



6th Grade Mathematics Curriculum Framework

	Mathematics Curriculum Framework	Lesson Number	Lesson Title
NUMBER SENSE			
*1.1.	Compare and order positive and negative fractions, decimals, and mixed numbers and place them on a number line.	MM1-015	Comparing Numbers
		MM1-110	Comparing and Ordering Fractions with Like Denominators
		MM1-135	Comparing and Ordering Fractions with Like and Unlike Denominators
		MM1-275	Comparing Decimal Numbers
		MM1-285	Ordering Decimals According to the Tenths, Hundredths and Thousandths
		MM1-575	Comparing and Ordering Integers
		MPA-031	Comparing and Ordering Fractions and Decimals
		MPA-045	Comparing and Ordering Integers
*1.2.	Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations (a/b , a to b , $a:b$).	MM1-205	Writing a Ratio to Compare Two Objects
		MM1-210	Identifying and Writing Equal Ratios
		MM1-215	Identifying a Rate to Solve Problems
*1.3.	Use proportions to solve problems (e.g., determine the value of N if $4/7 = N/21$, find the length of a side of a polygon similar to a known polygon). Use cross-multiplication as a method for solving such problems, understanding it as the multiplication of both sides of an equation by a multiplicative inverse.	MM1-220	Writing and Forming Proportions
		MM1-225	Solving Proportions
*1.4.	Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.	MM1-360	Expressing Percent as a Ratio
		MM1-370	Converting Decimals to Percents and Percents to Decimals
		MM1-375	Converting Fractions to Percents and Percents to Fractions
		MM1-380	Converting Fractions to Decimals and Percents
		MM1-610	Finding Simple Interest
		MPA-083	Finding Number Given Percent and Total
		MPA-084	Finding Percent Given Number and Total
		MPA-085	Finding Total Given Number and Percent
		MPA-086	Solving Problems Using Percent
		MPA-088	Solving Real-World Problems Involving Percent
		MPA-126	Solving Real-World Problems Involving Sales Tax
		MPA-127	Solving Real-World Problems Involving Discounts
		MPA-128	Solving Real-World Problems Involving Simple Interest
2.1.	Solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation.	MM1-145	Adding and Subtracting Fractions with Like and Unlike Denominators
		MM1-150	Adding Mixed Numbers with Like Denominators

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		MM1-155	Subtracting Mixed Numbers with Like Denominators
		MM1-160	Adding and Subtracting Mixed Numbers with Unlike Denominators
		MM1-165	Multiplying Fractions
		MM1-170	Multiplying Fractions by Simplifying the Problem
		MM1-175	Multiplying Mixed Numbers
		MM1-180	Dividing Fractions
		MM1-185	Dividing Mixed Numbers
2.2.	Explain the meaning of multiplication and division of positive fractions and perform the calculations (e.g., $5/8 \div 15/16 = 5/8 \times 16/15 = 2/3$).	MM1-165	Multiplying Fractions
		MM1-170	Multiplying Fractions by Simplifying the Problem
		MM1-175	Multiplying Mixed Numbers
		MM1-180	Dividing Fractions
		MM1-185	Dividing Mixed Numbers
*2.3.	Solve addition, subtraction, multiplication, and division problems, including those arising in concrete situations, that use positive and negative integers and combinations of these operations.	MM1-080	Identifying the Order of Operations Using Multiplication, Addition, and Subtraction
		MM1-580	Adding Integers with Like and Unlike Signs
		MM1-585	Subtracting Integers with Like and Unlike Signs
		MM1-590	Multiplying Integers with Like and Unlike Signs
		MM1-595	Dividing Integers with Like and Unlike Signs
		MPA-053	Adding, Subtracting, Multiplying, and Dividing Integers
*2.4.	Determine the least common multiple and the greatest common divisor of whole numbers; use them to solve problems with fractions (e.g., to find a common denominator to add two fractions or to find the reduced form for a fraction).	MM1-105	Identifying the Greatest Common Factor and the Least Common Multiple
		MM1-115	Writing Fractions in Simplest Form
		MM1-130	Identifying the Least Common Denominator
		MM1-135	Comparing and Ordering Fractions with Like and Unlike Denominators
		MM1-145	Adding and Subtracting Fractions with Like and Unlike Denominators
		MM1-160	Adding and Subtracting Mixed Numbers with Unlike Denominators
ALGEBRA AND FUNCTIONS			
*1.1.	Write and solve one-step linear equations in one variable.	MM1-600	Introducing Variables in Algebra
		MM1-615	Translating Words into Algebra
		MM1-625	Solving Algebraic Equations Using the Inverse Operations of Addition and Subtraction
		MM1-630	Solving Algebraic Equations Using the Inverse Operations of Multiplication and Division
		MM1-635	Calculating Distance, Rate, or Time by Solving Equations
		MM1-640	Solving Algebraic Word Problems
1.2.	Write and evaluate an algebraic expression for a given situation, using up to three variables.	MM1-600	Introducing Variables in Algebra
		MM1-605	Converting Fahrenheit and Celsius
		MM1-615	Translating Words into Algebra
		MM1-620	Using the Order of Operations in Algebraic Expressions
		MM1-640	Solving Algebraic Word Problems
		MPA-014	Evaluating Expressions for Given Variables
		MPA-041	Writing Simple Algebraic Expressions from Phrases
1.3.	Apply algebraic order of operations and the commutative, associative, and distributive properties to evaluate expressions; and justify each step in the process.	MM1-620	Using the Order of Operations in Algebraic Expressions
		MM1-640	Solving Algebraic Word Problems
		MPA-014	Evaluating Expressions for Given Variables
		MPA-041	Writing Simple Algebraic Expressions from Phrases
1.4.	Solve problems manually by using the correct order of operations or	MM1-080	Identifying the Order of Operations Using Multiplication, Addition, and Subtraction

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	by using a scientific calculator.		
		MM1-085	Identifying the Order of Operations for Multiplication, Addition, and Subtraction Using Parentheses and Exponents
		MM1-620	Using the Order of Operations in Algebraic Expressions
2.1.	Convert one unit of measurement to another (e.g., from feet to miles, from centimeters to inches).	MM1-535	Converting Customary Units of Measurement for Length
		MM1-540	Converting Customary Unit of Measurement for Capacity and Weight
		MM1-545	Converting Metric Units of Measurement for Length
		MM1-550	Converting Metric Units of Measurement for Mass and Capacity
*2.2.	Demonstrate an understanding that rate is a measure of one quantity per unit value of another quantity.	MM1-215	Identifying a Rate to Solve Problems
		MM1-220	Writing and Forming Proportions
2.3.	Solve problems involving rates, average speed, distance, and time.	MM1-215	Identifying a Rate to Solve Problems
		MM1-220	Writing and Forming Proportions
		MM1-225	Solving Proportions
		MM1-635	Calculating Distance, Rate, or Time by Solving Equations
3.1.	Use variables in expressions describing geometric quantities (e.g., $P = 2w + 2l$, $A = 1/2bh$, $C = \pi d$ - the formulas for the perimeter of a rectangle, the area of a triangle, and the circumference of a circle, respectively).	MM1-505	Determining the Perimeter of Any Polygon
		MM1-510	Determining the Area of Parallelograms and Triangles
		MM1-515	Defining a Circle
		MPA-068	Finding the Area of Irregular Figures
		MPA-077	Solving Problems Using a Formula
3.2.	Express in symbolic form simple relationships arising from geometry.	MM1-505	Determining the Perimeter of Any Polygon
		MM1-510	Determining the Area of Parallelograms and Triangles
		MM1-515	Defining a Circle
		MM1-600	Introducing Variables in Algebra
MEASUREMENT AND GEOMETRY			
*1.1.	Understand the concept of a constant such as pi ; know the formulas for the circumference and area of a circle.	MM1-515	Defining a Circle
1.2.	Know common estimates of pi (3.14; 22/7) and use these values to estimate and calculate the circumference and the area of circles; compare with actual measurements.	MM1-515	Defining a Circle
1.3.	Know and use the formulas for the volume of triangular prisms and cylinders (area of base x height); compare these formulas and explain the similarity between them and the formula for the volume of a rectangular solid.	MM1-525	Finding the Volume of Rectangular and Triangular Prisms
		MM1-530	Finding the Volume of a Cylinder
2.1.	Identify angles as vertical, adjacent, complementary, or supplementary and provide descriptions of these terms.	MM1-455	Identifying Basic Terms Used in Geometry
		MM1-460	Measuring and Classifying Angles
*2.2.	Use the properties of complementary and supplementary angles and the sum of the angles of a triangle to solve problems involving an unknown angle.	MM1-460	Measuring and Classifying Angles
		MM1-480	Identifying and Labeling Triangles According to Their Sides and Angles
		MPA-105	Determining the Measure of Angles Made by Parallel Lines and a Transversal
2.3.	Draw quadrilaterals and triangles from given information about them (e.g., a quadrilateral having equal sides but no right angles, a right isosceles triangle).	MM1-465	Naming and Classifying Polygons by Characteristics
		MM1-480	Identifying and Labeling Triangles According to Their Sides and Angles
STATISTICS, DATA ANALYSIS, AND PROBABILITY			
1.1.	Compute the range, mean, median, and mode of data sets.	MM1-415	Defining and Calculating the Range and the Mean

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1.2.	Understand how additional data added to data sets may affect these computations of measures of central tendency.	MM1-420	Defining and Calculating the Median and the Mode
		MM1-415	Defining and Calculating the Range and the Mean
1.3.	Understand how the inclusion or exclusion of outliers affects measures of central tendency.	MM1-420	Defining and Calculating the Median and the Mode
		MM1-410	Interpreting Box-and-Whisker Plots
1.4.	Know why a specific measure of central tendency (mean, median, mode) provides the most useful information in a given context.	MM1-415	Defining and Calculating the Range and the Mean
		MM1-420	Defining and Calculating the Median and the Mode
2.1.	Compare different samples of a population with the data from the entire population and identify a situation in which it makes sense to use a sample.	MM1-415	Defining and Calculating the Range and the Mean
		MM1-420	Defining and Calculating the Median and the Mode
*2.2.	Identify different ways of selecting a sample (e.g., convenience sampling, responses to a survey, random sampling) and which method makes a sample more representative for a population.	MM1-415	Defining and Calculating the Range and the Mean
		MM1-420	Defining and Calculating the Median and the Mode
*2.3.	Analyze data displays and explain why the way in which the question was asked might have influenced the results obtained and why the way in which the results were displayed might have influenced the conclusions reached.	MM1-415	Defining and Calculating the Range and the Mean
		MM1-420	Defining and Calculating the Median and the Mode
*2.4.	Identify data that represent sampling errors and explain why the sample (and the display) might be biased.	MM1-420	Defining and Calculating the Median and the Mode
		MM1-385	Collecting Data
*2.5.	Identify claims based on statistical data and, in simple cases, evaluate the validity of the claims.	MM1-390	Understanding Data in Line Graphs, Bar Graphs, Stem-and-Leaf Plots
		MM1-430	Using Graphs to Solve Story Problems
*3.1.	Represent all possible outcomes for compound events in an organized way (e.g., tables, grids, tree diagrams) and express the theoretical probability of each outcome.	MM1-435	Using Pictographs, Bar Graphs, and Line Graphs to Solve Problems
		MPA-099	Recognizing Misleading Statistics and Graphs
3.2.	Use data to estimate the probability of future events (e.g., batting averages or number of accidents per mile driven).	MM1-230	Finding the Probability of Simple Events
		MM1-235	Finding Experimental Probability
*3.3.	Represent probabilities as ratios, proportions, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable; know that if P is the probability of an event, 1-P is the probability of an event not occurring.	MPA-089	Using Tree Diagrams
		MPA-112	Constructing Sample Spaces for Compound Events (Dependent and Independent)
3.4.	Understand that the probability of either of two disjoint events occurring is the sum of the two individual probabilities and that the probability of one event following another, in independent trials, is the product of the two probabilities.	MPA-113	Finding the Probability of Compound Events Through Experimentation
		MM1-230	Finding the Probability of Simple Events
*3.5.	Understand the difference between independent and dependent	MM1-235	Finding Experimental Probability
		MPA-113	Finding the Probability of Compound Events Through Experimentation
		MPA-114	Finding the Odds of Events and Experimental Probability from a Math Model
		MM1-230	Finding the Probability of Simple Events
		MM1-235	Finding Experimental Probability
		MPA-113	Finding the Probability of Compound Events Through Experimentation
		MPA-113	Finding the Probability of Compound Events Through Experimentation
		MM1-230	Finding the Probability of Simple Events

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	events.		
		MM1-235	Finding Experimental Probability
		MPA-090	Finding the Probability of Simple Real-Life Events
MATHEMATICAL REASONING			
1.1.	Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, identifying missing information, sequencing and prioritizing information, and observing patterns.	MM1-195	Identifying the Mathematical Question Given in a Word Problem
		MM1-355	Solving Multiple-Step Problems
		MM1-425	Classifying Information from a Mathematical Story
		MPA-007	Solving Problems Using Logical Reasoning Skills
1.2.	Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed.	MM1-195	Identifying the Mathematical Question Given in a Word Problem
		MM1-355	Solving Multiple-Step Problems
		MM1-425	Classifying Information from a Mathematical Story
		MPA-007	Solving Problems Using Logical Reasoning Skills
1.3.	Determine when and how to break a problem into simpler parts.	MM1-355	Solving Multiple-Step Problems
		MM1-425	Classifying Information from a Mathematical Story
		MPA-003	Using Four-Step Plan for Problem Solving
		MPA-116	Solving Real-Life Problems by Using Guess-and-Check and Working Backwards
2.1.	Use estimation to verify the reasonableness of calculated results.	MM1-030	Estimating Sums and Differences
		MM1-060	Estimating Products
		MM1-070	Estimating Quotients
		MM1-305	Estimating Products by Rounding to the Nearest Whole Number
		MPA-133	Distinguishing Between Exact and Approximate Answers (Future Release)
		Throughout	
2.2.	Apply strategies and results from simpler problems to more complex problems.	MM1-355	Solving Multiple-Step Problems
		Throughout	
2.3.	Estimate unknown quantities graphically and solve for them by using logical reasoning and arithmetic and algebraic techniques.	MPA-116	Solving Real-Life Problems by Using Guess-and-Check and Working Backwards
		MPA-007	Solving Problems Using Logical Reasoning Skills
		Throughout	
2.4.	Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.	MM1-195	Identifying the Mathematical Question Given in a Word Problem
		MM1-355	Solving Multiple-Step Problems
		MM1-425	Classifying Information from a Mathematical Story
		MPA-007	Solving Problems Using Logical Reasoning Skills
		Throughout	
2.5.	Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.	MM1-195	Identifying the Mathematical Question Given in a Word Problem
		MM1-355	Solving Multiple-Step Problems
		MM1-425	Classifying Information from a Mathematical Story
		MPA-007	Solving Problems Using Logical Reasoning Skills
		Throughout	
2.6.	Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.	MPA-006	Determining Reasonableness of Answers and Appropriate Method of Computation
		MPA-133	Distinguishing Between Exact and Approximate Answers (Future Release)
		Throughout	
2.7.	Make precise calculations and check the validity of the results from the context of the problem.	Throughout	
		Throughout	
3.1.	Evaluate the reasonableness of the solution in the context of the	MPA-006	Determining Reasonableness of Answers and Appropriate Method of Computation

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	original situation.		
		<i>Throughout</i>	
3.2.	Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.	<i>Throughout</i>	
3.3.	Develop generalizations of the results obtained and the strategies used and apply them in new problem situations.	<i>Throughout</i>	

MM1-Fundamentals of Mathematics
 MPA-Pre-Algebra
 HA1-Algebra 1

Note: Standards were taken from the Mathematics Content Standards for California Public Schools - Kindergarten Through Grade Twelve document adopted by the California State Board of Education in December 1997 and published in 1999.

* Denotes Key Standards