



**MATH**

**BASIC SKILLS CONTENT STANDARDS**

April 2008



### Categories

- M1 Number sense
- M2 Algebra
- M3 Geometry
- M4 Measurement
- M5 Data
- M6 Probability

### Key to NRS Educational Functioning Levels

- ABE**
- 1 Beginning Literacy
  - 2 Beginning
  - 3 Intermediate Low
  - 4 Intermediate High
- ASE**
- 5 Low
  - 6 High

CS#	Math Content Standard	NRS Level ► CASAS Level ►	ABE				ASE	
			1	2	3	4	5	6
			A	B	B	C	D	E
<b>M1</b>	<b>Number sense</b>							
M1.1	Whole numbers							
M1.1.1	associate numbers with quantities	•						
M1.1.2	count up to 30 items, forward and backward	•						
M1.1.3	count up to 100 items	•						
M1.1.4	count by 2s, 5s, and 10s up to 100	•						
M1.1.5	recognize odd and even numbers	•	•					
M1.1.6	read, write, order and compare numbers from 0 to 100	•	•					
M1.1.7	read, write, order and compare numbers to 1000		•					
M1.1.8	read, write, order and compare numbers to 1,000,000		•	•				
M1.1.9	read, write, order and compare numbers in the millions and billions		•	•				
M1.1.10	identify place value in numbers to five digits		•	•				
M1.1.11	round off numbers to the nearest 10, 100, 1000		•	•				
M1.2	Operation sense							
	Concepts							
M1.2.1	interpret and use basic mathematical symbols +, -, ×, ÷, =	•						
M1.2.2	demonstrate understanding of the concept of addition (i.e., as adding on or combining), including the role of place value	•	•					
M1.2.3	demonstrate understanding of the concept of subtraction (i.e., as taking away or separating), including the role of place value	•	•					
M1.2.4	demonstrate understanding of the concept of multiplication (i.e., as repeated addition, multiple groups, rows and columns), including the role of place value		•	•				
M1.2.5	demonstrate understanding of the concept of division (i.e., as dividing a set into equal groups, or determining number of groups within a set), including the role of place value		•	•				
M1.2.6	interpret the inverse relationship between addition and subtraction, and multiplication and division		•	•				
M1.2.7	demonstrate understanding of the commutative and associative properties of addition and multiplication (e.g., 2 pounds of meat at \$3/lb. costs the same as 3 pounds at \$2/lb.)		•	•				
M1.2.8	demonstrate understanding of the distributive property (e.g., $\$150 \times 12 = (\$150 \times 10) + (\$150 \times 2)$ )			•	•			
	Addition							
M1.2.9	add single-digit numbers with totals up to 10	•						
M1.2.10	identify addition pairs totaling 10	•						
M1.2.11	identify addition pairs for all numbers up to 10	•						

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M1.2.12	add three or more single-digit numbers mentally		•	•					
M1.2.13	add multi-digit numbers		•	•					
	<b>Subtraction</b>								
M1.2.14	subtract single-digit numbers		•						
M1.2.15	subtract single-digit numbers from numbers up to 20		•						
M1.2.16	subtract multi-digit numbers		•	•					
M1.2.17	add back to check subtraction		•	•					
	<b>Multiplication</b>								
M1.2.18	multiply single-digit numbers		•						
M1.2.19	double numbers up to 10		•						
M1.2.20	identify multiples of 2, 3, 4, 5, 10 up to $\times 10$			•					
M1.2.21	identify multiplication facts for numbers to 12			•	•				
M1.2.22	multiply numbers by 10, 100			•	•				
M1.2.23	multiply two-digit numbers by single-digit numbers			•	•				
M1.2.24	multiply with multi-digit numbers			•	•				
M1.2.25	square numbers to 12			•	•				
	<b>Division</b>								
M1.2.26	halve even numbers up to 20		•	•					
M1.2.27	halve even numbers up to 100			•	•				
M1.2.28	identify factoring of common numbers (e.g., $12 = 4 \times 3 = 2 \times 6 = 2 \times 2 \times 3$ )			•	•				
M1.2.29	identify factors of numbers up to 100 (e.g., 72 is divisible by 1, 2, 3, 4, 6, ...)			•	•	•			
M1.2.30	identify the greatest common factor in a given number set				•	•			
M1.2.31	divide numbers by 10, 100			•	•				
M1.2.32	express a remainder in long division as a fraction			•	•				
M1.2.33	divide two-digit numbers by single-digit numbers and interpret remainders			•	•				
M1.2.34	divide by multi-digit numbers and interpret remainders				•	•			
M1.2.35	back-multiply to check results of division			•	•	•			
M1.2.36	identify prime numbers up to 100				•	•			
M1.3	<b>Fractions</b>								
M1.3.1	identify and write fractions representing portions of an object or set		•	•					
M1.3.2	read and write simple common fractions (e.g., halves, quarters, thirds)		•	•					
M1.3.3	compare and order simple common fractions		•	•					
M1.3.4	demonstrate how fractions relate to multiples and division (e.g., divide these 12 into 3 parts; $1/3$ of 12 is 4, $2/3$ is 8)			•	•				
M1.3.5	divide an object or set into fractional pieces (e.g., cut a cake into 12 equal pieces)		•	•					
M1.3.6	identify equivalent fractions and simplify fractions to lowest terms				•	•			
M1.3.7	express a relation between two quantities as a fraction or fractional estimate (54 of 352 graduates = $54/352$ ; or about $1/6$ )				•	•			
M1.3.8	add and subtract common fractions with the same denominator			•	•				
M1.3.9	convert improper fractions and mixed numbers				•	•			
M1.3.10	add and subtract fractions and mixed numbers with different denominators				•	•			

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M1.3.11	relate multiplication of fractions and division (i.e., multiplying by 1/4 is equivalent to dividing by 4)			•	•			
M1.3.12	multiply and divide with fractions and mixed numbers			•	•			
M1.3.13	represent decimals as fractions			•	•			
M1.3.14	use fractions in the context of measurement units	•	•	•	•			
<b>M1.4</b>	<b>Decimals</b>							
M1.4.1	demonstrate understanding of decimal notation and place value		•	•				
M1.4.2	read and write decimals to two decimal places		•	•				
M1.4.3	express simple common fractions as decimals		•	•	•			
M1.4.4	read, write, order and compare decimals of three or more places		•	•	•			
M1.4.5	divide whole numbers and represent quotient as a decimal			•	•			
M1.4.6	round decimal amounts to one or two decimal places or to a whole number			•	•			
M1.4.7	add, subtract, multiply and divide decimals			•	•			
M1.4.8	identify the effect of multiplying and dividing decimals by powers of 10			•	•			
M1.4.9	read and write large numbers with decimals (e.g., 15.6 million)			•	•			
M1.4.10	convert fractions to decimals		•	•	•			
M1.4.11	determine a fraction or percent of a decimal (e.g., 1/4 / 25% of the \$8.3 million budget)			•	•			
M1.4.12	use decimals in the context of measurement units		•	•	•			
M1.4.13	relate the decimal system with money		•	•	•			
M1.4.14	read and write money amounts using decimals and symbols \$ and ¢			•	•			
M1.4.15	make and verify change		•	•	•			
M1.4.16	calculate with money amounts	•	•	•	•			
M1.4.17	use currency conversion tables				•			
<b>M1.5</b>	<b>Percentages</b>							
M1.5.1	interpret the meaning of percent			•	•			
M1.5.2	read, write, order and compare simple percentages			•	•			
M1.5.3	compute mentally 10% and 1% of an amount			•	•			
M1.5.4	identify percent equivalents for simple common fractions			•	•			
M1.5.5	represent decimal amounts as percents			•	•			
M1.5.6	find benchmark percents of numbers to 1000 (e.g., 10%, 25%, 50%)			•	•			
M1.5.7	find a given percent of a number			•	•			
M1.5.8	find the whole from a given percentage				•			
M1.5.9	calculate percents to one or two decimal places				•			
M1.5.10	calculate percents greater than 100% and less than 1%				•			
M1.5.11	calculate percent of increase and decrease				•			
M1.5.12	apply percents to money, measurement, and other contextual situations			•	•			
<b>M1.6</b>	<b>Ratio and proportion</b>							
M1.6.1	identify quantities that are proportional			•	•	•		
M1.6.2	interpret the meaning of ratio			•	•	•		
M1.6.3	express a relationship between two quantities as a ratio			•	•	•		
M1.6.4	write and solve a proportion				•	•		

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M1.6.5	apply ratio and proportion in contextual situations using ratios				•	•	•	
<b>M1.7</b>	<b>Solving problems</b>							
M1.7.1	analyze a math-related situation or problem, identifying the mathematical question that needs to be answered, the most appropriate methods, procedures, algorithms and operations to apply, and the relevant and irrelevant information	•	•	•	•	•	•	
M1.7.2	perform operations efficiently and correctly	•	•	•	•	•	•	
M1.7.3	apply estimation strategies and mental math to approximate solutions and determine reasonableness of answers		•	•	•	•	•	
M1.7.4	determine and use appropriate rounding and estimating techniques		•	•	•	•	•	
M1.7.5	determine and use a variety of techniques and processes for doing mental math		•	•	•	•	•	
M1.7.6	recognize the degree of precision needed in a calculation			•	•	•	•	
M1.7.7	determine when and how to split up a problem into simpler parts			•	•	•	•	
M1.7.8	apply strategies and results from simpler problems to more complex problems			•	•	•	•	
<b>M1.8</b>	<b>Using a calculator</b>							
M1.8.1	use a calculator to make basic calculations with +, -, ×, ÷, =		•	•				
M1.8.2	order or reorder operations when grouping is important to achieve correct results with a calculator (e.g., $10 - 2 \times 6$ instead of $6 \times 10 - 2$ )			•	•	•		
M1.8.3	use a calculator to make calculations involving multiple operations or percent			•	•	•	•	
M1.8.4	use a calculator for more advanced calculations				•	•	•	
<b>M2</b>	<b>Algebra</b>							
<b>M2.1</b>	<b>Patterns, relationships, functions</b>							
M2.1.1	identify the numerical patterns and relationships inherent in the addition and multiplication tables	•	•	•				
M2.1.2	recognize and describe patterns in given sets of numbers in a functional relationship and how changes in one quantity can affect another			•	•			
<b>M2.2</b>	<b>Basic algebraic concepts and conventions</b>							
M2.2.1	recognize and interpret mathematical expressions, equations, and variables as symbolic representation		•	•	•			
M2.2.2	reason mathematically regarding contextual situations			•	•	•		
M2.2.3	interpret and write expressions and equations for simple contextual math situations			•	•	•		
M2.2.4	apply the correct order of operations			•	•			
M2.2.5	use notational conventions such as parentheses and the various ways of representing multiplication				•	•		
M2.2.6	interpret symbols <, >, ≠ and use them to express number relationships			•	•	•		
<b>M2.3</b>	<b>Unknowns, equations and expressions</b>							
M2.3.1	solve simple one-step equations with unknowns (e.g., $n - 7 = 9$ ; $3x = 24$ )			•	•	•		
M2.3.2	use substitution to check the solution of an equation			•	•	•		
M2.3.3	recognize and interpret the different meanings and uses of variables (i.e., $2x + 1 = 7$ ; $y = 2x + 1$ ; $A = l \times w$ ; $a + -a = 0$ )				•	•		
M2.3.4	substitute values for variables in simple expressions and evaluate				•	•		
M2.3.5	simplify an expression by combining like terms				•	•		
M2.3.6	apply the commutative and associative properties of addition and multiplication to rewrite expressions				•	•		

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M2.3.7	apply the distributive property to rewrite expressions (e.g., $3(x + 2)$ vs. $3x + 6$ )				•	•		
M2.3.8	use the additive and multiplicative properties of equality to solve linear equations and write equivalent equations				•	•		
M2.3.9	make mathematical arguments (e.g., proofs) using properties of real numbers and operations					•	•	
M2.3.10	interpret and write expressions and equations representing contextual situations				•	•	•	
M2.3.11	interpret or write an expression or equation for a contextual situation that involves fractions, decimals or percents			•	•	•	•	
M2.3.12	solve problems involving life-skill-related formulas (e.g., $\text{units} \times \text{price} = \text{cost}$ ; $d = r \times t$ )			•	•	•	•	
M2.3.13	solve problems involving technical formulas (e.g., $V = I \times R$ )				•	•	•	
M2.3.14	solve inequalities				•	•	•	
M2.3.15	solve systems of linear equations				•	•	•	
M2.3.16	apply the Pythagorean theorem				•	•	•	
M2.3.17	solve quadratic equations				•	•	•	
M2.3.18	interpret algebraic concepts and terminology used at the secondary level					•	•	
<b>M2.4</b>	<b>Exponents and numbers</b>							
M2.4.1	interpret and use exponents as representing repeated multiplication			•	•	•		
M2.4.2	rewrite expressions using exponents				•	•		
M2.4.3	add, subtract, multiply and divide expressions involving exponents				•	•		
M2.4.4	interpret and use scientific notation				•	•		
<b>M2.5</b>	<b>Positive and negative numbers</b>							
M2.5.1	demonstrate understanding of the meaning and uses of negative numbers				•	•		
M2.5.2	read, write, order and compare positive and negative numbers				•			
M2.5.3	place positive and negative numbers on a number line, and relate them to direction and change				•			
M2.5.4	add, subtract, multiply and divide positive and negative numbers				•			
M2.5.5	use absolute value				•	•		
<b>M2.6</b>	<b>Representations</b>							
M2.6.1	interpret and relate different representations of functions: words, symbols, tables, graphs			•	•	•	•	
M2.6.2	generate a table of values from an equation in two variables				•	•	•	
M2.6.3	demonstrate understanding of the Cartesian coordinate system				•	•		
M2.6.4	create a coordinate plane, drawing and labeling x and y axes and scale				•	•	•	
M2.6.5	plot ordered pairs from an equation or data table				•	•	•	
M2.6.6	identify points and their coordinates on a graph of an equation				•	•	•	
M2.6.7	determine the slope of a line and relate it to change				•	•	•	
M2.6.8	use a graph to answer questions about a functional relationship			•	•	•	•	
M2.6.9	write the equation of a line				•	•	•	
M2.6.10	plot more than one equation on the same plane				•	•		
M2.6.11	graph a linear function				•	•		
M2.6.12	graph quadratic functions					•	•	
<b>M3</b>	<b>Geometry</b>							
<b>M3.1</b>	<b>Shapes</b>							
M3.1.1	recognize, identify and describe the properties of common two-dimensional and three-dimensional geometric shapes	•	•	•	•			

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M3.1.2	identify lines of symmetry in two-dimensional figures		•	•	•			
M3.1.3	draw two-dimensional shapes of particular dimensions		•	•	•			
M3.1.4	identify triangles based on their properties			•	•	•		
M3.1.5	identify common types of quadrilaterals and their properties			•	•	•		
M3.1.6	identify polygons of various types			•	•	•		
M3.1.7	identify elements of a circle: center, radius, diameter, arc			•	•	•		
M3.1.8	interpret concepts of similarity, and identify figures that are similar or congruent				•	•		
<b>M3.2</b>	<b>Lines and angles</b>							
M3.2.1	identify parallel, perpendicular and intersecting lines			•	•	•		
M3.2.2	describe characteristics of angles formed by two intersecting lines			•	•	•		
M3.2.3	describe characteristics of angles formed by a transversal intersecting parallel lines				•	•		
M3.2.4	demonstrate understanding of the 360-degree system of measuring angles and rotation			•	•	•		
M3.2.5	identify angles of 90 and 45 degrees			•				
M3.2.6	identify rotations of 90, 180, 270 and 360 degrees			•	•	•		
M3.2.7	identify angles as right, acute, obtuse			•	•	•		
M3.2.8	measure an angle using a protractor			•	•	•		
M3.2.9	estimate the measure of an angle			•	•	•		
M3.2.10	draw angles of specific measures using a protractor and ruler			•	•	•		
<b>M3.3</b>	<b>Spatial relationships</b>							
M3.3.1	use the four main compass directions for spatial orientation		•	•	•			
M3.3.2	use the secondary directions for spatial orientation (e.g., NW)		•	•	•			
M3.3.3	use a map with a coordinate grid (e.g., C5)			•	•			
M3.3.4	interpret diagrams (e.g., floor plan, blueprint)			•	•			
M3.3.5	draw a diagram on a grid using two-dimensional figures to represent the size and location of objects			•	•	•		
M3.3.6	enlarge or reduce a shape, keeping the same proportions				•	•		
M3.3.7	combine, divide, rotate, reconfigure or transform shapes to create different figures		•	•	•	•		
M3.3.8	locate or position items in a three-dimensional coordinate system (e.g., in a model of a building)				•	•		
M3.3.9	recognize and draw two-dimensional views of three-dimensional objects from different perspectives				•	•		
M3.3.10	create a three-dimensional object from two-dimensional representations			•	•	•		
M3.3.11	follow a pattern or model to produce or reproduce a shape or object		•	•				
<b>M4</b>	<b>Measurement</b>							
<b>M4.1</b>	<b>Time</b>							
M4.1.1	read time from a clock, analog and digital		•					
M4.1.2	read and record time of day in 12-hour format		•					
M4.1.3	read and record time of day in 24-hour format		•					
M4.1.4	interpret numeric representations of dates		•					
M4.1.5	place dates on a time line		•					
M4.1.6	convert units: hours, minutes, seconds		•	•	•			
M4.1.7	calculate with units of time: hours, minutes, seconds		•	•	•			



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M4.1.8	convert and calculate with units of time: hours, days, weeks, months, years			•	•			
M4.1.9	convert hours and minutes to decimal time format			•	•			
M4.2	Distance							
M4.2.1	calculate with miles, feet		•	•				
M4.2.2	convert units: feet, miles			•	•			
M4.2.3	estimate equivalents between feet/miles and meters/kilometers				•			
M4.2.4	calculate with kilometers, meters				•			
M4.2.5	read mileage tables			•	•			
M4.2.6	apply a scale on a map			•	•			
M4.2.7	estimate distance		•	•	•			
M4.2.8	use scientific notation to express great distances			•	•			
M4.3	Speed							
M4.3.1	demonstrate understanding of the interrelation of distance, time and speed			•	•			
M4.3.2	make simple calculations involving time and distance			•	•			
M4.3.3	make simple calculations of distance and time using a given speed			•	•			
M4.3.4	calculate speed given time and distance				•	•		
M4.3.5	estimate time, distance and speed in traveling				•	•		
M4.3.6	estimate equivalents between mph and km/h				•	•		
M4.4	Rates							
M4.4.1	interpret, calculate and apply rates involving time, such as velocity (e.g., mi/hr, ft/sec, m/sec), frequency (e.g., calls/hr), consumption (e.g., cal/day, kw/hr), flow (e.g., gal/min), change (e.g., degrees/min, inches/year)				•	•	•	
M4.4.2	interpret, calculate and apply unit rates (e.g., cents/min, \$/sq. ft., mi/gal)				•	•	•	
M4.4.3	interpret, calculate and apply other types of rates				•	•	•	
M4.4.4	use averaging in calculating rates				•	•	•	
M4.5	Temperature							
M4.5.1	interpret the Fahrenheit scale, including negative temperatures		•	•	•			
M4.5.2	read temperatures		•	•	•			
M4.5.3	compare and calculate with temperatures			•	•	•		
M4.5.4	estimate equivalents between Fahrenheit and Celsius temperatures				•	•		
M4.6	Weight							
M4.6.1	identify customary US units of weight and equivalents: pounds, ounces, tons		•	•	•			
M4.6.2	identify metric units of weight and equivalents: grams, kilograms, milligrams				•	•		
M4.6.3	convert weight units: pounds, ounces, etc.			•	•			
M4.6.4	measure weight using pounds, ounces, etc.			•	•			
M4.6.5	calculate with pounds, ounces, etc.			•	•			
M4.6.6	estimate equivalents between customary US and metric units of weight				•	•		
M4.6.7	convert metric units, noting decimal placement: kg/g/mg				•	•		
M4.6.8	measure with metric units of weight				•	•		
M4.6.9	calculate with metric units of weight				•	•		

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<b>M4.7</b>	<b>Capacity</b>							
M4.7.1	identify customary US units of capacity and equivalents: ounces, quarts, gallons, etc.		•	•	•			
M4.7.2	identify metric units of capacity and equivalents: liters, milliliters				•	•		
M4.7.3	convert units of capacity: ounces, quarts, gallons, etc.			•	•			
M4.7.4	measure capacity using ounces, quarts, gallons, etc.			•	•			
M4.7.5	calculate with ounces, quarts, gallons, etc.			•	•			
M4.7.6	estimate equivalents between customary US and metric units of capacity				•	•		
M4.7.7	convert metric units, noting decimal placement: l/ml				•	•		
M4.7.8	measure with metric units of capacity				•	•		
M4.7.9	calculate with metric units of capacity				•	•		
<b>M4.8</b>	<b>Dimensions</b>							
M4.8.1	identify customary US units of linear measurement and equivalents: inches, feet, yards		•	•	•			
M4.8.2	identify metric units of linear measurement and equivalents: meters, centimeters, millimeters				•	•		
M4.8.3	convert linear measurement units: inches, feet, etc.			•	•			
M4.8.4	measure length, width, height using inches, feet, etc.		•	•	•			
M4.8.5	interpret and use equivalents for fractions of an inch (e.g., $6/16 = 3/8$ )			•	•			
M4.8.6	calculate with inches, feet, etc.			•	•			
M4.8.7	compare linear measurements, including in decimal notation (e.g., tolerances)				•	•		
M4.8.8	estimate equivalents between customary US and metric units of linear measure				•	•		
M4.8.9	convert metric units, noting decimal placement: m/cm/mm				•			
M4.8.10	measure with metric units of linear measurement				•	•		
M4.8.11	calculate with metric units of linear measurement				•	•		
M4.8.12	interpret scale drawings				•	•	•	
M4.8.13	interpret and use proportions in solving problems involving dimensions or scale				•	•	•	
M4.8.14	plan linear spacing in a design (e.g., how many lines of what size can fit on a sign of a certain length)				•	•	•	
<b>M4.9</b>	<b>Multi-dimensional measures</b>							
M4.9.1	demonstrate understanding of the concept of two and three-dimensional measurements, and square and cubic units			•	•	•		
M4.9.2	calculate perimeter of rectangles and other common figures			•	•			
M4.9.3	calculate area of rectangles and other common figures, using a given formula			•	•	•		
M4.9.4	calculate circumference of a circle, using a given formula				•	•		
M4.9.5	calculate volume and surface area of rectangular and other common shapes, using a given formula				•	•		
M4.9.6	calculate area or volume of irregular or composite shapes by dividing the figure into parts				•	•		
M4.9.7	estimate area of curved shapes				•	•		
M4.9.8	interpret the exponential relationship of linear measure, area and volume (e.g., cubic feet vs. cubic yards)					•	•	
M4.9.9	plan a layout (e.g., in what ways how many elements of what size can fit in a given space)				•	•	•	
M4.9.10	apply measurement in three-dimensional scale modeling					•	•	
<b>M4.10</b>	<b>Estimating measurements</b>							
M4.10.1	make rough-estimate approximations of measurements		•	•	•			

CS#	Math Content Standard	NRS Level ► CASAS Level ►	ABE				ASE	
			1	2	3	4	5	6
			A	B	B	C	D	E
M4.10.2	relate need for accuracy in a given measurement situation to estimating, in terms of precision, rounding, etc.		•	•	•			
M4.10.3	relate the measure of one object to another (e.g., this is about 3 times as long as that; about 6 of these will fit in there)		•	•	•			
<b>M4.11</b>	<b>Measurement tools</b>							
M4.11.1	use non-standard measurement methods (e.g., using an object as a measure)		•	•				
M4.11.2	identify and use the appropriate units, instruments and techniques for measurement tasks		•	•	•	•	•	
M4.11.3	read and use a ruler or tape measure		•	•				
M4.11.4	read and use a metric rule		•	•	•			
M4.11.5	read a thermometer		•	•	•			
M4.11.6	read analog and other types of scales, meters and gauges, including various types of units and calibrations				•	•	•	•
M4.11.7	read digital scales on measuring devices				•	•	•	•
M4.11.8	use specialized measurement tools					•	•	•
<b>M5</b>	<b>Data</b>							
<b>M5.1</b>	<b>Reading and interpreting data</b>							
M5.1.1	identify, count and extract data in lists, tables and charts		•	•	•	•	•	•
M5.1.2	interpret data organized in categories and groupings		•	•	•	•	•	•
M5.1.3	compare and extract information from bar graphs, block graphs and circle graphs			•	•	•	•	•
M5.1.4	extract information from line graphs				•	•	•	•
M5.1.5	extract information from other types of graphs or visual representations					•	•	•
M5.1.6	compare information from multiple plottings on the same plane					•	•	•
M5.1.7	interpret and compare data in graphs with different scales						•	•
<b>M5.2</b>	<b>Analyzing data</b>							
M5.2.1	identify, extract and analyze pertinent data for a particular purpose		•	•	•	•	•	•
M5.2.2	reorient, reorganize, reformat data			•	•	•	•	•
M5.2.3	check for internal accuracy in a data set				•	•	•	•
M5.2.4	find the mean and range for a data set				•	•	•	
M5.2.5	find the median and mode for a data set				•	•	•	
M5.2.6	make generalizations about a data set, including recognizing clusters and more/less contrasts and identifying trends						•	•
M5.2.7	compare different samples or groupings (e.g., age, gender) in a data set, or individual to overall or average						•	•
M5.2.8	express data relationships in terms of ratios, fractions or percent (e.g., 3 to 1 ratio; 3 out of 4; 75%)				•	•	•	•
M5.2.9	make observations and draw conclusions based on analysis of data		•	•	•	•	•	•
M5.2.10	extrapolate data to make predictions					•	•	•
M5.2.11	restate, summarize, report data for a particular purpose and audience					•	•	•
M5.2.12	interpret the basic language of statistics and use it to describe, communicate and discuss data						•	•
M5.2.13	use computer programs to assist in compiling and analyzing data					•	•	•
<b>M5.3</b>	<b>Representing data</b>							
M5.3.1	collect, label and order numerical information for a particular purpose (e.g., to count and list stock, keep a log, construct a schedule)		•	•	•	•	•	•

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			1	2	3	4	5	6
			A	B	B	C	D	E
M5.3.2	record numerical information using a tally		•	•	•	•	•	
M5.3.3	sort, group, classify or categorize data		•	•	•	•	•	
M5.3.4	create a table to record and present numerical information			•	•	•	•	•
M5.3.5	create a table that provides for calculation of data (e.g., units × price; totals, subtotals)				•	•	•	•
M5.3.6	create a graph or other visual representation of data			•	•	•	•	•
M5.3.7	present data in different interpretations (e.g., as percentages, difference, change)				•	•	•	•
<b>M5.4</b>	<b>The nature of data</b>							
M5.4.1	interpret what numbers in a data set represent		•	•	•	•	•	•
M5.4.2	recognize different ways in which data can be identified, organized and formatted		•	•	•	•	•	•
M5.4.3	demonstrate how data can change as certain variables change				•	•	•	•
M5.4.4	demonstrate how average and median can represent a typical quantity or mid-point benchmark and how the spread of data is significant				•	•	•	•
M5.4.5	identify constraints on extending data to make predictions				•	•	•	•
M5.4.6	recognize when data sets can be viably compared and when they cannot					•	•	•
M5.4.7	interpret concepts and implications of sampling and randomization in surveys					•	•	•
M5.4.8	demonstrate how selection and presentation of data can be oriented for audience and purpose and can influence perceptions and conclusions						•	•
M5.4.9	evaluate arguments based on statistical reasoning						•	•
<b>M6</b>	<b>Probability</b>							
<b>M6.1</b>	<b>Outcomes</b>							
M6.1.1	work out the possible combinations of a number of elements in practical situations (e.g., I have 4 tickets and 6 potential guests)				•	•	•	•
M6.1.2	work out the possible permutations of a number of elements in practical situations (e.g., ways to sequence tiles of 4 different colors in a pattern)				•	•	•	•
<b>M6.2</b>	<b>Probability</b>							
M6.2.1	determine the probability of certain simple events (e.g., in the results of tossing a coin or rolling a die)			•	•	•		
M6.2.2	express the likelihood of an occurrence as a ratio fraction or a percent				•	•		
M6.2.3	determine and compare probabilities of chance events (e.g., winning lottery prizes)					•	•	•
M6.2.4	identify possible outcomes involving compound events and determine the probability of their occurrence (e.g., rolling one die multiple times)						•	•
M6.2.5	identify possible outcomes from combinations of events and determine the probability of their occurrence (e.g., of rolling different number combinations and totals with two dice)						•	•
M6.2.6	identify and evaluate factors and their effects in decreasing or increasing the likelihood of occurrences (e.g., wearing a seat belt lessening chance of injury)						•	•

End