, 56, 61, 66, 71
c) Transfer a repeating pattern from one medium to a different medium using no more than 3 different objects in the core of the pattern	The opportunity to address this standard is available in the following activities: 11, 16, 26, 31, 36, 41, 46, 51, 56, 61
d) Identify patterns in real life situations	No specific activity addresses this standard.

B. Expressions, Equations, and Inequalities

Standard	AA Instructor's Guide (Grade 1)
1. Write and identify expressions a) Represent numeric quantities using concrete and pictorial representations and operational symbols (+, -) with whole numbers to 20	2, 4, 5, 17, 22, 25, 28, 32, 65, 85
2. Identify, write, and solve equations and inequalities a) Represent relationships using the terms greater than, less than, and equal to for quantities up to 100	7, 9, 52
b) Find the missing number (unknown) in a number sentence using operational symbols (+, -) with whole numbers up to 20 using pictures and manipulatives	10, 24, 50, 54, 59, 62, 69, 72, 74, 84

C. Numeric and Graphic Representations of Relationships

Standard	AA Instructor's Guide (Grade 1)
1. Locate points on a number line a) Identify and represent whole numbers up to 50 on a number line using manipulatives and symbols	No specific activity addresses this standard.

STANDARD 2.0: KNOWLEDGE 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

Standard	AA Instructor's Guide (Grade 1)
1. Recognize and apply the properties/attributes of plane geometric figures a) Identify, name, and compare triangles, circles, squares, rectangles, and rhombi by their attributes	3, 8, 12, 13, 18, 21, 23, 60, 80, 100
b) Create models of triangles, circles, squares, and rectangles with varied materials	8, 13, 18, 23, 132, 153
c) Combine and subdivide squares and triangles	No specific activity addresses this standard.

B. Solid Geometric Figures

Standard	AA Instructor's Guide (Grade 1)
1. Recognize, and use the attributes of solid geometric figures a) Identify and compare cubes, spheres, cylinders, pyramids, cones, and rectangular prisms	48, 53, 58, 63, 87, 120, 132, 140, 158, 160

C. Representation of Geometric Figures

Standard	AA Instructor's Guide (Grade 1)
1. Represent plane geometric figures a) Sketch triangles, circles, squares, rectangles, and rhombi	3, 8, 13, 153

D. Congruence

Standard	AA Instructor's Guide (Grade 1)
1. Identify congruent objects a) Match congruent figures	No specific activity addresses this standard.

E. Transformations

Standard	AA Instructor's Guide (Grade 1)
1. Recognize a transformation a) Use the direction, location, and position words right and left	No specific activity addresses this standard.
b) Apply spatial reasoning in activities such as: pattern block	
c) Identify and demonstrate slides and flips using manipulatives	No specific activity addresses this standard.
2. Analyze geometric figures and pictures a) Demonstrate symmetry in basic shapes and pictures by paper folding and drawing a line of symmetry	No specific activity addresses this standard.

STANDARD 3.0: KNOWLEDGE OF MEASUREMENT

Students will identify attributes, units or systems of measurement or apply a variety of techniques, formulas, tools, or technology for determining measurements.

A. Measurement Units

Standard	AA Instructor's Guide (Grade 1)
1. Read measurements units a) Read a calendar to identify days of the week and months of the year	47, 93, 98
b) Tell time in intervals of hours and half-hours using an analog clock	57, 135, 147, 148, 175
c) Compare the same time on analog and digital clocks	57, 147
d) Read a thermometer to tell temperature to the nearest 10° F	No specific activity addresses this standard.
e) Compare and order objects by weight using a spring scale and a bathroom scale	15, 33, 55, 95

B. Measurement Tools

Standard	AA Instructor's Guide (Grade 1)
1. Measure in customary units a) Measure length of objects and pictures of objects to the nearest inch using a ruler	133
b) Identify and compare units of capacity using cups and gallons	The opportunity to address this standard is available in the following activities: 35, 43
c) Compare and order objects by weight in pounds using a spring scale and a bathroom scale	55
d) Describe the attributes of length, weight, and capacity	15, 33, 35, 38, 42, 43, 95, 115

STANDARD 4.0: KNOWLEDGE OF STATISTICS

Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

A. Data Displays

Standard	AA Instructor's Guide (Grade 1)
1. Collect, organize, and display data	163
a) Collect data by conducting surveys	
b) Collect data on tally charts	163
c) Organize and display data to make picture graphs	163
d) Organize and display data to make single bar graphs	163

B. Data Analysis

Standard	AA Instructor's Guide (Grade 1)
1. Analyze data	163
a) Interpret data contained in tables	
b) Interpret data contained in picture graphs using a variety of categories with 1:1 intervals	163
c) Interpret data contained in single bar graphs	163

STANDARD 5.0: 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.

A. Sample Space

Standard	AA Instructor's Guide (Grade 1)
1. Identify possible outcomes	No specific activity addresses this standard.
a) Recognize that a real life situation may have more than one outcome such as a coin having heads or tails	

STANDARD 6.0: 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

Standard	AA Instructor's Guide (Grade 1)
1. Apply knowledge of whole numbers and place value	2, 4, 5, 17, 22, 25, 32, 37, 65
a) Use concrete materials to compose and decompose quantities up to 20	
b) Identify multiple representations for a number, such as 12, 6+6, dozen	2, 4, 17, 22, 25, 65, 85, 108
c) Demonstrate instant recognition of quantities in patterned sets	2, 4, 17, 22, 32, 65, 85
d) Use the numbers 5 and 10 as anchors in relationship to other numbers	37, 65, 85, 113, 162
e) Read, write, and represent whole numbers up to 100 and beyond using models, symbols, and words	2, 4, 5, 17, 22, 25, 32, 65, 85, 108
f) Express numbers up to 99 using expanded form	2, 4, 5, 7, 9, 12, 14, 17, 19, 22, 24
g) Identify the place value of a digit in a whole number up to 99	112, 123, 126, 138, 157, 165, 168
h) Compare and order whole numbers up to 99 using terms such as: greater than, less than, equal to	7, 9, 14, 19, 52, 82, 97, 105
i) Estimate quantities up to 50 and use the term "about"	No specific activity addresses this standard.
j) Count to 100	97
k) Count forward and backward starting with numbers other than one	No specific activity addresses this standard.
l) Use ordinal numbers to indicate position: first through tenth	27, 45
2. Apply knowledge of fractions	117, 118, 173
a) Read, write, and represent fractions as parts of a single region using symbols and models with denominators of 2 or 4	
b) Read, write, and represent halves as parts of a set using pictures and models	117, 118, 173
3. Apply knowledge of money	29, 34, 39, 64, 77, 78, 79, 94, 96, 102
a) Determine the value of a given set of same currency up to \$1	
b) Demonstrate monetary value using real or play coins	The opportunity to address this standard can be found in the following activities: 29, 34, 39, 64, 77, 78, 79, 94, 96, 102
c) Compare the value of 2 sets of mixed currency up to \$1.00	34, 39, 64, 77, 79, 94, 96, 102, 109, 124

B. Number Theory

Standard	AA Instructor's Guide (Grade 1)
none	none

C. Number Computation

Standard	AA Instructor's Guide (Grade 1)
1. Analyze number relations and compute <ul style="list-style-type: none"> a) Develop strategies for addition and subtraction basic facts such as: counting on, counting back, making ten, doubles plus one 	The opportunity to address this standard is available in the following activities: 54, 59, 62, 69, 72, 74, 89, 91, 92, 104
<ul style="list-style-type: none"> b) Solve a given word problem based on addition or subtraction situation 	10, 70, 90
<ul style="list-style-type: none"> c) Identify the concept of inverse operation to addition and subtraction 	122, 137, 142, 159, 164, 167, 169

STANDARD 7.0: PROCESSES OF MATHEMATICS

Students demonstrate the processes of mathematics by making connections and applying reasoning to solve and to communicate their findings.

E. Problem Solving

Standard	AA Instructor's Guide (Grade 1)
1. Apply a variety of concepts, processes, and skills to solve problems <ul style="list-style-type: none"> a) Identify the question in the problem 	10, 70, 90
<ul style="list-style-type: none"> b) Decide if enough information is present to solve the problem 	10, 70, 90
<ul style="list-style-type: none"> c) Make a plan to solve the problem 	10, 70, 90
<ul style="list-style-type: none"> d) Apply a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation 	10, 70, 90
<ul style="list-style-type: none"> e) Select a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation 	10, 70, 90
<ul style="list-style-type: none"> f) Identify alternative ways to solve a problem 	The opportunity to address this standard is available throughout the text.
<ul style="list-style-type: none"> g) Show that a problem might have multiple solutions or no solution 	No specific activity addresses this standard.
<ul style="list-style-type: none"> h) Extend the solution of a problem to a new problem situation 	No specific activity addresses this standard.

F. Reasoning

Standard	AA Instructor's Guide (Grade 1)
1. Justify ideas or solutions with mathematical concepts or proofs <ul style="list-style-type: none"> a) Use inductive or deductive reasoning 	No specific activity addresses this standard.
<ul style="list-style-type: none"> b) Make or test generalizations 	No specific activity addresses this standard.
<ul style="list-style-type: none"> c) Support or refute mathematical statements or solutions 	No specific activity addresses this standard.
<ul style="list-style-type: none"> d) Use methods of proof, i.e., direct, indirect, paragraph, or contradiction 	No specific activity addresses this standard.

G. Communication

Standard	AA Instructor's Guide (Grade 1)
1. Present mathematical ideas using words, symbols, visual displays, or technology a) Use multiple representations to express concepts or solutions	The opportunity to address this standard is available throughout the text.
b) Express mathematical ideas orally	The opportunity to address this standard is available throughout the text.
c) Explain mathematical ideas in written form	The opportunity to address this standard is available throughout the text.
d) Express solutions using concrete materials	The opportunity to address this standard is available throughout the text.
e) Express solutions using pictorial, tabular, graphical, or algebraic methods	The opportunity to address this standard is available throughout the text.
f) Explain solutions in written form	The opportunity to address this standard is available throughout the text.
g) Ask questions about mathematical ideas or problems	The opportunity to address this standard is available throughout the text.
h) Give or use feed back to revise mathematical thinking	The opportunity to address this standard is available throughout the text.

H. Connections

Standard	AA Instructor's Guide (Grade 1)
1. Relate or apply mathematics within the discipline, to other disciplines, and to life a) Identify mathematical concepts in relationships to other mathematical concepts	The opportunity to address this standard is available throughout the text.
b) Identify mathematical concepts in relationship to other disciplines	No specific activity addresses this standard.
c) Identify mathematical concepts in relationship to life	The opportunity to address this standard is available throughout the text.
d) Use the relationship among mathematical concepts to learn other mathematical concepts	The opportunity to address this standard is available throughout the text.



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Grade 2**

STANDARD 1.0: 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

Standard	AA Instructor's Guide (Grade 2)
1. Identify, describe, extend, and create numeric patterns. a) Represent and analyze numeric patterns using skip counting by 2, 5, and 10 starting with any whole number, and using whole numbers up to 100	1, 26, 37, 67, 86, 121
b) Represent and analyze numeric patterns using skip counting backward by 10s starting with any 2-digit number	37, 65, 121
c) Recognize a function table as a relationship between numbers	No specific activity addresses this standard.
d) Complete a function table with a given one-operation rule (+, -) using whole numbers	No specific activity addresses this standard.
2. Identify, copy, describe, create, and extend non-numeric patterns a) Represent and analyze growing patterns that start at the beginning and show no more than 3 levels, and ask for the next level, using symbols, shapes, designs, and pictures	56, 91, 126, 131
b) Represent and analyze repeating patterns using 3 different objects in the core of the pattern	6, 11, 21, 41, 66, 101, 126
c) Transfer a repeating pattern from one medium to 2 different media using no more than 3 different objects in the core of the pattern such as: red, green, red, green,...ABAB...	The opportunity to address this standard is available in the following activities: 11, 16, 26, 31, 36, 41, 46, 51, 56, 61

B. Expressions, Equations, and Inequalities

Standard	AA Instructor's Guide (Grade 2)
1. Write and identify expressions a) Represent numeric quantities operational symbols (+, -) with whole numbers to 25	4, 5, 27, 79, 84, 89, 94, 99, 104, 109
2. Identify, write, and solve equations and inequalities a) Represent relationships using appropriate relational symbols (>, <, =) and operational symbols (+, -) with whole numbers to 100	4, 9, 12, 14, 19, 27, 33, 51, 54, 79
b) Find the missing number (unknown) in a number sentence using operational symbols (+, -) with whole numbers up to 50	127, 137

C. Numeric and Graphic Representations of Relationships

Standard	AA Instructor's Guide (Grade 2)
1. Locate points on a number line a) Represent whole numbers up to 100 on a number line	102

STANDARD 2.0: KNOWLEDGE 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

Standard	AA Instructor's Guide (Grade 2)
1. Recognize and apply the properties/attributes of plane geometric figures a) Identify and describe sides and corners	No specific activity addresses this standard.
b) Identify and describe quadrilaterals such as: squares, rectangles, rhombi	78
c) Identify and describe polygons by the number of sides such as: triangles, squares, rectangles, hexagons, octagons	No specific activity addresses this standard.
d) Combine and subdivide squares, triangles, and rectangles to identify a new shape	115

B. Solid Geometric Figures

Standard	AA Instructor's Guide (Grade 2)
1. Analyze the properties of solid geometric figures a) Compare two- and three-dimensional shapes such as: square to a cube, square and rectangle to a rectangular prism	52, 133, 173

C. Representation of Geometric Figures

Standard	AA Instructor's Guide (Grade 2)
1. Represent plane geometric figures a) Sketch plane figures	No specific activity addresses this standard.

D. Congruence

Standard	AA Instructor's Guide (Grade 2)
1. Compare congruent objects a) Describe congruent figures as having the same size and shape	75

E. Transformations

Standard	AA Instructor's Guide (Grade 2)
1. Recognize a transformation a) Apply visualization and spatial reasoning in activities such as: tangrams	No specific activity addresses this standard.
b) Identify and demonstrate slides, flips, and turns	130
2. Analyze geometric figures and pictures a) Recognize that basic shapes have several lines of symmetry	153
b) Demonstrate symmetry in basic shapes and pictures by drawing 2 lines of symmetry	153

STANDARD 3.0: KNOWLEDGE OF MEASUREMENT

Students will identify attributes, units or systems of measurement or apply a variety of techniques, formulas, tools, or technology for determining measurements.

A. Measurement Units

Standard	AA Instructor's Guide (Grade 2)
1. Read customary and metric measurements units a) Read the scale on a ruler to identify length in inches	7, 85
b) Tell time in intervals 5 minutes using an analog clock	47, 58, 108
c) Compare the same time on analog and digital clocks	The opportunity to address this standard is available in the following activities: 58, 108
d) Read a thermometer to the nearest 5° (°F and °C) on thermometer with a scale of 10° intervals	93
e) Identify and compare the weight of objects to the nearest pound	148

B. Measurement Tools

Standard	AA Instructor's Guide (Grade 2)
1. Measure in customary and metric units a) Measure length of objects and pictures of objects using a ruler or tape measure to the nearest inch, centimeter, and foot	No specific activity addresses this standard.
b) Measure capacity of objects using cup, pint, quart, liter, and gallon	83
c) Measure objects to the nearest pound and kilogram	No specific activity addresses this standard.
d) Select and use appropriate units of measure for length/height, weight, and capacity	20, 30, 45, 150, 160, 168

C. Application in Measurement

Standard	AA Instructor's Guide (Grade 2)
1. Apply measurement concepts a) Develop the concept of perimeter by counting units around a picture or geometric figure	68, 105
b) Develop the concept of area by counting square units within a picture or geometric figure	53
2. Calculate to determine equivalent units a) Recognize equivalent units of 12 inches = 1 foot	85

STANDARD 4.0: KNOWLEDGE OF STATISTICS

Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

A. Data Displays

Standard	AA Instructor's Guide (Grade 2)
1. Collect, organize, and display data a) Collect data by conducting surveys	No specific activity addresses this standard.
b) Collect data in tables	161
c) Organize and display data to make pictographs using scales of 1:1 and 2:1	No specific activity addresses this standard.
d) Organize and display data to make single bar graphs	No specific activity addresses this standard.

B. Data Analysis

Standard	AA Instructor's Guide (Grade 2)
1. Analyze data a) Interpret data contained in tables	25, 70, 85, 150, 161
b) Interpret data contained in pictographs using scales of 1:1 and 2:1	No specific activity addresses this standard.
c) Interpret data contained in single bar graphs using a variety of categories and intervals of 1, 2, 5, and 10	25

STANDARD 5.0: 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.

A. Sample Space

Standard	AA Instructor's Guide (Grade 2)
1. Identify possible outcomes a) Identify some possible outcomes that make up the sample space such as on a number cube rolling a 2	154

STANDARD 6.0: 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

Standard	AA Instructor's Guide (Grade 2)
1. Apply knowledge of whole numbers and place value	2, 92, 147
a) Use concrete materials to compose and decompose quantities up to 100	
b) List multiple representations for a number	2, 142
c) Develop a sense of the size of a number in relation to other numbers	31, 36, 142, 146, 156
d) Use the numbers of 10, 50 and 100 as anchors in relationship to other numbers	36, 146, 156
e) Read, write, and represent whole numbers using models, symbols, and words through 1000	2
f) Express numbers up to 999 using expanded form	2, 60, 90, 122
g) Identify the place value of a digit in whole number up to 999	36, 40, 60, 90, 122, 123, 132, 146, 156
h) Compare and order whole numbers up to 999 using words and relational symbols ($>$, $<$, $=$)	51
i) Estimate quantities up to 100 using a reference point such as 10 and the terminology "about"	No specific activity addresses this standard.
j) Count forward by 2s, 5s, and 10s starting with numbers other than one	26, 46, 73, 76, 81, 86, 103, 111
k) Count backward by 2s, 5s, and 10s, from a multiple of that number	46, 76
l) Use ordinal numbers to indicate position up to thirty-first	No specific activity addresses this standard.
2. Apply knowledge of fractions	48, 57, 97, 138
a) Read, write, and represent fractions as parts of a single region using symbols or models with denominators of 2, 3, or 4	
b) Read, write, and represent halves or fourths as parts of a set using symbols, words, and models	48, 57, 97, 138
3. Apply knowledge of money	32, 77, 100, 103, 118, 119, 140, 161
a) Determine the value of a given set of mixed currency up to \$10	
b) Represent money amounts up to \$10	The opportunity to address this standard can be found in the following activities: 32, 77, 100, 103, 118, 119, 140, 161
c) Compare the value of 2 sets of mixed currency up to \$10	No specific activity addresses this standard.

B. Number Theory

Standard	AA Instructor's Guide (Grade 2)
1. Apply number relationships	1
a) Build and describe models of even and odd numbers using concrete materials, and discuss the models	

C. Number Computation

Standard	AA Instructor's Guide (Grade 2)
1. Analyze number relations and compute a) Demonstrate proficiency with addition and subtraction basic facts using a variety of strategies	22, 29, 33, 54, 61, 82, 83, 96, 146, 156
b) Add no more than 3 whole number addends with no more than 2 digits in each addend and a sum of no more than 100	74, 117, 127, 137, 146, 166, 176
c) Subtract whole numbers with no more than 2 digits in the minuend or subtrahend	27, 33, 42, 64, 69, 102, 127, 134
d) Solve word problems based on addition or subtraction situations	10, 55, 62, 92, 110, 120, 145, 155
e) Write word problems for addition and subtraction situations	62, 92, 110, 120, 145, 155
f) Add and subtract money amounts up to \$1	32, 34, 59, 77, 100, 103, 118, 119, 140, 141
g) Apply the concept of inverse operations to addition and subtraction	33, 102
h) Build equal groups to model multiplication	73, 112, 113, 124, 128, 136, 139, 165, 174
i) Build groups that share equally for division	135, 170, 178
2. Estimation a) Determine the reasonableness of sums and differences	No specific activity addresses this standard.

STANDARD 7.0: PROCESSES OF MATHEMATICS

Students demonstrate the processes of mathematics by making connections and applying reasoning to solve and to communicate their findings.

A. Problem Solving

Standard	AA Instructor's Guide (Grade 2)
1. Apply a variety of concepts, processes, and skills to solve problems a) Identify the question in the problem	10, 55, 62, 95, 110, 120, 145, 155
b) Decide if enough information is present to solve the problem	10, 55, 62, 95, 110, 120, 145, 155
c) Make a plan to solve the problem	10, 55, 62, 95, 110, 120, 145, 155
d) Apply a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	10, 55, 62, 95, 110, 120, 145, 155
e) Select a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	10, 55, 62, 95, 110, 120, 145, 155
f) Identify alternative ways to solve a problem	The opportunity to address this standard is available throughout the text.
g) Show that a problem might have multiple solutions or no solution	No specific activity addresses this standard.
h) Extend the solution of a problem to a new problem situation	No specific activity addresses this standard.

B. Reasoning

Standard	AA Instructor's Guide (Grade 2)
1. Justify ideas or solutions with mathematical concepts or proofs a) Use inductive or deductive reasoning	61, 96, 154
b) Make or test generalizations	61, 96, 154
c) Support or refute mathematical statements or solutions	61, 96, 154
d) Use methods of proof, i.e., direct, indirect, paragraph, or contradiction	No specific activity addresses this standard.

C. Communication

Standard	AA Instructor's Guide (Grade 2)
1. Present mathematical ideas using words, symbols, visual displays, or technology a) Use multiple representations to express concepts or solutions	The opportunity to address this standard is available throughout the text.
b) Express mathematical ideas orally	The opportunity to address this standard is available throughout the text.
c) Explain mathematically ideas in written form	The opportunity to address this standard is available throughout the text.
d) Express solutions using concrete materials	The opportunity to address this standard is available throughout the text.
e) Express solutions using pictorial, tabular, graphical, or algebraic methods	The opportunity to address this standard is available throughout the text.
f) Explain solutions in written form	The opportunity to address this standard is available throughout the text.
g) Ask questions about mathematical ideas or problems	The opportunity to address this standard is available throughout the text.
h) Give or use feed back to revise mathematical thinking	The opportunity to address this standard is available throughout the text.

D. Connections

Standard	AA Instructor's Guide (Grade 2)
1. Relate or apply mathematics within the discipline, to other disciplines, and to life a) Identify mathematical concepts in relationships to other mathematical concepts	The opportunity to address this standard is available throughout the text.
b) Identify mathematical concepts in relationship to other disciplines	No specific activity addresses this standard.
c) Identify mathematical concepts in relationship to life	The opportunity to address this standard is available throughout the text.
d) Use the relationship among mathematical concepts to learn other mathematical concepts	The opportunity to address this standard is available throughout the text.



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**correlated to
Maryland Voluntary State Curriculum-Mathematics
Grade 3**

STANDARD 1.0: 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

Standard	AA Instructor's Guide (Grade 3)
1. Identify, describe, extend, and create numeric patterns and functions (using 2, 5, 10, or 100) a) Represent and analyze numeric patterns using skip counting	21, 47, 74, 99, 101, 169
b) Represent and analyze numeric patterns using skip counting (using 3 or 4)	47, 86
c) Represent and analyze numeric patterns using skip counting backward	21
d) Complete a function table using a given addition or subtraction rule	76, 81
2. Identify, describe, extend, and create non-numeric growing or repeating patterns a) Represent and analyze growing patterns using symbols, shapes, designs, or pictures	67, 116, 121, 156, 161
b) Represent and analyze repeating patterns using symbols, shapes, designs, or pictures	67

B. Expressions, Equations, and Inequalities

Standard	AA Instructor's Guide (Grade 3)
1. Write and identify expressions a) Represent numeric quantities operational symbols (+, -, x, ÷)	2, 19, 33, 34, 53, 56, 144, 154, 164
2. Identify, write, solve, and apply equations and inequalities a) Represent relationships using appropriate relational symbols (>, <, or =) and operational symbols (+, -, x, ÷) on either side	4, 8, 9, 11, 14, 19, 33, 34, 37, 41
b) Find the missing number (unknown) in a number sentence (equation) using operational symbols (+, -, x, ÷)	No specific activity addresses this standard.
c) Find the missing number(s) (unknown) on one or both sides of a number sentence (equation)	No specific activity addresses this standard.

C. Numeric and Graphic Representations of Relationships

Standard	AA Instructor's Guide (Grade 3)
1. Locate points on a number line a) Represent whole numbers up to 100 on a number line	No specific activity addresses this standard.
b) Represent proper fractions on a number line	No specific activity addresses this standard.

STANDARD 2.0: KNOWLEDGE 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

Standard	AA Instructor's Guide (Grade 3)
1. Analyze the properties of plane geometric figures a) Identify and describe points, lines, line segments, rays, and angles	57
b) Identify and describe polygons	15, 45, 57, 93, 142, 178
c) Identify and describe quadrilaterals	15, 57, 93, 135
d) Identify triangles, rectangles, or squares as part of a composite figure	111, 176, 178
2. Analyze geometric relationships a) Identify right angles	No specific activity addresses this standard.

B. Solid Geometric Figures

Standard	AA Instructor's Guide (Grade 3)
1. Analyze the properties of solid geometric figures a) Identify and describe cubes, rectangular prisms, and triangular prisms	3, 65, 107, 123, 142, 143, 178

C. Representation of Geometric Figures

Standard	AA Instructor's Guide (Grade 3)
1. Represent plane geometric figures a) Sketch triangles, quadrilaterals, pentagons, hexagons, octagons, and circles	No specific activity addresses this standard.

D. Congruence

Standard	AA Instructor's Guide (Grade 3)
1. Analyze congruent figures a) Identify and describe geometric figures as congruent	No specific activity addresses this standard.

E. Transformations

Standard	AA Instructor's Guide (Grade 3)
1. Analyze a transformation a) Identify and describe the results of a slide, flip, and turn	57
2. Analyze geometric figures and pictures a) Identify and describe symmetry	28, 57, 108

STANDARD 3.0: KNOWLEDGE OF MEASUREMENT

Students will identify attributes, units or systems of measurement or apply a variety of techniques, formulas, tools, or technology for determining measurements.

A. Measurement Units

Standard	AA Instructor's Guide (Grade 3)
1. Read customary and metric measurements units	50
a) Estimate and determine length	
b) Tell time in days, hours, minutes, and seconds	38, 72, 88, 125
c) Estimate and read temperature	128
d) Estimate and determine weight of objects	52

B. Measurement Tools

Standard	AA Instructor's Guide (Grade 3)
1. Measure in customary and metric units	63, 80, 110
a) Measure length of objects and pictures of objects using a ruler, tape measure, a yardstick, or a meter stick	
b) Measure capacity of containers to the nearest cup, pint, quart, gallon, milliliter, and liter using graduated containers	No specific activity addresses this standard.
c) Measure weight of objects to the nearest ounce and pound and mass of objects to the nearest gram and kilogram	No specific activity addresses this standard.

C. Application in Measurement

Standard	AA Instructor's Guide (Grade 3)
1. Apply measurement concepts	27, 100, 133, 156
a) Estimate and determine the perimeter of geometric figures and pictures on a grid	
b) Estimate and determine the area of geometric figures and pictures on a grid	27, 133, 161
c) Estimate and find the volume of rectangular prisms	No specific activity addresses this standard.
2. Calculate equivalent measurements	13,17, 30, 63, 148, 155
a) Determine equivalent units of length	

STANDARD 4.0: KNOWLEDGE OF STATISTICS

Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

A. Data Displays

Standard	AA Instructor's Guide (Grade 3)
1. Collect, organize, and display data	No specific activity addresses this standard.
a) Collect data by conducting surveys	
b) Organize and display data to make tables using a variety of categories and sets of data	141, 143, 146, 151, 156
c) Organize and display data to make pictographs using a variety of scales	No specific activity addresses this standard.
d) Organize and display data to make single bar graphs using a variety of categories and intervals	No specific activity addresses this standard.
e) Organize and display data to make line plots using a variety of intervals	No specific activity addresses this standard.

B. Data Analysis

Standard	AA Instructor's Guide (Grade 3)
1. Analyze data	141, 143, 146, 151, 156
a) Interpret data contained in tables using a variety of categories and intervals	
b) Interpret data contained in pictographs using a variety of categories and intervals	No specific activity addresses this standard.
c) Interpret data contained in single bar graphs using a variety of categories and intervals	25
d) Interpret data contained in line plots using a variety of intervals	No specific activity addresses this standard.

STANDARD 5.0: 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.

A. Sample Space

Standard	AA Instructor's Guide (Grade 3)
4. Identify possible outcomes	No specific activity addresses this standard.
a) Identify possible outcomes that make up the sample space for a given real life situation	
b) Identify possible outcomes that make up the sample space for a given experiment such as: flipping a coin, spinning a spinner, rolling a number cube	No specific activity addresses this standard.

B. Theoretical Probability

Standard	AA Instructor's Guide (Grade 3)
1. Identify the probability of an event	No specific activity addresses this standard.
a) Describe the probability of an event using words	

**STANDARD 6.0: 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

Standard	AA Instructor's Guide (Grade 3)
1. Apply knowledge of whole numbers and place value	48, 140
a) Read, write, and represent whole numbers using symbols, words, and models	
b) Express whole numbers in expanded form	7, 48
c) Identify the place value of a digit in a whole number	5, 35, 60, 71, 103, 127
d) Compare, order, and describe whole numbers with or without using relational symbols (<, >, =)	No specific activity addresses this standard.
2. Apply knowledge of fractions	82, 145
a) Read, write, and represent fractions as parts of a single region using symbols, words, and models	
b) Read, write, and represent fractions as parts of a set using symbols, words, and models	82, 83, 145
3. Apply knowledge of money	1, 32, 44, 73, 74, 78, 95, 117, 147, 168
a) Represent money in different ways	
b) Determine the value of a given set of mixed currency	44, 73, 74, 78, 117
c) Compare the value of two sets of mixed currency	No specific activity addresses this standard.

B. Number Theory

Standard	AA Instructor's Guide (Grade 3)
2. Apply number relationships	18, 29, 76, 81, 115, 180
a) Identify and describe whole numbers as even or odd	

C. Number Computation

Standard	AA Instructor's Guide (Grade 3)
1. Analyze number relations and compute	2, 8, 9, 11, 14, 19, 24, 33, 34, 37
a) Add numbers using a variety of strategies	
b) Subtract numbers using a variety of strategies	2, 33, 66, 68, 85, 144
c) Solve addition and subtraction word problems	No specific activity addresses this standard.
d) Add and subtract money amounts	44, 73, 78, 95, 117, 168
e) Identify and apply the concept of inverse operations to addition and subtraction	2, 33, 85
f) Represent multiplication and division basic facts using number sentences, picture, and drawings	23, 55, 62, 90, 92, 112, 120, 124, 171, 173
g) Identify and use properties of multiplication	54, 59, 84
h) Multiply a one-digit factor by a two-digit factor using models, pictures, and drawings	170
i) Divide a two-digit dividend by a one-digit divisor using models, pictures, and drawings	134, 141, 146, 151
j) Identify and apply the concept of inverse operations to multiplication and division	No specific activity addresses this standard.
k) Write a word problem based on multiplication or division number sentences	62, 90, 92, 120, 175
2. Estimation	70, 75, 105
a) Determine the reasonableness of sums and differences	

STANDARD 7.0: PROCESSES OF MATHEMATICS

Students demonstrate the processes of mathematics by making connections and applying reasoning to solve and to communicate their findings.

A. Problem Solving

Standard	AA Instructor's Guide (Grade 3)
1. Apply a variety of concepts, processes, and skills to solve problems	112, 170, 175
a) Identify the question in the problem	
b) Decide if enough information is present to solve the problem	112, 170, 175
c) Make a plan to solve the problem	112, 170, 175
d) Apply a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	112, 170, 175
e) Select a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	112, 170, 175
f) Identify alternative ways to solve a problem	The opportunity to address this standard is available throughout the text.
g) Show that a problem might have multiple solutions or no solution	No specific activity addresses this standard.
h) Extend the solution of a problem to a new problem situation	No specific activity addresses this standard.

B. Reasoning

Standard	AA Instructor's Guide (Grade 3)
1. Justify ideas or solutions with mathematical concepts or proofs a) Use inductive or deductive reasoning	156, 161
b) Make or test generalizations	61, 96, 154
c) Support or refute mathematical statements or solutions	61, 96, 154
d) Use methods of proof, i.e., direct, indirect, paragraph, or contradiction	No specific activity addresses this standard.

C. Communication

Standard	AA Instructor's Guide (Grade 3)
1. Present mathematical ideas using words, symbols, visual displays, or technology a) Use multiple representations to express concepts or solutions	The opportunity to address this standard is available throughout the text.
b) Express mathematical ideas orally	The opportunity to address this standard is available throughout the text.
c) Explain mathematical ideas in written form	The opportunity to address this standard is available throughout the text.
d) Express solutions using concrete materials	The opportunity to address this standard is available throughout the text.
e) Express solutions using pictorial, tabular, graphical, or algebraic methods	The opportunity to address this standard is available throughout the text.
f) Explain solutions in written form	The opportunity to address this standard is available throughout the text.
g) Ask questions about mathematical ideas or problems	The opportunity to address this standard is available throughout the text.
h) Give or use feed back to revise mathematical thinking	The opportunity to address this standard is available throughout the text.

D. Connections

Standard	AA Instructor's Guide (Grade 3)
1. Relate or apply mathematics within the discipline, to other disciplines, and to life a) Identify mathematical concepts in relationships to other mathematical concepts	The opportunity to address this standard is available throughout the text.
b) Identify mathematical concepts in relationship to other disciplines	No specific activity addresses this standard.
c) Identify mathematical concepts in relationship to life	The opportunity to address this standard is available throughout the text.
d) Use the relationship among mathematical concepts to learn other mathematical concepts	The opportunity to address this standard is available throughout the text.



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**correlated to
Maryland Voluntary State Curriculum-Mathematics
Grade 4**

STANDARD 1.0: 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

Standard	AA Instructor's Guide (Grade 4)
1. Identify, describe, extend, and create numeric patterns and functions a) Represent and analyze numeric patterns using skip counting	7, 31, 36, 41, 46
b) Create a one-operation (+ or -) function table to solve a real world problem	No specific activity addresses this standard.
c) Complete a function table using a one-operation (+, -, x, ÷ with no remainders) rule	140
d) Describe the relationship that generates a one-operation rule	140
2. Identify, describe, create, extend, analyze and extend non-numeric growing or repeating patterns a) Generate a rule for the next level of the growing pattern	No specific activity addresses this standard.
b) Generate a rule for a repeating pattern	51
c) Create a non-numeric growing or repeating pattern	51

B. Expressions, Equations, and Inequalities

Standard	AA Instructor's Guide (Grade 4)
1. Write and identify expressions a) Represent numeric quantities using operational symbols (+, -, x, ÷ with no remainders)	15, 115
b) Determine equivalent expressions	26
2. Identify, write, solve, and apply equations and inequalities a) Represent relationships using relational symbols (>, <, =) and operational symbols (+, -, x, ÷) on either side	26, 50
b) Find the unknown in an equation with one operation	40, 152, 167, 172

C. Numeric and Graphic Representations of Relationships

Standard	AA Instructor's Guide (Grade 4)
1. Locate points on a number line and in a coordinate grid a) Represent mixed numbers and proper fractions on a number line	No specific activity addresses this standard.
b) Identify positions in a coordinate plane	135
c) Represent decimals on a number line	No specific activity addresses this standard.

STANDARD 2.0: KNOWLEDGE 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

Standard	AA Instructor's Guide (Grade 4)
1. Analyze the properties of plane geometric figures a) Identify properties of angles using manipulatives and pictures	153, 158
b) Identify, compare, classify, and describe angles in relationship to another angle	153, 158
c) Identify parallel and intersecting line segments	85

B. Solid Geometric Figures

Standard	AA Instructor's Guide (Grade 4)
1. Analyze the properties of solid geometric figures a) Identify cones, cylinders, prisms, and pyramids	28, 60
b) Describe solid geometric figures by the number of edges, faces, or vertices	28, 60
2. Analyze the relationship between plane geometric figures and surfaces of solid geometric figures a) Compare a plane figure to surfaces of solid geometric figures	28

C. Representation of Geometric Figures

Standard	AA Instructor's Guide (Grade 4)
1. Represent plane geometric figures a) Sketch acute, right, obtuse angles, and parallel and intersecting line segments	No specific activity addresses this standard.

D. Congruence

Standard	AA Instructor's Guide (Grade 4)
1. Analyze geometric figures a) Identify and describe geometric figures as congruent	110, 158

E. Transformations

Standard	AA Instructor's Guide (Grade 4)
1. Analyze a transformation a) Identify and describe the results of translations, reflections, and rotations	163

STANDARD 3.0: KNOWLEDGE OF MEASUREMENT

Students will identify attributes, units or systems of measurement or apply a variety of techniques, formulas, tools, or technology for determining measurements.

A. Measurement Units

Standard	AA Instructor's Guide (Grade 4)
1. Read customary and metric measurements units	5
a) Estimate and determine length and height	
b) Estimate and determine weight or mass	30
c) Estimate and read capacity	55

B. Measurement Tools

Standard	AA Instructor's Guide (Grade 4)
1. Measure in customary and metric units	5, 30, 55
a) Select and use appropriate tools and units	
2. Compare right angles to a corner	No specific activity addresses this standard.

C. Application in Measurement

Standard	AA Instructor's Guide (Grade 4)
1. Apply measurement concepts	10, 53, 137
a) Determine perimeter	
b) Determine area	35, 88, 137
c) Determine start time, elapsed time and end time	105, 123, 130
2. Calculate equivalent measurements	8
a) Determine equivalent units of length	
b) Determine equivalent units of time	No specific activity addresses this standard.
c) Determine equivalent units of capacity and weight within the same system	33, 73

STANDARD 4.0: KNOWLEDGE OF STATISTICS

Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

A. Data Displays

Standard	AA Instructor's Guide (Grade 4)
1. Collect, organize, and display data	No specific activity addresses this standard.
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	No specific activity addresses this standard.

B. Data Analysis

Standard	AA Instructor's Guide (Grade 4)
1. Analyze data a) Interpret line plots	No specific activity addresses this standard.
b) Interpret line graphs	135
2. Describe a set of data a) Determine median, mode, and range	No specific activity addresses this standard.
b) Model the mean of a set of data	No specific activity addresses this standard.

STANDARD 5.0: 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.

A. Sample Space

There are no Grade 4 standards for Sample Space.

B. Theoretical Probability

Standard	AA Instructor's Guide (Grade 4)
1. Determine the probability of one simple event comprised of equally likely outcomes a) Express the probability as a fraction	No specific activity addresses this standard.

STANDARD 6.0: 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

Standard	AA Instructor's Guide (Grade 4)
1. Apply knowledge of whole numbers and place value	The opportunity to address this standard is available throughout the text.
a) Read, write, and represent whole numbers using symbols, words, and models	
b) Express whole numbers in expanded form	95
c) Identify the place value of a digit in a whole number	9, 27, 56, 95, 97, 103, 112, 133, 143, 147, 178
d) Compare, order, and describe whole numbers	12, 102
2. Apply knowledge of fractions and decimals	82, 107, 120, 132, 133, 145
a) Read, write, and represent proper fractions of a single region using symbols, words, and models	
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	No specific activity addresses this standard.
c) Find equivalent fractions	113, 144, 150
d) Read, write, and represent mixed numbers using symbols, words, and models	107, 154
e) Read, write, and represent decimals using symbols, words, and models	112, 133, 145, 175
f) Express decimals in expanded form	No specific activity addresses this standard.
g) Compare and order fractions and mixed numbers with or without using the symbols (<, >, =)	No specific activity addresses this standard.
h) Compare, order, and describe decimals with or without using the symbols (<, >, =)	175
3. Apply knowledge of money	31, 72, 91
a) Compare the value of sets of mixed currency	
b) Determine the change from \$100	80, 104, 109, 114, 127

B. Number Theory

Standard	AA Instructor's Guide (Grade 4)
1. Apply number relationships	No specific activity addresses this standard.
a) Identify and use divisibility rules	
b) Identify factors	13, 20, 68, 148, 162
c) Identify multiples	13, 45, 48, 66, 71, 76, 78, 81, 86, 101

C. Number Computation

Standard	AA Instructor's Guide (Grade 4)
1. Analyze number relations and compute	2, 4, 23, 164
a) Add whole numbers	
b) Subtract whole numbers	2, 9, 14, 43, 77, 97, 164
c) Multiply whole numbers	2, 19, 24, 29, 34, 49, 108, 119, 124, 129
d) Divide whole numbers	2, 40, 74, 75, 79, 93, 125, 134, 139, 170
e) Add and subtract proper fractions and mixed numbers	160
f) Add 2 decimals	165
g) Subtract decimals	165
2. Estimation	25, 122
a) Determine the approximate sum and difference of 2 numbers	
b) Determine the approximate product and quotient of 2 numbers	100, 122, 124, 129, 134, 139, 177

STANDARD 7.0: PROCESSES OF MATHEMATICS

Students demonstrate the processes of mathematics by making connections and applying reasoning to solve and to communicate their findings.

A. Problem Solving

Standard	AA Instructor's Guide (Grade 4)
1. Apply a variety of concepts, processes, and skills to solve problems	No specific activity addresses this standard.
a) Identify the question in the problem	
b) Decide if enough information is present to solve the problem	No specific activity addresses this standard.
c) Make a plan to solve the problem	No specific activity addresses this standard.
d) Apply a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	No specific activity addresses this standard.
e) Select a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	No specific activity addresses this standard.
f) Identify alternative ways to solve a problem	No specific activity addresses this standard.
g) Show that a problem might have multiple solutions or no solution	31, 91
h) Extend the solution of a problem to a new problem situation	No specific activity addresses this standard.

B. Reasoning

Standard	AA Instructor's Guide (Grade 4)
1. Justify ideas or solutions with mathematical concepts or proofs	No specific activity addresses this standard.
a) Use inductive or deductive reasoning	
b) Make or test generalizations	No specific activity addresses this standard.
c) Support or refute mathematical statements or solutions	No specific activity addresses this standard.
d) Use methods of proof, i.e., direct, indirect, paragraph, or contradiction	No specific activity addresses this standard.

C. Communication

Standard	AA Instructor's Guide (Grade 4)
1. Present mathematical ideas using words, symbols, visual displays, or technology a) Use multiple representations to express concepts or solutions	The opportunity to address this standard is available throughout the text.
b) Express mathematical ideas orally	The opportunity to address this standard is available throughout the text.
c) Explain mathematical ideas in written form	The opportunity to address this standard is available throughout the text.
d) Express solutions using concrete materials	The opportunity to address this standard is available throughout the text.
e) Express solutions using pictorial, tabular, graphical, or algebraic methods	The opportunity to address this standard is available throughout the text.
f) Explain solutions in written form	The opportunity to address this standard is available throughout the text.
g) Ask questions about mathematical ideas or problems	The opportunity to address this standard is available throughout the text.
h) Give or use feed back to revise mathematical thinking	The opportunity to address this standard is available throughout the text.

D. Connections

Standard	AA Instructor's Guide (Grade 4)
1. Relate or apply mathematics within the discipline, to other disciplines, and to life a) Identify mathematical concepts in relationships to other mathematical concepts	The opportunity to address this standard is available throughout the text.
b) Identify mathematical concepts in relationship to other disciplines	No specific activity addresses this standard.
c) Identify mathematical concepts in relationship to life	The opportunity to address this standard is available throughout the text.
d) Use the relationship among mathematical concepts to learn other mathematical concepts	The opportunity to address this standard is available throughout the text.



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**correlated to
Maryland Voluntary State Curriculum-Mathematics
Grade 5**

STANDARD 1.0: 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

Standard	AA Instructor's Guide (Grade 5)
1. Identify, describe, extend, and create numeric patterns and functions	151, 171, 176
a) Interpret and write a rule for a one-operation (+, -, x, ÷ with no remainders) function table	
b) Create a one-operation (x, ÷ with no remainders) function table to solve a real world problem	51, 171, 176
c) Complete a create a one-operation function table	151, 171, 176
d) Apply a given two operation rule for a pattern	No specific activity addresses this standard.

B. Expressions, Equations, and Inequalities

Standard	AA Instructor's Guide (Grade 5)
1. Write and identify expressions	51, 92
a) Represent unknown quantities with one unknown and one operation (+, -, x, ÷ with no remainders)	
b) Determine the value of algebraic expressions with one unknown and one-operation	51
c) Use parenthesis to evaluate a numeric expression	No specific activity addresses this standard.
2. Identify, write, solve, and apply equations and inequalities	9, 17, 40, 42, 56, 76, 92, 142
a) Represent relationships using the appropriate relational symbols (>, <, =) and one operational symbol (+, -, x, ÷) on either side	
b) Find the unknown in an equation use one operation (+, -, x, ÷ with no remainders)	57, 142

C. Numeric and Graphic Representations of Relationships

Standard	AA Instructor's Guide (Grade 5)
1. Locate points on a number line and in a coordinate grid a) Represent decimals and mixed numbers on a number line	No specific activity addresses this standard.
b) Create a graph in a coordinate plane	135, 156, 176

STANDARD 2.0: KNOWLEDGE 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

Standard	AA Instructor's Guide (Grade 5)
1. Analyze the properties of plane geometric figures a) Identify and describe relationships of lines and line segments in geometric figures or pictures	102, 115
b) Identify polygons within a composite figure	No specific activity addresses this standard.
c) Identify and describe the radius and diameter of a circle	No specific activity addresses this standard.
2. Analyze geometric relationships a) Compare and classify quadrilaterals by length of sides and types of angles (Include the angle symbol $\angle ABC$)	115, 138, 153
b) Compare triangles by sides	35, 140

B. Solid Geometric Figures

Standard	AA Instructor's Guide (Grade 5)
1. Analyze the properties of solid geometric figures a) Identify and classify pyramids and prisms by the number of edges, faces, or vertices	10, 60
b) Identify and classify pyramids and prisms by the base	10
2. Analyze the relationship between plane geometric figures and faces of solid geometric figures a) Compare a plane figure to faces of solid geometric figures	No specific activity addresses this standard.

C. Representation of Geometric Figures

Standard	AA Instructor's Guide (Grade 5)
1. Represent plane geometric figures a) Identify, describe, and draw angles, parallel line segments, and perpendicular line segments	85, 102, 110, 123, 128, 140

D. Congruence and Similarity

Standard	AA Instructor's Guide (Grade 5)
1. Analyze similar figures a) Identify or describe geometric figures as similar	110, 115, 138, 153

E. Transformations

Standard	AA Instructor's Guide (Grade 5)
1. Analyze a transformation a) Identify and describe the results of translations, reflections, and rotations of geometric figures	No specific activity addresses this standard.

STANDARD 3.0: KNOWLEDGE OF MEASUREMENT

Students will identify attributes, units or systems of measurement or apply a variety of techniques, formulas, tools, or technology for determining measurements.

A. Measurement Units

Standard	AA Instructor's Guide (Grade 5)
1. Read customary and metric measurements units a) Estimate and determine weight or mass	No specific activity addresses this standard.
b) Estimate and determine capacity	No specific activity addresses this standard.

B. Measurement Tools

Standard	AA Instructor's Guide (Grade 5)
1. Measure in customary and metric units a) Select and use appropriate tools and units	8, 88
2. Measure angles a) Measure a single angle and angles in regular polygons	No specific activity addresses this standard.

C. Application in Measurement

Standard	AA Instructor's Guide (Grade 5)
1. Estimate and apply measurement formulas a) Determine perimeter	127, 141, 175
b) Determine area	127, 175
c) Find the area and perimeter of any closed figure on a grid	No specific activity addresses this standard.
d) Estimate and determine volume by counting	No specific activity addresses this standard.
2. Calculate equivalent measurements a) Determine start, elapsed, and end time	98, 105, 108, 130
b) Determine equivalent units of measurement	2, 5, 8, 30, 32, 38, 73, 81, 91, 96

STANDARD 4.0: KNOWLEDGE OF STATISTICS

Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

A. Data Displays

Standard	AA Instructor's Guide (Grade 5)
1. Collect, organize, and display data	161, 166
a) Collect data by conducting surveys to answer a question	
b) Organize and display data in stem-and-leaf plots	No specific activity addresses this standard.
c) Organize and display data in line plots	166
d) Organize and display data in double bar graphs	No specific activity addresses this standard.
e) Organize and display data in line graphs	156
f) Determine the appropriate type of graph to effectively display data	161

B. Data Analysis

Standard	AA Instructor's Guide (Grade 5)
1. Analyze data	No specific activity addresses this standard.
a) Interpret and compare data in stem & leaf plot	
b) Interpret and compare data in a number line	166
c) Interpret and compare data in double bar graphs	No specific activity addresses this standard.
d) Interpret and compare data in double line graphs	156
e) Read circle graphs	No specific activity addresses this standard.
2. Describe a set of data (mean, median, mode)	No specific activity addresses this standard.
a) Determine the mean of a given data set or data display	
b) Apply the range and measures of central tendency to solve a problem or answer a question	No specific activity addresses this standard.

STANDARD 5.0: 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.

A. Sample Space

Standard	AA Instructor's Guide (Grade 5)
1. Identify possible outcomes	No specific activity addresses this standard.
a) Determine possible outcomes of independent events	

B. Theoretical Probability

Standard	AA Instructor's Guide (Grade 5)
1. Determine the probability of one simple event comprised of equally likely outcomes	No specific activity addresses this standard.
a) Make predictions and express the probability as a fraction	

STANDARD 6.0: 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

Standard	AA Instructor's Guide (Grade 5)
1. Apply knowledge of fractions, decimals, and place value	44, 81, 169, 173
a) Read, write, and represent fractions or mixed numbers using symbols, models, and words	
b) Read, write, and represent decimals using symbols, words, or models	No specific activity addresses this standard.
c) Identify and determine equivalent forms of proper fractions	27, 28, 49, 58, 65, 121, 150, 178
d) Compare and order fractions with or without using the symbols ($>$, $<$, $=$)	No specific activity addresses this standard.
e) Compare, order, and describe decimals with or without the symbols ($>$, $<$, $=$)	20

B. Number Theory

Standard	AA Instructor's Guide (Grade 5)
1. Apply number relationships	7, 41, 67, 70, 120, 168, 180
a) Identify or describe numbers as prime or composite numbers	
b) Identify and use rules of divisibility	6, 15, 21
c) Identify the greatest common factor	31, 36
d) Identify a common multiple and the least common multiple	16, 18, 21, 37

C. Number Computation

Standard	AA Instructor's Guide (Grade 5)
1. Analyze number relations and compute	7, 19, 24, 29, 39, 42, 50, 59, 114, 124
a) Multiply whole numbers	
b) Divide whole numbers	34, 42, 64, 69, 74, 75, 79, 107
c) Interpret quotients and remainders mathematically and in the context of a problem	64, 69, 74, 75, 79, 82, 83
d) Add and subtract proper fractions and mixed numbers with answers in simplest form	47, 89, 125, 133, 144, 155, 160, 169
e) Add decimals including money	54, 129, 174
f) Subtract decimals including money	104
g) Multiply decimals	164
h) Divide decimals by whole numbers	No specific activity addresses this standard.
2. Estimation	148
a) Determine the approximate sum and difference of decimals	
b) Determine the approximate product and quotient of whole numbers	53, 59, 62, 68, 100, 147, 163
c) Determine the approximate product of decimals	147

STANDARD 7.0: PROCESSES OF MATHEMATICS

Students demonstrate the processes of mathematics by making connections and applying reasoning to solve and to communicate their findings.

A. Problem Solving

Standard	AA Instructor's Guide (Grade 5)
1. Apply a variety of concepts, processes, and skills to solve problems	55, 80, 105, 126, 131
a) Identify the question in the problem	
b) Decide if enough information is present to solve the problem	55, 80, 105, 126, 131
c) Make a plan to solve the problem	55, 80, 105, 126, 131
d) Apply a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	55, 80, 105, 126, 131
e) Select a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	55, 80, 105, 126, 131
f) Identify alternative ways to solve a problem	No specific activity addresses this standard.
g) Show that a problem might have multiple solutions or no solution	55, 80, 105, 126, 131
h) Extend the solution of a problem to a new problem situation	No specific activity addresses this standard.

B. Reasoning

Standard	AA Instructor's Guide (Grade 5)
1. Justify ideas or solutions with mathematical concepts or proofs	No specific activity addresses this standard.
a) Use inductive or deductive reasoning	
b) Make or test generalizations	No specific activity addresses this standard.
c) Support or refute mathematical statements or solutions	No specific activity addresses this standard.
d) Use methods of proof, i.e., direct, indirect, paragraph, or contradiction	No specific activity addresses this standard.

C. Communication

Standard	AA Instructor's Guide (Grade 5)
1. Present mathematical ideas using words, symbols, visual displays, or technology	The opportunity to address this standard is available throughout the text.
a) Use multiple representations to express concepts or solutions	
b) Express mathematical ideas orally	The opportunity to address this standard is available throughout the text.
c) Explain mathematically ideas in written form	The opportunity to address this standard is available throughout the text.
d) Express solutions using concrete materials	The opportunity to address this standard is available throughout the text.
e) Express solutions using pictorial, tabular, graphical, or algebraic methods	The opportunity to address this standard is available throughout the text.
f) Explain solutions in written form	The opportunity to address this standard is available throughout the text.
g) Ask questions about mathematical ideas or problems	The opportunity to address this standard is available throughout the text.
h) Give or use feed back to revise mathematical thinking	The opportunity to address this standard is available throughout the text.

D. Connections

Standard	AA Instructor's Guide (Grade 5)
1. Relate or apply mathematics within the discipline, to other disciplines, and to life a) Identify mathematical concepts in relationships to other mathematical concepts	The opportunity to address this standard is available throughout the text.
b) Identify mathematical concepts in relationship to other disciplines	No specific activity addresses this standard.
c) Identify mathematical concepts in relationship to life	The opportunity to address this standard is available throughout the text.
d) Use the relationship among mathematical concepts to learn other mathematical concepts	The opportunity to address this standard is available throughout the text.



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Grade 6

STANDARD 1.0: 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

Standard	AA Instructor's Guide (Grade 6)
1. Identify, describe, extend, and create numeric patterns and functions	12, 92
a) Identify and describe sequences represented by a physical model or in a function table	
b) Interpret and write a rule for a one-operation (+, -, x, ÷) function table	No specific activity addresses this standard.
c) Complete a create a function table with a given two-operation rule	No specific activity addresses this standard.

B. Expressions, Equations, and Inequalities

Standard	AA Instructor's Guide (Grade 6)
1. Write and evaluate expressions	37, 37
a) Write an algebraic expression to represent unknown quantities	
b) Evaluate an algebraic expression	29, 41, 64, 69, 109, 146, 169
c) Evaluate numeric expressions using the order of operations	41, 64, 146, 169
d) Represent algebraic expressions using physical models, manipulatives, and drawings	No specific activity addresses this standard.
2. Identify, write, solve, and apply equations and inequalities	13, 18, 41, 56, 88, 98, 150
a) Identify and write equations and inequalities to represent relationships	
b) Determine the unknown in a linear equation	41, 56, 88, 98, 150
c) Solve for the unknown in a one-step inequality	No specific activity addresses this standard.
d) Identify or graph solutions of a one-step inequality on a number line	No specific activity addresses this standard.
e) Apply given formulas to a problem solving situation	13, 18, 85, 88, 108, 115, 126, 155, 176

C. Numeric and Graphic Representations of Relationships

Standard	AA Instructor's Guide (Grade 6)
1. Locate points on a number line and in a coordinate plane a) Represent decimals and mixed numbers on a number line	81, 119, 139
b) Graph ordered pairs in a coordinate plane	114
c) Graph linear data from a function table	No specific activity addresses this standard.
2. Analyze linear relationships a) Identify and describe the change represented in a graph	No specific activity addresses this standard.
b) Translate the graph of a linear relationship onto a table of values that illustrates the type of change	No specific activity addresses this standard.

STANDARD 2.0: KNOWLEDGE 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

Standard	AA Instructor's Guide (Grade 6)
1. Analyze the properties of plane geometric figures a) Identify, describe, and label points, lines, rays, line segments, vertices, angles, and planes using correct symbolic notation	84, 94, 162, 163, 179
b) Identify and describe line segments	162
c) Identify and describe the parts of a circle	143, 155
2. Analyze geometric relationships a) Compare and classify triangles by sides	94
b) Compare and classify triangles by angle measure	179
c) Determine a third angle measure of a triangle given two angle measures	147, 148
d) Identify and compare the relationship between parts of a circle	142, 143, 155

B. Solid Geometric Figures

There are no Grade 6 standards for Solid Geometric Figures.

C. Representation of Geometric Figures

Standard	AA Instructor's Guide (Grade 6)
1. Represent plane geometric figures a) Draw geometric figures using a variety of tools	84, 101
b) Identify, describe, or draw a polygon	84, 72
c) Identify or describe angle relationships	27, 28, 94, 147, 148

D. Congruence and Similarity

Standard	AA Instructor's Guide (Grade 6)
1. Analyze congruent figures a) Identify or describe congruent polygons and their corresponding parts	72, 94

E. Transformations

Standard	AA Instructor's Guide (Grade 6)
1. Analyze a transformation on a coordinate plane a) Plot the result of one transformation (translation, reflection, rotation) on a coordinate plane	No specific activity addresses this standard.

STANDARD 3.0: KNOWLEDGE OF MEASUREMENT

Students will identify attributes, units or systems of measurement or apply a variety of techniques, formulas, tools, or technology for determining measurements.

A. Measurement Units

There are no Grade 6 standards for Measurement Units

B. Measurement Tools

Standard	AA Instructor's Guide (Grade 6)
1. Measure in customary and metric units a) Select and use appropriate tools and units	24, 86, 124, 134, 142, 143, 174
2. Measure angles in polygons	147

C. Application in Measurement

Standard	AA Instructor's Guide (Grade 6)
1. Estimate and apply measurement formulas a) Estimate and determine the area of a polygon	85, 97, 98, 107
b) Estimate and determine the volume of a rectangular prism	No specific activity addresses this standard.
c) Estimate and determine the area of a composite figure	87, 88
d) Determine the missing dimension of a quadrilateral given the perimeter length	4, 19, 107, 108, 126, 176
e) Determine the missing dimension of rectangles	126, 144, 176

STANDARD 4.0: KNOWLEDGE OF STATISTICS

Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

A. Data Displays

Standard	AA Instructor's Guide (Grade 6)
1. Organize and display data a) Organize and display data to make frequency tables	No specific activity addresses this standard.
b) Organize and display data to make stem-and-leaf plots	No specific activity addresses this standard.
c) Organize and display data using a back-to-back stem-and-leaf plot	No specific activity addresses this standard.

B. Data Analysis

Standard	AA Instructor's Guide (Grade 6)
1. Analyze data a) Interpret frequency tables	No specific activity addresses this standard.
b) Read and analyze circle graphs	175
c) Interpret data from a stem-and-leaf plot	127, 128
2. Describe a set of data a) Apply measures of central tendency (mean, median, mode)	91, 132, 133, 135

STANDARD 5.0: 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.

A. Sample Space

There are no Grade 6 standards for Sample Space.

B. Theoretical Probability

Standard	AA Instructor's Guide (Grade 6)
1. Determine the probability of one simple event comprised of equally likely outcomes a) Express the probability of an event as a fraction	123
b) Express the probability of an event as a decimal	No specific activity addresses this standard.
c) Express the probability of an event as a percent	No specific activity addresses this standard.

C. Experimental Probability

Standard	AA Instructor's Guide (Grade 6)
1. Analyze the results of a probability experiment a) Make predictions and express the experimental probability as a fraction, a decimal, or a percent	122, 127, 132, 133
2. Conduct a probability experiment	122, 127, 132, 133
3. Compare outcomes of theoretical probability with the results of experimental probability	123
4. Describe the difference between theoretical and experimental probability	122, 123

STANDARD 6.0: 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

Standard	AA Instructor's Guide (Grade 6)
1. Apply knowledge of rational numbers and place value a) Read, write, and represent whole numbers	51
b) Read, write, and represent integers	The opportunity to address this standard is available in the following activities: 81, 139, 164
c) Identify and determine equivalent forms of fractions as decimals, as percents, and as ratios	26, 44, 59, 61, 62, 76
d) Compare and order fractions, decimals alone or mixed together, with or without relational symbols ($>$, $<$, $=$)	22, 23, 25, 26, 46, 51, 116, 121, 166
e) Compare and order integers	No specific activity addresses this standard.

B. Number Theory

Standard	AA Instructor's Guide (Grade 6)
1. Apply number relationships a) Determine prime factorizations for whole numbers and express them using exponential form	1, 48, 63

C. Number Computation

Standard	AA Instructor's Guide (Grade 6)
1. Analyze number relations and compute	46, 54, 102, 103, 116, 125
a) Add and subtract fractions and mixed numbers and express answers in simplest form	
b) Multiply fractions and mixed numbers and express in simplest form	102, 103, 121, 125, 134, 136, 160, 174
c) Multiply decimals	65, 125
d) Divide decimals	No specific activity addresses this standard.
e) Determine a percent of a whole number	104, 105, 106, 120, 125, 131, 145, 160, 175
f) Simplify numeric expressions using the properties of addition and multiplication	55, 58, 75, 95
2. Estimation	26, 65, 96, 130, 145
a) Determine the approximate products and quotients of decimals	
3. Analyze ratios, proportions, and percents	100
a) Represent ratios in a variety of forms	
b) Use ratios and unit rates to solve problems	110, 142

STANDARD 7.0: PROCESSES OF MATHEMATICS

Students demonstrate the processes of mathematics by making connections and applying reasoning to solve and to communicate their findings.

A. Problem Solving

Standard	AA Instructor's Guide (Grade 6)
1. Apply a variety of concepts, processes, and skills to solve problems	The opportunity to address this standard is available throughout the text.
a) Identify the question in the problem	
b) Decide if enough information is present to solve the problem	The opportunity to address this standard is available throughout the text.
c) Make a plan to solve the problem	The opportunity to address this standard is available throughout the text.
d) Apply a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	The opportunity to address this standard is available throughout the text.
e) Select a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	The opportunity to address this standard is available throughout the text.
f) Identify alternative ways to solve a problem	The opportunity to address this standard is available throughout the text.
g) Show that a problem might have multiple solutions or no solution	The opportunity to address this standard is available throughout the text.
h) Extend the solution of a problem to a new problem situation	No specific activity addresses this standard.

B. Reasoning

Standard	AA Instructor's Guide (Grade 6)
1. Justify ideas or solutions with mathematical concepts or proofs a) Use inductive or deductive reasoning	The opportunity to address this standard is available throughout the text.
b) Make or test generalizations	The opportunity to address this standard is available throughout the text.
c) Support or refute mathematical statements or solutions	The opportunity to address this standard is available throughout the text.
d) Use methods of proof, i.e., direct, indirect, paragraph, or contradiction	No specific activity addresses this standard.

C. Communication

Standard	AA Instructor's Guide (Grade 6)
1. Present mathematical ideas using words, symbols, visual displays, or technology a) Use multiple representations to express concepts or solutions	The opportunity to address this standard is available throughout the text.
b) Express mathematical ideas orally	The opportunity to address this standard is available throughout the text.
c) Explain mathematically ideas in written form	The opportunity to address this standard is available throughout the text.
d) Express solutions using concrete materials	The opportunity to address this standard is available throughout the text.
e) Express solutions using pictorial, tabular, graphical, or algebraic methods	The opportunity to address this standard is available throughout the text.
f) Explain solutions in written form	The opportunity to address this standard is available throughout the text.
g) Ask questions about mathematical ideas or problems	The opportunity to address this standard is available throughout the text.
h) Give or use feed back to revise mathematical thinking	The opportunity to address this standard is available throughout the text.

D. Connections

Standard	AA Instructor's Guide (Grade 6)
1. Relate or apply mathematics within the discipline, to other disciplines, and to life a) Identify mathematical concepts in relationships to other mathematical concepts	The opportunity to address this standard is available throughout the text.
b) Identify mathematical concepts in relationship to other disciplines	No specific activity addresses this standard.
c) Identify mathematical concepts in relationship to life	The opportunity to address this standard is available throughout the text.
d) Use the relationship among mathematical concepts to learn other mathematical concepts	The opportunity to address this standard is available throughout the text.



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Grade 7**

STANDARD 1.0: 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

Standard	AA Instructor's Guide (Grade 7)
1. Identify, describe, extend, and create linear patterns and functions	No specific activity addresses this standard.
a) Complete a function table with a given two-operation rule	
b) Identify and extend a geometric pattern	7, 8, 12, 13
c) Describe how a change in one variable in a linear function affects the other variable in a table of values	67, 128, 155

B. Expressions, Equations, and Inequalities

Standard	AA Instructor's Guide (Grade 7)
1. Write and evaluate expressions	36
a) Write an algebraic expression to represent unknown quantities	
b) Evaluate an algebraic expression	41, 64, 124, 144, 155
c) Evaluate numeric expressions using the order of operations	41, 64, 124, 144
d) Simplify algebraic expressions represented as physical models by combining like terms	No specific activity addresses this standard.
2. Identify, write, solve, and apply equations and inequalities	13, 60, 63, 110, 128
a) Write equations and inequalities to represent relationships	
b) Determine the unknown in a linear equation	4, 16, 24, 29, 56, 60, 63
c) Solve for the unknown in an inequality	60
d) Identify or graph solutions of inequalities on a number line	No specific activity addresses this standard.
e) Apply given formulas to a problem solving situation	4, 12, 13, 17, 18, 24, 45, 50, 74, 126

C. Numeric and Graphic Representations of Relationships

Standard	AA Instructor's Guide (Grade 7)
1. Locate points on a number line and in a coordinate plane	31, 119
a) Represent rational numbers on a number line	
b) Graph ordered pairs in a coordinate plane	114
c) Graph linear equations with one operation in a coordinate plane	29, 67, 68, 72, 83, 88
2. Analyze linear relationships	67
a) Identify and describe the change represented in a table of values	
b) Describe the rate of change of a linear relationship by a table of values and a graph	The opportunity to address this standard is available in the following activities: 67

STANDARD 2.0: KNOWLEDGE 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

Standard	AA Instructor's Guide (Grade 7)
1. Analyze the properties of plane geometric figures	No specific activity addresses this standard.
a) Identify and describe angles formed by intersecting lines, line segments, and rays	
b) Identify angles formed when two parallel lines are cut by a transversal	No specific activity addresses this standard.
c) Identify the parts of right triangles	77, 112
2. Analyze geometric relationships	No specific activity addresses this standard.
a) Determine a missing angle measurement using the sum of the interior angles of polygons	
b) Determine the measurements of angles formed by intersecting lines, line segments, and rays	No specific activity addresses this standard.
c) Describe the relationship between the legs and hypotenuse of right triangles	71, 112, 113, 163

B. Solid Geometric Figures

There are no Grade 7 standards for Solid Geometric Figures.

C. Representation of Geometric Figures

Standard	AA Instructor's Guide (Grade 7)
1. Represent plane geometric figures	No specific activity addresses this standard.
a) Construct geometric figures using a variety of construction tools	
b) Construct geometric figures using a variety of construction tools	No specific activity addresses this standard.
c) Construct geometric figures using a variety of construction tools	No specific activity addresses this standard.

D. Congruence and Similarity

Standard	AA Instructor's Guide (Grade 7)
1. Apply the properties of congruent polygons a) Identify or describe congruent polygons and their corresponding parts	101
b) Identify and describe similar polygons and their corresponding parts	77, 78, 170

E. Transformations

Standard	AA Instructor's Guide (Grade 7)
1. Analyze a transformation on a coordinate plane a) Identify, describe, and plot the results of one transformation on a coordinate plane	No specific activity addresses this standard.
b) Identify and describe transformations that result in rotational and reflectional symmetry	7, 42, 43, 164, 179

STANDARD 3.0: KNOWLEDGE OF MEASUREMENT

Students will identify attributes, units or systems of measurement or apply a variety of techniques, formulas, tools, or technology for determining measurements.

A. Measurement Units

There are no Grade 7 standards for Measurement Units

B. Measurement Tools

There are no Grade 7 standards for Measurement Tools

C. Application in Measurement

Standard	AA Instructor's Guide (Grade 7)
1. Estimate and apply measurement formulas a) Estimate and determine the area of quadrilaterals	74
b) Determine the surface area of geometric solids	130, 176
c) Estimate pi using physical models	No specific activity addresses this standard.
d) Estimate and determine the volume of a triangular prism	No specific activity addresses this standard.
2. Analyze measurement relationships a) Determine a missing dimension for a figure using a scale	162
b) Determine the distance between 2 points using a drawing and a scale	No specific activity addresses this standard.

STANDARD 4.0: KNOWLEDGE OF STATISTICS

Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

A. Data Displays

Standard	AA Instructor's Guide (Grade 7)
1. Organize and display data a) Organize and display data using back-to-back stem-and-leaf plots	No specific activity addresses this standard.
b) Organize and display data to make circle graphs	135, 140

B. Data Analysis

Standard	AA Instructor's Guide (Grade 7)
1. Analyze data a) Recognize and analyze faulty interpretation or representation of data	102, 103
b) Determine the best choice of a data display	135, 140
c) Analyze misleading data representation	102, 103
2. Describe a set of data a) Analyze measure of central tendency to determine or apply mean, median, mode	75, 83, 90, 91, 107, 108, 123

STANDARD 5.0: 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.

A. Sample Space

Standard	AA Instructor's Guide (Grade 7)
1. Identify a sample space a) Determine the number of outcomes	2, 3, 23, 125, 138

B. Theoretical Probability

Standard	AA Instructor's Guide (Grade 7)
2. Determine the probability of an event comprised of no more than 2 independent events a) Express the probability of an event as a fraction, a decimal, or a percent	22, 23, 92, 125, 138, 143

C. Experimental Probability

Standard	AA Instructor's Guide (Grade 7)
1. Analyze the results of a survey or simulation a) Make predictions and express the probability of the results as a fraction, a decimal with no more than 2 decimal places, or a percent	22, 23, 92, 122, 123, 137, 142
2. Conduct a probability experiment	22, 23, 122, 123, 137, 142
3. Compare outcomes of theoretical probability with the results of experimental probability	22, 23, 122, 123, 137, 138, 142
4. Describe the difference between theoretical and experimental probability	22, 23, 123, 137, 138, 143

STANDARD 6.0: 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

Standard	AA Instructor's Guide (Grade 7)
1. Apply knowledge of rational numbers and place value	49, 136
a) Read, write, and represent whole numbers	
b) Express decimals using expanded form	No specific activity addresses this standard.
c) Determine equivalent forms of rational numbers expressed as fraction, decimals, percents, and ratios	26, 27, 54, 76
d) Compare order, and describe rational numbers with or without relational symbols ($>$, $<$, $=$)	61, 76, 116, 119, 156
e) Express whole numbers and decimals in scientific notation	33

B. Number Theory

There are no Grade 7 standards for Number Theory

C. Number Computation

Standard	AA Instructor's Guide (Grade 7)
1. Analyze number relations and compute	31, 34, 65, 81, 139, 141, 161
a) Add, subtract, and multiply, and divide integers	
b) Add, subtract, and multiply positive fractions and mixed numbers	25, 46, 80, 95, 96, 109, 116, 121
c) Divide fractions and mixed numbers	109
d) Calculate powers of integers and square roots of perfect square whole numbers	1, 14, 39, 49, 136
e) Use the law of exponents to simplify expressions	161
f) Identify and use the properties of addition and multiplication to simplify expressions	71
g) Determine percent of a number	10, 44, 99, 100, 106, 110, 129, 131, 151
2. Estimation	15, 35, 40, 80, 95, 97, 98, 111, 160, 174
a) Determine approximate sums, differences, products, and quotients	
3. Analyze ratios, proportions, or percents	10, 131
a) Determine equivalent ratios	
b) Determine and use rates, unit rates, and percents as ratios in the context of a problem	99, 100, 110
c) Determine rate of increase and decrease, discounts, simple interest, commission, sales tax	151
d) Determine percent of a number	44, 100, 106, 110, 129, 131

STANDARD 7.0: PROCESSES OF MATHEMATICS

Students demonstrate the processes of mathematics by making connections and applying reasoning to solve and to communicate their findings.

A. Problem Solving

Standard	AA Instructor's Guide (Grade 7)
1. Apply a variety of concepts, processes, and skills to solve problems	The opportunity to address this objective is available throughout the text.
a) Identify the question in the problem	
b) Decide if enough information is present to solve the problem	The opportunity to address this objective is available throughout the text.
c) Make a plan to solve the problem	The opportunity to address this objective is available throughout the text.
d) Apply a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	The opportunity to address this objective is available throughout the text.
e) Select a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	The opportunity to address this objective is available throughout the text.
f) Identify alternative ways to solve a problem	No specific activity addresses this standard.
g) Show that a problem might have multiple solutions or no solution	The opportunity to address this objective is available throughout the text.
h) Extend the solution of a problem to a new problem situation	No specific activity addresses this standard.

B. Reasoning

Standard	AA Instructor's Guide (Grade 7)
1. Justify ideas or solutions with mathematical concepts or proofs	No specific activity addresses this standard.
a) Use inductive or deductive reasoning	
b) Make or test generalizations	No specific activity addresses this standard.
c) Support or refute mathematical statements or solutions	No specific activity addresses this standard.
d) Use methods of proof, i.e., direct, indirect, paragraph, or contradiction	No specific activity addresses this standard.

C. Communication

Standard	AA Instructor's Guide (Grade 7)
1. Present mathematical ideas using words, symbols, visual displays, or technology	The opportunity to address this standard is available throughout the text.
a) Use multiple representations to express concepts or solutions	
b) Express mathematical ideas orally	The opportunity to address this standard is available throughout the text.
c) Explain mathematically ideas in written form	The opportunity to address this standard is available throughout the text.
d) Express solutions using concrete materials	The opportunity to address this standard is available throughout the text.
e) Express solutions using pictorial, tabular, graphical, or algebraic methods	The opportunity to address this standard is available throughout the text.
f) Explain solutions in written form	The opportunity to address this standard is available throughout the text.
g) Ask questions about mathematical ideas or problems	The opportunity to address this standard is available throughout the text.
h) Give or use feed back to revise mathematical thinking	The opportunity to address this standard is available throughout the text.

I. Connections

Standard	AA Instructor's Guide (Grade 7)
1. Relate or apply mathematics within the discipline, to other disciplines, and to life a) Identify mathematical concepts in relationships to other mathematical concepts	The opportunity to address this standard is available throughout the text.
b) Identify mathematical concepts in relationship to other disciplines	No specific activity addresses this standard.
c) Identify mathematical concepts in relationship to life	The opportunity to address this standard is available throughout the text.
d) Use the relationship among mathematical concepts to learn other mathematical concepts	The opportunity to address this standard is available throughout the text.



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**correlated to
Maryland Voluntary State Curriculum-Mathematics
Grade 8**

STANDARD 1.0: 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

Standard	AA Instructor's Guide (Grade 8)
1. Identify, describe, extend, and create linear patterns, functions, and sequences a) Determine the recursive relationship of arithmetic sequences represented in words, in a table or in a graph	43, 166
b) Determine the recursive relationship of geometric sequences represented in words, in a table, or in a graph	42, 132
c) Determine whether relationships are linear or nonlinear when represented in word, in a table, symbolically, or in a graph	22, 23, 37, 86, 97, 98, 127
d) Determine whether relationships are linear or nonlinear when represented symbolically	90, 154

B. Expressions, Equations, and Inequalities

Standard	AA Instructor's Guide (Grade 8)
1. Write, simplify, and evaluate expressions a) Write an algebraic expression to represent unknown quantities	43
b) Evaluate an algebraic expression	36, 41, 64, 71, 121, 146
c) Evaluate numeric expressions using the order of operations	41, 146
d) Simplify algebraic expressions represented by combining like terms	No specific activity addresses this standard.
e) Describe a real-world situation represented by an algebraic expression	No specific activity addresses this standard.

B. Expressions, Equations, and Inequalities (cont'd.)

Standard	AA Instructor's Guide (Grade 8)
2. Identify, write, solve, and apply equations and inequalities a) Write equations or inequalities to represent relationships	5, 20, 77, 102, 103, 133, 153
b) Solve for the unknown in a linear equation	97, 98, 131, 164
c) Solve for the unknown in an inequality	86, 90, 120, 154
d) Identify or graph solutions of inequalities on a number line	No specific activity addresses this standard.
e) Identify equivalent equations	No specific activity addresses this standard.
f) Apply given formulas to a problem-solving situation	4, 19, 21, 24, 47, 52, 113, 145, 152
g) Write equations and inequalities that describe real-world problems	The opportunity to address this objective is available in the following activities: 5, 20, 43, 77, 102, 103, 133, 153

C. Numeric and Graphic Representations of Relationships

Standard	AA Instructor's Guide (Grade 8)
1. Locate points on a number line and in a coordinate plane a) Graph linear equations in a coordinate plane	22, 23, 97, 98
2. Analyze linear relationships a) Determine the slope of a graph in a linear relationship	97, 164
b) Determine the slope of a linear relationship represented numerically or algebraically	97, 105, 164

STANDARD 2.0: KNOWLEDGE 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. Properties of Plane Geometric Figures

Standard	AA Instructor's Guide (Grade 8)
1. Analyze the properties of plane geometric figures a) Identify and describe geometric relationships between angles formed when parallel lines are cut by a transversal	No specific activity addresses this standard.
b) Identify and describe the relationship among the parts of a right triangle	21, 50
2. Analyze geometric relationships a) Determine the measurements of angles formed by parallel lines cut by a transversal	No specific activity addresses this standard.
b) Apply right angle concepts to solve real-world problems	112, 113, 152, 153
c) Determine whether three given side lengths form a right triangle	The opportunity to address this objective is available in the following activities: 50, 112, 113, 152

B. Solid Geometric Figures

There are no Grade 8 standards for Solid Geometric Figures.

C. Representation of Geometric Figures

Standard	AA Instructor's Guide (Grade 8)
1. Represent plane geometric figures	101
a) Draw quadrilaterals	
b) Construct perpendicular line segments	No specific activity addresses this standard.
c) Construct triangles	101, 170

D. Congruence and Similarity

Standard	AA Instructor's Guide (Grade 8)
1. Apply the properties of similar polygons	10, 47, 48, 76, 157, 158, 171, 176
a) Determine similar parts of polygons	

E. Transformations

Standard	AA Instructor's Guide (Grade 8)
1. Analyze a transformation on a coordinate plane	22, 23, 82, 83, 87, 88, 137, 138
a) Identify, describe, and plot the results of multiple transformations on a coordinate plane	

STANDARD 3.0: KNOWLEDGE OF MEASUREMENT

Students will identify attributes, units or systems of measurement or apply a variety of techniques, formulas, tools, or technology for determining measurements.

A. Measurement Units

There are no Grade 8 standards for Measurement Units

B. Measurement Tools

There are no Grade 8 standards for Measurement Tools

C. Application in Measurement

Standard	AA Instructor's Guide (Grade 8)
1. Estimate and apply measurement formulas	74, 76, 155, 171
a) Estimate and determine the circumference or area of a circle	
b) Estimate and determine area of a composite figure	52, 53, 180
c) Estimate and determine the volume of a cylinder	92, 130, 176
d) Determine the volume of cones, pyramids, and spheres	92, 145
e) Determine the surface area of cylinders, prisms, and pyramids	19, 130, 176
2. Analyze measurement relationships	10
a) Use proportional reasoning to solve measurement problems	

STANDARD 4.0: KNOWLEDGE OF STATISTICS

Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

A. Data Displays

Standard	AA Instructor's Guide (Grade 8)
1. Organize and display data	135, 172, 173
a) Organize and display data to make circle graphs	
b) Organize and display data to make box-and-whisker plots	75
c) Organize and display data to make a scatter plot	No specific activity addresses this standard.

B. Data Analysis

Standard	AA Instructor's Guide (Grade 8)
1. Analyze data	No specific activity addresses this standard.
a) Interpret tables	
b) Interpret box-and-whisker plots	75
c) Interpret scatter plots	No specific activity addresses this standard.
d) Interpret circle graphs	135, 172, 173
e) Analyze multiple box-and-whisker plots using the same scale	No specific activity addresses this standard.

STANDARD 5.0: 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.

A. Sample Space

Standard	AA Instructor's Guide (Grade 8)
1. Identify a sample space	142, 143
a) Determine the difference between independent and dependent events	
b) Determine the number of outcomes	125

B. Theoretical Probability

Standard	AA Instructor's Guide (Grade 8)
1. Determine the probability of an event comprised of no more than 2 independent events a) Express the probability of an event as a fraction, a decimal, or a percent	125
2. Determine the probability of a second event that is dependent on a first event of equally likely outcomes	128, 142, 143

C. Experimental Probability

Standard	AA Instructor's Guide (Grade 8)
1. Analyze the results of a survey or simulation a) Make predictions and express the probability of the results as a fraction, a decimal with no more than 2 decimal places, or a percent	142
2. Conduct a probability experiment	142
3. Compare outcomes of theoretical probability with the results of experimental probability	142
4. Describe the difference between theoretical and experimental probability	142

STANDARD 6.0: 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

Standard	AA Instructor's Guide (Grade 8)
1. Apply knowledge of rational numbers and place value a) Read, write, and represent rational numbers	The opportunity to address this standard is available in the following activities: 1, 46, 54, 59
b) Compare order, and describe rational numbers with or without relational symbols ($>$, $<$, $=$)	9, 26, 34, 96, 99

B. Number Theory

There are no Grade 8 standards for Number Theory

C. Number Computation

Standard	AA Instructor's Guide (Grade 8)
1. Analyze number relations and compute	31, 34, 51, 65, 69, 81, 95, 115, 117, 141
a) Add, subtract, and multiply, and divide integers	
b) Calculate powers of integers and square roots of perfect square whole numbers	1, 13, 14, 38, 49, 95, 136
c) Identify and use the laws of exponents to simplify expressions	No specific activity addresses this standard.
d) Use properties of addition and multiplication to simplify expressions	71, 149
2. Estimation	49, 152
a) Estimate the square roots of whole numbers	
3. Analyze ratios, proportions, and percents	159
a) Determine unit rates	
b) Determine or use percents, rates of increase and decrease, discount, commission, sales tax, and simple interest in the context of a problem	44, 54, 99, 106, 110, 119, 151, 156
c) Solve problems using proportional reasoning	10

STANDARD 7.0: PROCESSES OF MATHEMATICS

Students demonstrate the processes of mathematics by making connections and applying reasoning to solve and to communicate their findings.

A. Problem Solving

Standard	AA Instructor's Guide (Grade 8)
1. Apply a variety of concepts, processes, and skills to solve problems	The opportunity to address this objective is available throughout the text.
a) Identify the question in the problem	
b) Decide if enough information is present to solve the problem	The opportunity to address this objective is available throughout the text.
c) Make a plan to solve the problem	The opportunity to address this objective is available throughout the text.
d) Apply a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	The opportunity to address this objective is available throughout the text.
e) Select a strategy i.e., draw a picture, guess and check, finding a pattern, writing an equation	The opportunity to address this objective is available throughout the text.
f) Identify alternative ways to solve a problem	No specific activity addresses this standard.
g) Show that a problem might have multiple solutions or no solution	The opportunity to address this objective is available throughout the text.
h) Extend the solution of a problem to a new problem situation	No specific activity addresses this standard.

B. Reasoning

Standard	AA Instructor's Guide (Grade 8)
1. Justify ideas or solutions with mathematical concepts or proofs	No specific activity addresses this standard.
a) Use inductive or deductive reasoning	
b) Make or test generalizations	No specific activity addresses this standard.
c) Support or refute mathematical statements or solutions	No specific activity addresses this standard.
d) Use methods of proof, i.e., direct, indirect, paragraph, or contradiction	No specific activity addresses this standard.

C. Communication

Standard	AA Instructor's Guide (Grade 8)
1. Present mathematical ideas using words, symbols, visual displays, or technology a) Use multiple representations to express concepts or solutions	The opportunity to address this standard is available throughout the text.
b) Express mathematical ideas orally	The opportunity to address this standard is available throughout the text.
c) Explain mathematical ideas in written form	The opportunity to address this standard is available throughout the text.
d) Express solutions using concrete materials	The opportunity to address this standard is available throughout the text.
e) Express solutions using pictorial, tabular, graphical, or algebraic methods	The opportunity to address this standard is available throughout the text.
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g) Ask questions about mathematical ideas or problems	The opportunity to address this standard is available throughout the text.
h) Give or use feed back to revise mathematical thinking	The opportunity to address this standard is available throughout the text.

D. Connections

Standard	AA Instructor's Guide (Grade 8)
1. Relate or apply mathematics within the discipline, to other disciplines, and to life a) Identify mathematical concepts in relationships to other mathematical concepts	The opportunity to address this standard is available throughout the text.
b) Identify mathematical concepts in relationship to other disciplines	No specific activity addresses this standard.
c) Identify mathematical concepts in relationship to life	The opportunity to address this standard is available throughout the text.
d) Use the relationship among mathematical concepts to learn other mathematical concepts	The opportunity to address this standard is available throughout the text.



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