STATE CURRICULUM – MATHEMATICS PREK – 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.

PREKINDERGARTEN	KINDERGARTEN	GRADE 1	GRADE 2	GRADE 3
A. Patterns and Functions	A. Patterns and Functions 1. Identify and copy numeric patterns a) Use manipulatives with numeric qualities to build patterns	A. Patterns and Functions 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 b) Represent and analyze numeric patterns using skip counting backward by 10s starting with a multiple of 10, and using manipulatives	A. Patterns and Functions 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 to 100 b) Represent and analyze numeric patterns using skip counting backward by 10s starting with any 2-digit whole number c) Recognize a function table as a relationship between numbers d) Complete a function table with a given one-operation rule (+, -) using whole numbers	A. Patterns and Functions 1. Identify, describe, extend, and create numeric patterns and functions a) Represent and analyze numeric patterns using skip counting • **Assessment limit**: Use 2, 5, 10, or 100 starting with any whole number (0 – 1000) b) Represent and analyze numeric patterns using skip counting • **Assessment limit**: Use 3 or 4 starting with 0, 1, 2, 3, or 4 (0 - 30) c) Represent and analyze numeric patterns using skip counting backward • **Assessment limit**: Use 10 or 100 starting with any whole number (0 – 1000) d) Complete a function table using a given addition or subtraction rule
2. Identify, copy, and extend non-numeric patterns a) Match patterns kinesthetically such as: clap/snap/clap… b) Recognize simple patterns c) Represent simple repeating patterns using no more than 2 different objects, and different actions in the core of the pattern d) Continue a simple pattern e) Create a simple pattern of 2 different objects when given the rule f) Identify patterns in real-world situations	2. Identify, copy, describe, create, and extend non-numeric patterns a) Represent patterns kinesthetically such as: clap/snap/clap b) Represent and analyze repeating patterns using no more than 3 objects in the core of the pattern c) Sort a collection of objects according to a rule d) Identify patterns in real life situations e) Recognize the difference between patterns and non-patterns f) Continue patterns	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, … b) Represent and analyze repeating patterns using no more than 3 different objects in the core of the pattern 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 d) Identify patterns in real-world situations	2. Identify, copy, describe, create, and extend nonnumeric 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 b) Represent and analyze repeating patterns using 3 different objects in the core of the pattern 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, … A, B, A, B, … Δ, ⌇, Δ, ⌇, …	2. Identify, describe, extend, and create non-numeric patterns or repeating a) Represent and analyze growing patterns using symbols, shapes, designs, or pictures • **Assessment limit**: Start at the beginning, show at least 3 levels but no more than 5 levels, and ask for the next level b) Represent and analyze repeating patterns using symbols, shapes, designs, or pictures • **Assessment limit**: Use no more than 4 objects in the core of the pattern

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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.

PREKINDERGARTEN	KINDERGARTEN	GRADE 1	GRADE 2	GRADE 3
B. Expressions, Equations, and Inequalities 2. Identify inequalities a) Explore relationships by comparing groups of no more than 5 objects to determine more or less	B. Expressions, Equations, and Inequalities 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 2. Identify equations and inequalities a) Represent relationships by comparing groups of no more than 10 objects to determine more or less b) Model and name the value of the missing part in a part-part-whole situation using no more than 10 manipulatives c) Describe addition using terms such as: and, add, plus, join, equal	B Expressions, Equations, and Inequalities 1. Write and identify expressions a) Represent numeric quantities using concrete and pictorial representations and operational symbols (+, -) with whole numbers to 20 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 b) Find the missing number (unknown) in a number sentence using operational symbols (+, -) with whole numbers to 20 using pictures and manipulatives	B. Expressions, Equations, and Inequalities 1. Write and identify expressions a) Represent numeric quantities using operational symbols (+, -) and whole numbers to 25 2. Identify, write, and solve equations and inequalities a) Represent relationships using appropriate relational symbols (>, <, =) and operational symbols (+, -) with whole numbers to 100 b) Find the missing number (unknown) in a number sentence using operational symbols (+, -) with whole numbers up to 50	B. Expressions, Equations, and Inequalities 1. Write and identify expressions a) Represent numeric quantities using operational symbols (+, -, x, ÷) • **Assessment limit**: Use operational symbols (+ or -) and whole numbers (0 – 50) 2. Identify, write, solve, and apply equations and inequalities a) Represent relationships using appropriate relational symbols (<, >, or =) and operational symbols (+, -, x, ÷) on either side • **Assessment limit**: Use operations symbols (+ or -) and whole numbers (0 – 1000) b) Find the missing number (unknown) in a number sentence (equation) using operational symbols (+, -, x, ÷) • **Assessment limit**: Use one operational symbol (+ or -) and whole numbers (0 – 100) c) Find the missing number(s) (unknown) on one or both sides of a number sentence (equation)
	C. Numeric and Graphic Representations of Relationships 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	C. Numeric and Graphic Representations of Relationships Locate points on a number line Identify and represent whole numbers up to 50 on a number line using manipulatives and symbols	C. Numeric and Graphic Representations of Relationships 1. Locate points on a number line a) Represent whole numbers up to 100 on a number line	C. Numeric and Graphic Representations of Relationships 1. Locate points on a number line a) Represent whole numbers on a number line • **Assessment limit:** Use whole numbers (0-500) b) Represent proper fractions on a number line • **Assessment limit:** Use fractions that have denominators of 2, 3, or 4

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STATE CURRICULUM – MATHEMATICS PREK – 3

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.

PREKINDERGARTEN	KINDERGARTEN	GRADE 1	GRADE 2	GRADE 3
A. Plane Geometric Figures 1. Recognize and use the attributes of plane geometric figures a) Sort objects by one attribute such as: shape, color, and size b) Name the attributes of plane figures such as: shape, color, size c) Match triangles, circles, and squares d) Identify triangles, circles, and squares in the environment	A. Plane Geometric Figures 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 b) Describe plane figures and their attributes such as: shape, color, size c) Identify triangles, circles, squares, and rectangles d) Compare, trace, and reproduce triangles, circles, squares, and rectangles	A. Plane Geometric Figures 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 b) Create models of triangles, circles, squares, and rectangles with varied materials c) Combine and subdivide squares and triangles	A. Plane Geometric Figures 1. Recognize and apply the properties/attributes of plane geometric figures a) Identify and describe sides and corners b) Identify and describe quadrilaterals such as: squares, rectangles, rhombi c) Identify and describe polygons by the number of sides such as: triangles, squares, rectangles, hexagons, octagons d) Combine and subdivide squares, triangles, and rectangles to identify a new shape	A. Plane Geometric Figures 1. Analyze the properties of plane geometric figures a) Identify and describe points, lines, line segments, rays, and angles b) Identify and describe polygons • **Assessment limit**: Use triangles, quadrilaterals, pentagons, hexagons, or octagons and the number of sides or vertices c) Identify and describe quadrilaterals • **Assessment limit**: Use squares, rectangles, rhombi, parallelograms, and trapezoids and the length of sides d) Identify triangles, rectangles, or squares as part of a composite figure • **Assessment limit**: Use a combination of 2 of the stated polygons 2. Analyze geometric relationships a) Identify right angles
B. Solid Geometric Figures 1. Recognize and use the attributes of solid geometric figures a) Sort objects by one attribute such as: size, shape, weight, length b) Find solid figures in the environment	B. Solid Geometric Figures 1. Recognize, describe, and use the attributes of solid geometric figures a) Match, sort, and regroup objects according to attributes b) Describe solid figures c) Identify solid geometric figures in the environment	B. Solid Geometric Figures 1. Recognize and use the attributes of solid geometric figures a) Identify and compare cubes, spheres, cylinders, pyramids, cones, and rectangular prisms	B. Solid Geometric Figures 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.	B. Solid Geometric Figures 1. Analyze the properties of solid geometric figures a) Identify and describe cubes, rectangular prisms, and triangular prisms • **Assessment limit**: Use cubes and the number of edges, faces, vertices, or shape of each face
		C. Representation of Geometric Figures 1. Represent plane geometric figures a) Sketch triangles, circles, squares, rectangles, and rhombi	C. Representation of Geometric Figures 1. Represent plane geometric figures a) Sketch plane figures	C. Representation of Geometric Figures 1. Represent plane geometric figures a) Sketch triangles, quadrilaterals, pentagons, hexagons, octagons, and circles
	D. Congruence 1. Recognize congruent objects a) Identify everyday objects which have the same size and shape	D. Congruence 1. Identify congruent figures a) Match congruent figures	D. Congruence 1. Compare congruent figures a) Describe congruent figures as having the same size and shape	D. Congruence 1. Analyze congruent figures a) Identify and describe geometric figures as congruent • **Assessment limit:** Use the same shape and same size

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STATE CURRICULUM – MATHEMATICS PREK – 3

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.

PRE KINDERGARTEN	KINDERGARTEN	GRADE 1	GRADE 2	GRADE 3
E. Transformations 1. Begin to recognize a transformation a) Tell position by using words such as: over, under, above, on, next to, below, beside, behind b) Recognize a slide using concrete materials	E. Transformations 1. Begin to recognize a transformation a) Use position words such as: over, under, above, on, next to, below, beside, behind b) Use spatial reasoning to solve simple puzzles c) Demonstrate slides using simple objects 2. Analyze geometric figures and pictures a) Recognize the concept of symmetry using pictures	E. Transformations 1. Recognize a transformation a) Use the direction, location, and position words right and left b) Apply spatial reasoning in activities such as: pattern block c) Identify and demonstrate slides and flips using manipulatives 2. Analyze geometric figures and pictures a) Demonstrate symmetry in basic shapes and pictures by paper folding and drawing a line of symmetry	E. Transformations 1. Recognize a transformation a) Apply visualization and spatial reasoning in activities such as: tangrams b) Identify and demonstrate slides, flips, and turns 2. Analyze geometric figures and pictures a) Recognize that basic shapes have several lines of symmetry b) Demonstrate symmetry in basic shapes and pictures by drawing 2 lines of symmetry	E. Transformations 1. Analyze a transformation a) Identify and describe the results of a slide, flip, and turn • **Assessment limit:** Use horizontal slide, flip over a vertical line, or turn of 90^0 clockwise around a given point of a geometric figure or picture 2. Analyze geometric figures and pictures a) Identify and describe symmetry • **Assessment limit:** Use no more than 4 lines of symmetry

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STANDARD 3.0: KNOWLEDGE OF MEASUREMENT- Students will identify attributes, units, or systems of measurements or apply a variety of techniques, formulas, tools, or technology for determining measurements.

PREKINDERGARTEN	KINDERGARTEN	GRADE 1	GRADE 2	GRADE 3
A. Measurement Units 1. Recognize and use measurement attributes a) Demonstrate an understanding of comparative attributes such as: bigger, smaller, longer, shorter, lighter, heavier, shorter, taller, hotter, colder b) Compare and describe objects according to a single attribute	A. Measurement Units 1. Explore measurement units a) Order, compare, and describe objects by attributes such as: length/height, weight, capacity b) Recognize time by identifying days of the week and by using term such as: yesterday, today, tomorrow, morning, afternoon, night, before, after c) Compare and describe temperature such as: temperature in January as compared to temperature in July	A. Measurement Units 1. Read measurement units a) Read a calendar to identify days of the week and months of the year b) Tell time in intervals of hours and half-hours using an analog clock c) Compare the same time on analog and digital clocks d) Read a thermometer to tell temperature to the nearest 10º F e) Compare and order objects by weight using a spring scale and a bathroom scale	A. Measurement Units 1. Read customary and metric measurement units a) Read the scale on a ruler to identify length, in inches b) Tell time in intervals of 5 minutes using an analog clock c) Compare the same time on analog and digital clocks d) Read a thermometer to the nearest 5º (ºF and ºC) on a thermometer with a scale of 10° intervals e) Identify and compare the weight of objects to the nearest pound	A. Measurement Units 1. Read customary and metric measurement units a) Estimate and determine length • **Assessment limit:** Use the nearest centimeter or ½ inch b) Tell time in days, hours, minutes, and seconds • **Assessment limit**: Use the nearest minute and an analog clock c) Estimate and read temperature • **Assessment limit:** Use the nearest degree (°F or °C) d) Estimate and determine weight of objects • **Assessment limit:** Use the nearest pound or ounce
B. Measurement Tools 1. Measure in non-standard units a) Measure length of objects b) Explore the capacity of containers c) Explore the weight of objects	B. Measurement Tools 1. Measure in non-standard units a) Measure length of objects and pictures of objects b) Explore and compare the capacity of containers c) Explore and compare weight of objects	B. Measurement Tools 1. Measure in customary units a) Measure length of objects and pictures of objects to the nearest inch using a ruler b) Identify and compare units of capacity using cups and gallons c) Compare and order objects by weight in pounds using a spring scale and a bathroom scale d) Describe the attributes of length, weight, and capacity	B. Measurement Tools 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 b) Measure capacity of objects using cup, pint, quart, liter, and gallon c) Measure objects to the nearest pound and kilogram d) Select and use appropriate units of measure for length/height, weight, and capacity	B. Measurement Tools 1. Measure in customary and metric units a) Measure length of objects and pictures of objects using a ruler, a tape measure, a yardstick, or a meter stick • **Assessment limit**: Use a ruler and the nearest centimeter or ½ inch b) Measure capacity of containers to the nearest cup, pint, quart, gallon, milliliter, and liter using graduated containers c) Measure weight of objects to the nearest ounce and pound and mass of objects to the nearest gram and kilogram
			C. Applications in Measurement 1. Apply measurement concepts a) Develop the concept of perimeter by counting units around a picture or geometric shape b) Develop the concept of area by counting square units within a picture or geometric shape 2. Calculate to determine equivalent units a) Recognize equivalent units of 12 inches = 1 foot	C. Applications in Measurement 1. Apply measurement concepts a) Estimate and determine the perimeter of geometric figures and pictures on a grid • **Assessment limit**: Use counting and whole numbers (0 – 50) b) Estimate and determine the area of geometric figures and pictures on a grid • **Assessment limit**: Use counting and whole numbers (0 – 50) c) Estimate and find the volume of rectangular prisms 2. Calculate equivalent measurements a) Determine equivalent units of length • **Assessment limit:** Use 12 inches = 1 foot and 3 feet = 1 yard and whole numbers (0 – 30)

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STANDARD 4.0: KNOWLEDGE OF STATISTICS – Students will collect, organize, display, analyze, or interpret data to make decisions or predictions.

PREKINDERGARTEN	KINDERGARTEN	GRADE 1	GRADE 2	GRADE 3
A. Data Displays 1. Explore and display data a) Explore data by answering a yes/no question b) Display data on real graphs c) Display data on picture graphs	A. Data Displays 1. Collect, organize, and display data a) Collect data by answering a question b) Organize and display data to make real graphs c) Organize and display data to make picture graphs	A. Data Displays 1. Collect, organize, and display data a) Collect data by conducting surveys b) Collect data on tally charts c) Organize and display data to make picture graphs d) Organize and display data to make single bar graphs	A. Data Displays 1. Collect, organize, and display data a) Collect data by conducting surveys b) Collect data in tables c) Organize and display data to make pictographs using scales of 1:1 and 2:1 d) Organize and display data to make single bar graphs	A. Data Displays 1. Collect, organize, and display data a) Collect data by conducting surveys b) Organize and display data to make tables using a variety of categories and sets of data • **Assessment limit***:* Use no more than 4 categories of one set of data and whole numbers (0 – 1000) c) Organize and display data to make pictographs using a variety of scales • **Assessment limit**: Use scales of 2:1, 4:1, or 10:1 and whole numbers (0 – 100) d) Organize and display data to make single bar graphs using a variety of categories and intervals • **Assessment limit**: Use no more than 4 categories of data with intervals of 1, 2, 5, or 10 and whole numbers (0 – 100) e) Organize and display data to make line plots using a variety of intervals
B. Data Analysis 1. Analyze data a) Talk about data from real graphs to answer a question such as: Which category has the most?	B. Data Analysis 1. Analyze data 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	B. Data Analysis 1. Analyze data a) Interpret data contained in tables b) Interpret data contained in picture graphs using a variety of categories with 1:1 intervals c) Interpret data contained in single bar graphs	B. Data Analysis 1. Analyze data a) Interpret data contained in tables b) Interpret data contained in pictographs using scales of 1:1 and 2:1 c) Interpret data contained in single bar graphs using a variety of categories and intervals of 1, 2, 5, and 10	B. Data Analysis 1. Analyze data a) Interpret data contained in tables using a variety of categories and intervals • **Assessment limit:** Use no more than 4 categories from one set of data and whole numbers (0 – 1000) b) Interpret data contained in pictographs using a variety of categories and intervals • **Assessment limit:** Use scales of 2:1, 4:1, or 10:1 and whole numbers (0 – 100) c) Interpret data contained in single bar graphs using a variety of categories and intervals • **Assessment limit**: Use no more than 4 categories of data, intervals of 1, 2, 5, or 10 and whole numbers (0 – 100) d) Interpret data contained in line plots using a variety of intervals

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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.

PREKINDERGARTEN	KINDERGARTEN	GRADE 1	GRADE 2	GRADE 3
		A. Sample Space 1. Identify possible outcomes a) Recognize that a real life situation may have more than one outcome such as a coin having heads or tails	A. Sample Space 1. Identify possible outcomes a) Identify some possible outcomes that make up the sample space such as on a number cube rolling a 2	A. Sample Space 1. Identify possible outcomes 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
				B. Theoretical Probability 1. Identify the probability of an event a) Describe the probability of an event using words • **Assessment limit:** Use probability terms of more (or most) likely, less (or least) likely, or equally likely

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STANDARD 6.: KNOWLEDGE OF NUMBER RELATIONSHIPS AND COMPUTATION/ARITHMETIC – Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil, or technology.

PREKINDERGARTEN	KINDERGARTEN	GRADE 1	GRADE 2	GRADE 3
A. Knowledge of Number 1. Apply knowledge of whole numbers a) Build concept of number b) Show an understanding of quantity c) Construct relationships based on quantity d) Use classroom experiences to indicate same, more, or less e) Count and discuss quantity f) Use concrete materials to build sets 0 to 5 g) Match a numeral to a set 0 to 5 h) Count to 10 i) Use ordinal words to indicate position such as: first, next, last	A. Knowledge of Number and Place Value 1. Apply knowledge of whole numbers and place value 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 c) Demonstrate cardinality by answer of how many d) Build meaningful relationships by using 5 and 10 frames e) Use concrete materials to build sets 0 to 10 f) Use concrete materials to compose and decompose quantities up to 10 g) Match a numeral to a set h) Count to 31 i) Count backward from 10 j) Use ordinal numbers to indicate position such as: first, second, third, fourth, fifth 2. Recognize fractions a) Show initial awareness of fractional parts (halves) using concrete materials 3. Recognize and use money a) Identify and name the value of pennies, nickels, and dimes b) Choose the coin named from a given set of mixed coins c) Use money in real-world situations such as a classroom store	A. Knowledge of Number and Place Value 1. Apply knowledge of whole numbers and place value 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 c) Demonstrate instant recognition of quantities in patterned sets d) Use the numbers of 5 and 10 as anchors in relationship to other numbers e) Read, write, and represent whole numbers up to 100 and beyond using models, symbols, and words f) Express whole numbers up to 99 using expanded form g) Identify the place value of a digit in a whole number up to 99 h) Compare and order whole numbers up to 99 using terms such as: greater than, less than, equal to i) Estimate quantities up to 50 and use the term "about" j) Count to 100 k) Count forward and backward starting with numbers other than one l) Use ordinal numbers to indicate position: first through tenth 2. Apply knowledge of fractions 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 3. Apply knowledge of money a) Determine the value of a given set of same currency up to $1 b) Demonstrate monetary value using real or play coins c) Compare the value of 2 sets of mixed currency up to $1.00	A. Knowledge of Number and Place Value 1. Apply knowledge of whole numbers and place value a) Use concrete materials to compose and decompose quantities up to 100 b) List multiple representations for a number c) Develop a sense of the size of a number in relation to other numbers d) Use the numbers of 10, 50, and 100 as anchors in relationship to other numbers e) Read, write, and represent whole numbers using models, symbols, and words through 1000 f) Express whole numbers up to 999 using expanded form g) Identify the place value of a digit in whole numbers up to 999 h) Compare and order whole numbers up to 999 using words and relational symbols (>, <, =) i) Estimate quantities up to 100 using a reference point such as 10 and the terminology "about" j) Count forward by 2s, 5s, and 10s starting with numbers other than one k) Count backward by 2s, 5s, and 10s from a multiple of that number l) Use ordinal numbers to indicate position up to thirty-first 2. Apply knowledge of fractions 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 3. Apply knowledge of money a) Determine the value of a given set of mixed currency up to $10 b) Represent money amounts up to $10 c) Compare the value of 2 sets of mixed currency up to $10	A. Knowledge of Number and Place Value 1. Apply knowledge of whole numbers and place value a) Read, write, and represent whole numbers using symbols, words, and models • **Assessment limit**: Use whole numbers (0 – 10,000) b) Express whole numbers in expanded form • **Assessment limit**: Use whole numbers (0 – 10,000) c) Identify the place value of a digit in a whole number • **Assessment limit**: Use whole numbers (0 – 9,999) d) Compare, order, and describe whole numbers with or without using relational symbols (<, >, =) • **Assessment limit**: Use no more than four whole numbers (0 – 10,000) 2. Apply knowledge of fractions a) Read, write, and represent fractions as parts of a single region using symbols, words, and models • **Assessment limit**: Use fractions with denominators of 2, 3, or 4 b) Read, write, and represent fractions as parts of a set using symbols, words, and models • **Assessment limit:** Use fractions with denominators of 2, 3, or 4, and use sets of 2, 3, 4 items, respectively 3. Apply knowledge of money a) Represent money amounts in different ways • **Assessment limit**: Use money amounts ($0 - $100) b) Determine the value of a given set of mixed currency • **Assessment limit**: Use coins and bills ($0 - $100) c) Compare the value of two sets of mixed currency
PROCESSES OF ***Problem Solving*** ***Reasoning*** ***Communication*** ***Connections***			B. Number Theory 1. Apply number relationships a) Build and describe models of even and odd numbers using concrete materials, and discuss the models	B. Number Theory 1. Apply number relationships a) Identify and describe whole numbers as even or odd • **Assessment limit**: Use whole numbers (0 – 100)

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STANDARD 6.: KNOWLEDGE OF NUMBER RELATIONSHIPS AND COMPUTATION/ARITHMETIC – Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil, or technology.

PREKINDERGARTEN	KINDERGARTEN	GRADE 1	GRADE 2	GRADE 3
	C. Number Computation 1. Analyze number relations and compute 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 c) Solve a given story problem cooperatively that is based on the combining and separating of models	C. Number Computation 1. Analyze number relations and compute a) Develop strategies for addition and subtraction basic facts such as: counting on, counting back, making ten, doubles, and doubles plus one b) Solve a given word problem based on addition or subtraction situation c) Identify the concept of inverse operation to addition and subtraction	C. Number Computation 1. Analyze number relations and compute a) Demonstrate proficiency with addition and subtraction basic facts using a variety of strategies 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 c) Subtract whole numbers with no more than 2 digits in the minuend or the subtrahend d) Solve word problems based on addition or subtraction situations e) Write word problems for addition and subtraction situations f) Add and subtract money amounts up to $1 g) Apply the concept of inverse operations to addition and subtraction h) Build equal groups to model multiplication i) Build groups that share equally for division 2. Estimation a) Determine the reasonableness of sums and differences	C. Number Computation 1. Analyze number relations and compute a) Add numbers using a variety of strategies • **Assessment limit**: Use no more than 3 addends, with no more than 3 digits in each addend and whole numbers (0 – 1000) b) Subtract numbers using a variety of strategies • **Assessment limit**: Use no more than 3 digits in the minuend or subtrahend and whole numbers (0 – 999) c) Solve addition and subtraction word problems d) Add and subtract money amounts e) Identify and apply the concept of inverse operations to addition and subtraction f) Represent multiplication and division basic facts using number sentences, picture, and drawings • **Assessment limit**: Use basic facts of no more than 9 x 9 = 81 g) Identify and use properties of multiplication • **Assessment limit**: Use the properties of commutative, identity, or zero and whole numbers (0 – 20) h) Multiply a one-digit factor by a two-digit factor using models, pictures, and drawings i) Divide a two-digit dividend by a one-digit divisor using models, pictures, and drawings j) Identify and apply the concept of inverse operations to multiplication and division k) Write a word problem based on multiplication or division number sentences 2. Estimation a) Determine the reasonableness of sums and differences

PROCESSES OF

Problem Solving
Reasoning
Communication
Connections

MATHEMATICS

Note: Highlighted assessment limits will be tested in the no calculator section of MSA.
In the assessment limit, (0-10) means all numbers in the problem or the answer will fall within the range of 0 to 10 (including endpoints).

STATE CURRICULUM – MATHEMATICS PREK – 3

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 1. Apply a variety of concepts, processes, and skills to solve problems a. Identify the question in the problem b. Decide if enough information is present to solve the problem c. Make a plan to solve a problem d. Apply a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation e. Select a strategy, i.e., draw a picture, guess and check, finding a pattern, writing an equation f. Identify alternative ways to solve a problem g. Show that a problem might have multiple solutions or no solution h. Extend the solution of a problem to a new problem situation
B. Reasoning 1. Justify ideas or solutions with mathematical concepts or proofs a. Use inductive or deductive reasoning b. Make or test generalizations c. Support or refute mathematical statements or solutions d. Use methods of proof, i.e., direct, indirect, paragraph, or contradiction
C. Communication 1. Present mathematical ideas using words, symbols, visual displays, or technology a. Use multiple representations to express concepts or solutions b. Express mathematical ideas orally c. Explain mathematically ideas in written form d. Express solutions using concrete materials e. Express solutions using pictorial, tabular, graphical, or algebraic methods f. Explain solutions in written form g. Ask questions about mathematical ideas or problems h. Give or use feedback to revise mathematical thinking
D. Connections 1. Relate or apply mathematics within the discipline, to other disciplines, and to life a. Identify mathematical concepts in relationship to other mathematical concepts b. Identify mathematical concepts in relationship to other disciplines c. Identify mathematical concepts in relationship to life d. Use the relationship among mathematical concepts to learn other mathematical concepts

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