

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Strand 1 – Number, Operation, and Quantitative Reasoning	Numbers		Numbers and Place Value				
	<p>MATH.PK.1A Arrange sets of concrete objects in one-to-one correspondence by placing objects next to each other.</p> <p>MATH.PK.1D Begin to compare the numbers of concrete objects using language (e.g., “same” or “equal”, “one more”, “more than”, or “less than”).</p>	<p>MATH.K.1A Use one-to-one correspondence and language such as more than, same number as, or 2 less than to describe relative sizes of sets of concrete objects.</p>	<p>MATH.1.1A Compare and order whole numbers to 99 (less than, greater than, or equal to) using sets of concrete objects and pictorial models.</p>	<p>MATH.2.1C Use place value to compare and order whole numbers to 999 and record the comparisons using numbers and symbols (<, =, >), moving from concrete and pictorial representations to the symbolic level.</p>	<p>MATH.3.1B Use place value to compare and order whole numbers through 9,999 moving from concrete models and pictorial representations to the symbolic level.</p>		
	<p>MATH.PK.1F Begin to recognize that zero (0) is not used to count because it means there are no objects to count.</p> <p>MATH.PK.1C Count concrete objects to five or higher, matching one number to each object counted.</p>						
	<p>MATH.PK.1E Begin to name “how many” in a group up to three (or more) objects without counting (e.g., recognizing two or three crayons in a box).</p>	<p>MATH.K.1C Use numbers to describe how many objects are in a set (through 20), using verbal and symbolic descriptions.</p>	<p>MATH.1.1D Read and write numbers to 99 to describe sets of concrete objects in standard, expanded, and written forms.</p>	<p>MATH.2.1B Use place value to read, write, and describe the value of whole numbers, to 999, in standard, expanded, and written forms.</p>	<p>MATH.3.1A Use place value to read, write (in symbols and words), and describe the value of whole numbers through 999,999 in standard, expanded, and written forms.</p>	<p>MATH.4.1A Use place value to read (in symbols and words), write, compare, and order whole numbers through 999,999,999 in standard, expanded, and written forms.</p>	<p>MATH.5.1A Use place value to read, write, compare and order whole numbers through the 999,999,999,999 in standard, expanded, and written forms.</p>
						<p>MATH.4.1B Use place value to read (in symbols and words), write, compare, and order decimals involving tenths and hundredths, including money, using concrete objects and pictorial models.</p>	
				<p>MATH.2.8A Use whole numbers to locate and name points on a number line, moving from concrete and pictorial representations to the symbolic level.</p>	<p>MATH.3.10A Locate and name points on a number line using whole numbers and fractions, including halves and fourths</p>	<p>MATH.4.10A Locate and name points on a number line using whole numbers, fractions including halves and fourths, and decimals such as tenths.</p>	



What is it we want all students to learn?



Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Strand 1 – Number, Operation, and Quantitative Reasoning			Numbers and Place Value (continued)				
			MATH.1.1C Identify individual coins by name and value and describe relationships among them (penny, nickel, dime, quarter).	MATH.2.3D Determine the value of a collection of coins up to one dollar. MATH.2.3E Describe how the cent symbol, dollar symbol, and the decimal point are used to name the value of a collection of coins.	MATH.3.1C Determine the value of a collection of coins and bills.	(See MATH.4.1B)	
	Ordering of Events						
	MATH.PK.1H Begin to identify first and last in a series and hear the words “first” and “last” in classroom activities or routines.	MATH.K.2A Use language such as before or after to describe relative position in a sequence of events or objects.					
		MATH.K.2B Name the ordinal positions in a sequence such as first, second, third, etc. for objects through the tenth position.					
	Fractions						
	MATH.PK.1G Begin to demonstrate part of a whole with real objects (e.g., an orange) hearing the words “part” and “whole” in context.	MATH.K.3A Share a whole by separating it into two equal parts. MATH.K.3B Explain why a given part is half of the whole.	MATH.1.2A Separate a whole into two, three, or four equal parts and use appropriate language to describe the parts such as three out of four equal parts.	MATH.2.2A Use concrete models to represent and name fractional parts of a whole object (with denominators of 12 or less), using a variety of manipulatives.	MATH.3.2A Construct concrete models of fractions of whole objects or sets of objects with denominators of 12 or less using a variety of manipulatives.		
			MATH.1.2B Use appropriate language to describe part of a set such as three out of the eight crayons are red.	MATH.2.2B Use concrete models to represent and name fractional parts of a set of objects (with denominators of 12 or less), using a variety of manipulatives.	MATH.3.2C Use fraction names and symbols to describe fractional parts of whole objects or sets of objects.		



What is it we want all students to learn?



Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
Strand 1 – Number, Operation, and Quantitative Reasoning	Fractions (continued)					Fractions and Decimals		
					MATH.3.2D Construct concrete models of equivalent fractions for fractional parts of whole objects with a variety of manipulatives.	MATH.4.2A Use concrete objects and pictorial models to generate equivalent fractions.	MATH.5.2A Generate a fraction equivalent to a given fraction such as $\frac{1}{2}$ and $\frac{3}{6}$ or $\frac{4}{12}$ and $\frac{1}{3}$ using various strategies including concrete objects, pictorial models, and patterns to generalize a rule for the process.	
				MATH.2.2C Use concrete models to determine if a fractional part of a whole is closer to 0, $\frac{1}{2}$, or 1.	MATH.3.2B Compare fractional parts of whole objects or sets of objects in a problem situation using concrete models.	MATH.4.2C Compare and order fractions using concrete objects and pictorial models for whole objects and sets of objects.	MATH.5.2C Compare two fractional quantities in problem-solving situations using a variety of methods, including common denominators, concrete or pictorial models, and benchmark fractions.	
							MATH.4.2B Model fraction quantities greater than one using concrete objects and pictorial models, and record the value.	MATH.5.2B Generate a mixed number equivalent to a given improper fraction or generate an improper fraction equivalent to a given mixed number using various strategies including concrete objects, pictorial models, and patterns to generalize a rule for the process.
				(See MATH.2.3D)	(See MATH.3.1C)		MATH.4.2D Relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models.	MATH.5.2D Use models to relate decimals to fractions that name tenths, hundredths, and thousandths with models such as base-ten blocks, fraction bars, and paper grids.



What is it we want all students to learn?

Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Strand 1 – Number, Operation, and Quantitative Reasoning	Modeling Operations						
	<p>MATH.PK.1I Combine, separate, and name “how many” concrete objects.</p>	<p>MATH.K.4A Model, create, and describe addition (joining) and subtraction (separating) problems in real situations with concrete objects.</p>	<p>MATH.1.3A Model and create addition and subtraction problem situations with concrete objects and write corresponding number sentences.</p>	<p>MATH.2.3B Model addition and subtraction of two-digit numbers with objects, pictures, words, and numbers.</p>	<p>MATH.3.3A Model addition and subtraction using pictures, words, and numbers.</p>	<p>MATH.4.3B Add and subtract decimals to the hundredths place using concrete objects and pictorial models.</p>	<p>MATH.5.3E Model situations using addition and/or subtraction involving fractions with like denominators using concrete objects, pictures, words, and numbers.</p>
			<p>MATH.1.3B Use concrete and pictorial models to apply basic addition and subtraction facts (up to 9 + 9 = 18 and 18 – 9 = 9).</p>	<p>MATH.2.3A Recall and apply basic addition and subtraction facts (to 18), using them to work flexibly, efficiently, and accurately when solving problems.</p>			
				<p>MATH.2.4A Model, create, and describe multiplication situations in which equivalent sets of concrete objects are joined.</p>	<p>MATH.3.4A Learn and apply multiplication facts through 12 by 12 using concrete models and objects (array/area and grouping models).</p>	<p>MATH.4.4C Recall and apply multiplication facts through 12 x 12.</p>	
						<p>MATH.4.4A Model factors and products using arrays and area models.</p>	<p>MATH.5.3D Identify common factors of a set of whole numbers using a variety of strategies and manipulatives.</p>
				<p>MATH.2.4B Model, create, and describe division situations in which a set of concrete objects is separated into equivalent sets.</p>	<p>MATH.3.4C Use models to solve division problems and use number sentences to record the solutions for contexts involving sharing equally and measuring out.</p>	<p>MATH.4.4B Represent multiplication and division situations in picture, word, and number form.</p>	<p>MATH.5.5B Identify prime and composite numbers using concrete objects, pictorial models, and patterns in factor pairs.</p>



What is it we want all students to learn?



Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
Strand 1 – Number, Operation, and Quantitative Reasoning				Solving Problems with Addition, Subtraction, Multiplication, Division				
				<p>MATH.2.3C Select addition or subtraction to solve problems using two-digit numbers, whether or not regrouping is necessary, using a variety of strategies.</p>	<p>MATH.3.3B Select addition or subtraction and use the operation to solve problems involving whole numbers through 999 using a variety of strategies.</p>	<p>MATH.4.3A Use addition and subtraction to solve problems involving whole numbers using a variety of strategies.</p>	<p>MATH.5.3A Use addition and subtraction to solve problems involving whole numbers and decimals using a variety of strategies.</p>	
					<p>MATH.3.4B Solve and record multiplication problems (up to two digits times one digit).</p>	<p>MATH.4.4D Use multiplication to solve problems (no more than two digits times two digits without technology) applying array/area models to multiplication algorithms.</p>	<p>MATH.5.3B Use multiplication to solve problems involving whole numbers (no more than three-digits times two-digits without technology) applying array/area models to multiplication algorithms.</p>	
					(See MATH.3.4C)	<p>MATH.4.4E Use division to solve problems (no more than one-digit divisors and three-digit dividends without technology) for sharing equally and measuring out contexts applying models to division algorithms.</p>	<p>MATH.5.3C Use division to solve problems involving whole numbers (no more than two-digit divisors and three-digit dividends without technology), including interpreting the remainder within a given context for sharing equally and measuring out contexts applying models to division algorithms.</p>	
					Estimation			
					<p>MATH.3.5A Round whole numbers to the nearest ten or hundred to approximate reasonable results in problem situations.</p>	<p>MATH.4.5A Round whole numbers to the nearest ten, hundred, or thousand to approximate reasonable results in problem situations.</p>		
					<p>MATH.3.5B Use strategies including rounding and compatible numbers to estimate solutions to addition and subtraction problems.</p>	<p>MATH.4.5B Use strategies including rounding and compatible numbers to estimate solutions to multiplication and division problems.</p>	<p>MATH.5.4A Use strategies, including rounding and compatible numbers to estimate solutions to addition, subtraction, multiplication, and division problems.</p>	



What is it we want all students to learn?



Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Strand 2 – Patterns, Relationships, and Algebraic Thinking	Patterns and Generalizations						
	MATH.PK.2A Imitate pattern sounds and physical movements (e.g., clap, stomp, clap, stomp...). MATH.PK.2B Recognize and reproduce simple patterns of concrete objects (string beads: red, blue, red, blue, red...).	MATH.K.5A Identify, extend, create, and describe patterns of sounds, physical movement, and concrete objects.	Ⓟ MATH.1.4A Identify, describe, and extend concrete and pictorial repeating and additive (growing) patterns in order to make predictions and solve problems.	Ⓟ MATH.2.6C Identify, describe, and extend repeating and additive (growing) patterns to make predictions and solve problems.	Ⓟ MATH.3.6A Identify and extend whole-number and geometric patterns to make predictions and solve problems including determining the missing number/term.		
			MATH.1.5A Use patterns to skip count by twos, fives, and tens. MATH.1.5B Find patterns in numbers, including odd and even.	MATH.2.5A Find patterns in numbers such as in a 100s chart.			
			MATH.1.5C Compare and order whole numbers using place value (up to 99) and identify patterns that assist in comparing two-digit numbers.	MATH.2.5B Use patterns in place value to compare and order whole numbers through 999.			
			Ⓟ MATH.1.5D Use patterns to develop strategies to solve basic addition and basic subtraction problems, including counting up, counting back, doubles, doubles plus/minus one, and making ten. MATH.1.5E Identify patterns in related addition and subtraction sentences (fact families for sums to 18) such as $2 + 3 = 5$, $3 + 2 = 5$, $5 - 2 = 3$, and $5 - 3 = 2$.	MATH.2.5C Use patterns and relationships to develop strategies to remember basic addition and subtraction facts. Determine patterns in related addition and subtraction number sentences (including fact families) such as $8 + 9 = 17$, $9 + 8 = 17$, $17 - 8 = 9$, and $17 - 9 = 8$.	MATH.3.6B Identify patterns in multiplication facts using concrete objects, pictorial models, or technology. MATH.3.6C Identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$.	Ⓟ MATH.4.6B Use patterns to multiply by 10 and 100.	MATH.4.6A Use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as $9 \times 9 = 81$ and $81 \div 9 = 9$).



What is it we want all students to learn?

Ⓟ Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Strand 2 – Patterns, Relationships, and Algebraic Thinking	Expressing Relationships and Making Predictions						
	MATH.PK.2C Recognize and describe patterns in the environment (e.g., day follows night, repeated phrases in storybooks, patterns in carpeting or clothing).	MATH.K.6A Use patterns to predict what comes next, including cause-and-effect relationships.	(See MATH.1.4A)	(See MATH.2.6C)	(See MATH.3.6A)		
	MATH.PK.2D Recognize simple patterns and predict what comes next when patterns are extended.						
	MATH.PK.1B Count by ones to 10 or higher using correct verbal counting sequence.	MATH.K.6B Count by ones to 100 using correct verbal counting sequence.					
				MATH.2.6A Generate a list of paired numbers based on a real-life situation such as number of tricycles related to number of wheels.	MATH.3.7A Generate a table of paired numbers based on a real-life situation such as insects and legs.	MATH.4.7A Describe the relationship between two sets of related data such as ordered pairs in a table, extend the pattern, and state the rule for non-consecutive related number pairs.	MATH.5.5A Describe the relationship between sets of data in graphic organizers such as lists, tables, charts, and diagrams, extend the pattern, and state the rule for non-consecutive related number pairs.
				MATH.2.6B Identify patterns in a list of related number pairs based on a real-life situation and extend the list.	MATH.3.7B Identify and describe patterns in a table of related number pairs based on a meaningful problem and extend the table.		
						MATH.5.6A Select from and use diagrams and equations such as $y = 5 + 3$ to represent meaningful problem situations involving addition, subtraction, multiplication, or division.	
Strand 3 - Geometry and Spatial Reasoning	Geometric Language						
	MATH.PK.3B Use words that indicate where things are in space (e.g., beside, inside, behind, above, below).	MATH.K.7A Describe one object in relation to another using informal language such as over, under, above, and below.					
		MATH.K.7B Place an object in a specified position.					



What is it we want all students to learn?



Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
Strand 3 - Geometry and Spatial Reasoning	Geometric Language (continued)							
	MATH.PK.5A Match objects that are alike by picture, size, number, shape, or texture. (Classification & Data Collection Strand)	MATH.K.8A Describe and identify an object by its attributes using informal language (including shape, size, type, color, texture, or use).						
	MATH.PK.5B Describe similarities and differences between objects. (Classification & Data Collection Strand)	MATH.K.8B Compare two objects based on their attributes.						
	MATH.PK.5C Sort objects into groups by an attribute and begin to explain how the grouping was done. (Classification & Data Collection Strand)	MATH.K.8C Sort a variety of objects, including two- and three-dimensional geometric figures, according to their attributes and describe how the objects are sorted.	MATH.1.6C Describe and identify two- and three-dimensional geometric figures in order to sort them according to a given attribute using informal and formal language.					
		MATH.K.9A Describe and compare the attributes of real-life objects such as balls, boxes, cans, and cones or models of three-dimensional geometric figures.	MATH.1.6B Describe and identify three-dimensional geometric figures, including spheres, rectangular prisms (including cubes), cylinders, and cones.	MATH.2.7A Describe attributes (the number of vertices, faces, edges, sides) of two- and three-dimensional geometric figures such as circles, polygons, spheres, cones, cylinders, prisms and pyramids, etc.	MATH.3.8A Identify, classify, and describe two- and three-dimensional geometric figures by their attributes. The student compares two-dimensional figures, three-dimensional figures, or both by their attributes using formal geometry vocabulary.	MATH.4.8C Use essential attributes to define two- and three-dimensional geometric figures such as number of edges, number of faces, number of vertices, types of angles, and shapes of faces and base.	MATH.5.7A Identify essential attributes including parallel, perpendicular, and congruent parts of two- and three-dimensional geometric figures and use formal geometric vocabulary to describe and compare given figures.	
		MATH.K.9B Recognize shapes in real-life three-dimensional geometric figures or models of three-dimensional geometric figures.						
	MATH.PK.3A Recognize, describe, and name shapes (circles, triangles, rectangles, squares).	MATH.K.9C Describe, identify, and compare circles, triangles, rectangles, and squares (a special type of rectangle).	MATH.1.6A Describe and identify two-dimensional geometric figures, including circles, triangles, rectangles, and squares (a special type of rectangle).			MATH.4.8A Identify and describe right, acute, and obtuse angles.		
						MATH.4.8B Identify and describe parallel and intersecting (including perpendicular) lines using concrete objects, pictorial models, and formal geometry vocabulary.		



What is it we want all students to learn?

Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Strand 3 - Geometry and Spatial Reasoning	Geometric Language (continued)				Transformations		
	MATH.PK.3C Begin to recognize when a shape's position or orientation has changed.	MATH.K(PK.3D) Investigate and predict the results of putting two or more shapes together.	MATH.1.6D Use concrete models to combine two-dimensional geometric figures to make new geometric figures.	MATH.2.7C Cut two-dimensional geometric figures apart and identify the new geometric figures formed.			
	MATH.PK.3D Begin to investigate and to predict the results of putting two or more shapes together.				MATH.3.9B Create two-dimensional figures with lines of symmetry using concrete models and technology.	MATH.4.9C Use reflections to verify that a shape has symmetry and describe the two halves of a shape for each line of symmetry.	
	MATH.PK.3E Put together puzzles of increasing complexity.				MATH.3.9C Identify lines of symmetry in two-dimensional geometric figures.		
					MATH.3.9A Identify congruent two-dimensional figures in the same/different orientation.	MATH.4.9A Demonstrate translations, reflections, and rotations using concrete models and formal geometric vocabulary.	MATH.5.9A Locate and name points on a coordinate grid using ordered pairs of whole numbers.
							MATH.5.8A Sketch the results of translations, rotations, and reflections on a Quadrant I coordinate grid and name points using ordered pairs.
						MATH.4.9B Use translations, reflections, and rotations to verify that two shapes are congruent.	MATH.5.8B Identify the transformation that generates one figure from the other when given two congruent figures on a Quadrant I coordinate grid.
Strand 4 - Measurement	Measuring						
	MATH.PK.4C Begin to make size comparisons between two objects (e.g., taller than, smaller than).	MATH.K.10A Compare and order two or three concrete objects according to length (longer/shorter than, or the same).	MATH.1.7A Estimate and measure length using nonstandard units such as paper clips or sides of color tiles.	MATH.2.9A Identify concrete models that approximate standard units of length and use them to measure length in the customary system and SI (metric) system.	MATH.3.11A Use linear measurement tools to estimate and measure lengths using standard units in customary system and SI (metric) system.	MATH.4.11A Estimate and use measurement tools to determine length (including perimeter), area, capacity, and weight/mass using standard units SI (metric) and customary.	MATH.5.10B Connect concrete models and pictorial representations for perimeter, area, and volume with their respective formulas.
	MATH.PK.4D Begin to use tools to imitate measuring (nonstandard).		MATH.1.7C Describe the relationship between the size of the unit and the number of units needed to measure the length of an object.				MATH.3.11B Use standard units to find the perimeter of a shape.



What is it we want all students to learn?



Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
Strand 4 - Measurement	Measuring (continued)							
	MATH.PK.4F Begin to order two or three objects by size (e.g., largest to smallest), using their words to describe the order.	(See MATH.K.10A)	MATH.1.7B Compare and order two or more concrete objects according to length (from longest to shortest).					
	MATH.PK.4A Cover an area with shapes (e.g., tiles).	MATH.K.10B Compare the areas of two flat surfaces of two-dimensional figures (covers more, covers less, or covers the same).	MATH.1.7D Compare and order the area of two or more two-dimensional surfaces (from covers the most to covers the least).	MATH.2.9B Select a nonstandard unit of measure such as square tiles to determine the area of a two-dimensional surface.	MATH.3.11C Use concrete and pictorial models of square units to determine the area of two-dimensional surfaces.		(See MATH.4.11A)	(See MATH.5.10B and MATH.5.10C)
	MATH.PK.4B Fill a shape with solids or liquids (e.g., ice cubes, water).	MATH.K.10C Compare two containers according to capacity (holds more, holds less, or holds the same).	MATH.1.7E Compare and order two or more containers according to capacity (from holds the most to holds the least).	MATH.2.9C Select a nonstandard unit of measure such as a bathroom cup or a jar to determine the capacity of a given container.	MATH.3.11E Identify concrete models that approximate standard units for capacity and use them to measure capacity in the customary system and SI (metric) system.		MATH.4.11E Explain the difference between weight and mass.	
		MATH.K.10D Compare two objects according to weight/mass (heavier than, lighter than, or equal to).	MATH.1.7F Compare and order two or more objects according to weight/mass (from heaviest to lightest).	MATH.2.9D Select a nonstandard unit of measure such as beans or marbles to determine the weight/mass of a given object.	MATH.3.11D Identify concrete models that approximate standard units of weight/mass and use them to measure weight/mass in the customary system and SI (metric) system.			
					MATH.3.11F Use concrete models that approximate cubic units to determine the volume of a given container or other three-dimensional geometric figure in the customary system and SI (metric) system.		MATH.4.11C Use concrete models of standard cubic units to measure volume in customary system and SI (metric) system.	
							MATH.4.11D Estimate volume in cubic units.	
							MATH.4.11B Perform simple conversions between different units of length, between different units of capacity, and between different units of weight within the customary measurement system.	MATH.5.10A Perform simple conversions within the same measurement system (SI (metric) or customary).



What is it we want all students to learn?



Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Strand 4 - Measurement	Time and Temperature						
		MATH.K.10E Compare situations or objects according to relative temperature (hotter/colder than, or the same as).	MATH.1.7G Compare and order two or more objects according to relative temperature (from hottest to coldest).	MATH.2.10A Read a thermometer to gather data (in degrees Fahrenheit).	MATH.3.12A Use a thermometer to measure temperature (in degrees Fahrenheit).	MATH.4.12A Use a thermometer to measure temperature and changes in temperature (in degrees Fahrenheit and Celsius).	MATH.5.11A Solve problems involving changes in temperature. (in degrees Fahrenheit and Celsius).
		MATH.K.11A Compare events according to duration such as more time than or less time than.	MATH.1.8A Order three or more events according to duration.	MATH.2.10C Describe activities that take approximately one second, one minute, and one hour.			
		MATH.K.11B Sequence events (up to three).					
	MATH.PK.4E Begin to categorize time intervals and use language associated with time in everyday situations (“in the morning”, “after snack”).	MATH.K.11C Read a calendar using days, weeks, and months.	MATH.1.8B Read time to the hour and half-hour using analog and digital clocks.	MATH.2.10B Read and write times shown on analog and digital clocks using five-minute increments.	MATH.3.12B Tell and write time shown on analog and digital clocks.	MATH.4.12B Use tools such as a clock with gears or a stopwatch to solve problems involving elapsed time.	MATH.5.11B Solve problems involving elapsed time.



What is it we want all students to learn?



Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Strand 5 – Probability and Statistics	Displaying and Interpreting Data						
	<p>MATH.PK.5D Participate in creating and using real and pictorial graphs.</p>	<p>MATH.K.12A Construct graphs using real objects or pictures in order to answer questions.</p>	<p>MATH.1.9A Collect and sort data.</p>	<p>MATH.2.11A Construct picture graphs and bar-type graphs.</p>	<p>MATH.3.13A Collect, organize, record, and display data in pictographs and bar graphs where each picture or cell might represent more than one piece of data.</p>	(See MATH.4.13B)	(See MATH.5.9A)
			<p>MATH.1.9B Use organized data to construct real object graphs, picture graphs, and bar-type graphs.</p>				<p>MATH.5.13A Use tables of related number pairs to make line graphs.</p>
		<p>MATH.K.12B Use information from a graph of real objects or pictures in order to answer questions.</p>	<p>MATH.1.10A Draw conclusions and answer questions using information organized in real-object graphs, picture graphs, and bar-type graphs.</p>	<p>MATH.2.11B Draw conclusions and answer questions based on picture graphs and bar-type graphs.</p>	<p>MATH.3.13B Interpret information from pictographs and bar graphs.</p>	<p>MATH.4.13B Interpret bar graphs using verbal and numerical data to summarize and answer questions.</p>	<p>MATH.5.13C Graph a given set of data using an appropriate graphical representation such as a picture or line graph.</p>
							<p>MATH.5.13B Describe characteristics of data presented in tables and graphs including median, mode, and range.</p>
	Probability						
			<p>MATH.1.10B Identify events as certain or impossible such as drawing a red crayon from a bag of green crayons.</p>	<p>MATH.2.11C Use data to describe events as more likely or less likely such as drawing a certain color crayon from a bag of seven red crayons and three green crayons.</p>	<p>MATH.3.13C Use data to describe events as more likely than, less likely than, or equally likely as.</p>	<p>MATH.4.13A Use concrete objects or pictures to make generalizations about determining all possible combinations of a given set of data or of objects in a problem situation.</p>	<p>MATH.5.12C List all possible outcomes of a probability experiment such as tossing a coin using a variety of representations such as tables, charts, and tree diagrams.</p>
							<p>MATH.5.12A Use fractions to describe the results of an experiment.</p>
							<p>MATH.5.12B Use experimental results to make predictions.</p>



What is it we want all students to learn?

Denotes Proposed Power Objective

Mathematics – Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 02-06-2008

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Strand 6 – Underlying Processes and Mathematical Tools	Problem Solving						
		MATH.K.13A Identify the mathematics in everyday situations.	MATH.1.11A Identify the mathematics in everyday situations.	MATH.2.12A Identify the mathematics in everyday situations.	MATH.3.14A Identify the mathematics in everyday situations.	MATH.4.14A Identify the mathematics in everyday situations.	MATH.5.14A Identify the mathematics in everyday situations.
		MATH.K.13B Solve problems with guidance that incorporates the processes of understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.	MATH.1.11B Solve problems with guidance that incorporates the processes of understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.	MATH.2.12B Solve problems with guidance that incorporates the processes of understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.	MATH.3.14B Solve problems that incorporate understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.	MATH.4.14B Solve problems that incorporate understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.	MATH.5.14B Solve problems that incorporate understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness.
		MATH.K.13C Select or develop an appropriate problem-solving strategy including drawing a picture, looking for a pattern, systematic guessing and checking, or acting it out in order to solve a problem.	MATH.1.11C Select or develop an appropriate problem-solving plan or strategy including drawing a picture, looking for a pattern, systematic guessing and checking, or acting it out in order to solve a problem.	MATH.2.12C Select or develop an appropriate problem-solving plan or strategy including drawing a picture, looking for a pattern, systematic guessing and checking, or acting it out in order to solve a problem.	MATH.3.14C Select or develop an appropriate problem-solving plan or strategy including drawing a picture, looking for a pattern, systematic guessing and checking, or acting it out, making a table, working a simpler problem, or working backwards to solve a problem.	MATH.4.14C Select or develop an appropriate problem-solving plan or strategy including drawing a picture, looking for a pattern, systematic guessing and checking, or acting it out, making a table, working a simpler problem, or working backwards to solve a problem.	MATH.5.14C Select or develop an appropriate problem-solving plan or strategy including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.
		MATH.K.13D Use tools such as real objects, manipulatives, and technology to solve problems.	MATH.1.11D Use tools such as real objects, manipulatives, and technology to solve problems.	MATH.2.12D Use tools such as real objects, manipulatives, and technology to solve problems.	MATH.3.14D Use tools such as real objects, manipulatives, and technology to solve problems.	MATH.4.14D Use tools such as real objects, manipulatives, and technology to solve problems.	MATH.5.14D Use tools such as real objects, manipulatives, and technology to solve problems.
		MATH.K.14A Communicate mathematical ideas using objects, words, pictures, numbers, and technology.	MATH.1.12A Explain and record observations using objects, words, pictures, numbers, and technology.	MATH.2.13A Explain and record observations using objects, words, pictures, numbers, and technology.	MATH.3.15A Explain and record observations using objects, words, pictures, numbers, and technology.	MATH.4.15A Explain and record observations using objects, words, pictures, numbers, and technology.	MATH.5.15A Explain and record observations using objects, words, pictures, numbers, and technology.
		MATH.K.14B Relate everyday language to mathematical language and symbols.	MATH.1.12B Relate informal language to mathematical language and symbols.	MATH.2.13B Relate informal language to mathematical language and symbols.	MATH.3.15B Relate informal language to mathematical language and symbols.	MATH.4.15B Relate informal language to mathematical language and symbols.	MATH.5.15B Relate informal language to mathematical language and symbols.
					MATH.3.16A Make generalizations from patterns or sets of examples and non-examples.	MATH.4.16A Make generalizations from patterns or sets of examples and non-examples.	MATH.5.16A Make generalizations from patterns or sets of examples and non-examples.
		MATH.K.15A Justify his or her thinking using objects, words, pictures, numbers, and technology.	MATH.1.13A Justify his or her thinking using objects, words, pictures, numbers, and technology.	MATH.2.14A Justify his or her thinking using objects, words, pictures, numbers, and technology.	MATH.3.16B Justify why an answer is reasonable and explain the solution process.	MATH.4.16B Justify why an answer is reasonable and explain the solution process.	MATH.5.16B Justify why an answer is reasonable and explain the solution process.



What is it we want all students to learn?

Denotes Proposed Power Objective