BENCHMARK REPORT
MATHEMATICS GRADE 7

ARCHDIOCESE CHICAGO CATHOLIC SCHOOLS

DOMAIN: Standards for Mathematical Content		
Status:	**OCS Code:**	**Strand: *Ratios and Proportional Relationships (RP)***
	7.SMC.RP.1	**Analyze proportional relationships and use them to solve real-world and mathematical problems.**
Supporting	7.SMC.RP.1.1.a	Compute unit rates associated with ratios of fractions
Supporting	7.SMC.RP.1.2-1.a	Determine the proportional relationship between two quantities
Focus	7.SMC.RP.1.2-2.b	Identify the constant of proportionality or unit rate in a variety of contexts
Supporting	7.SMC.RP.1.2-3.b	Represent proportional relationships by writing an equation
Focus	7.SMC.RP.1.2-4.c	Describe what a point (x, y) on the graph of a proportional relationship means in terms of the context
Focus	7.SMC.RP.1.3.c	Use proportional relationships to solve multistep ratio and percent problems
Status:	**OCS Code:**	**Strand: *The Number System (NS)***
	7.SMC.NS.1	**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
Supporting	7.SMC.NS.1.1-1.a	Describe situations in which opposite quantities combine to make 0
Supporting	7.SMC.NS.1.1-2.b	Recognize p + q as the number located a distance |q| from p
Supporting	7.SMC.NS.1.1-3.a	Show that a number and its opposite have a sum of zero
Supporting	7.SMC.NS.1.1-4.b	Interpret sums of rational numbers by describing real world contexts
Supporting	7.SMC.NS.1.1-5.b	Recognize subtraction of rational numbers as adding the additive inverse, p – q = p + (–q)
Supporting	7.SMC.NS.1.1-6.b	Show that the distance between two rational numbers on a number line is the absolute value of their difference
Supporting	7.SMC.NS.1.1-7.c	Apply the principle of absolute value difference in real world contexts
Focus	7.SMC.NS.1.1-8.c	Add and subtract rational numbers using properties of operations
Supporting	7.SMC.NS.1.2-1.b	Show that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations
Focus	7.SMC.NS.1.2-2.c	Interpret products of rational numbers in real world contexts
Focus	7.SMC.NS.1.2-3.b	Divide integers with non-zero divisors
Supporting	7.SMC.NS.1.2-4.b	Recognize that every quotient of integers with a non-zero divisor is a rational number
Focus	7.SMC.NS.1.2-5.c	Interpret quotients of rational numbers in real world contexts
Focus	7.SMC.NS.1.2-6.c	Multiply and divide rational numbers by applying properties of operations
Supporting	7.SMC.NS.1.2-7.b	Convert a rational number to a decimal using long division
Supporting	7.SMC.NS.1.2-8.b	Show that the decimal form of a rational number terminates in zeros or eventually repeats
Focus	7.SMC.NS.1.3.c	Solve real world and mathematical problems using the four operations with rational numbers
Status:	**OCS Code:**	**Strand: *Expressions and Equations (EE)***
	7.SMC.EE.1	**Use properties of operations to generate equivalent expressions.**
Supporting	7.SMC.EE.1.1-1.b	Add and subtract linear expressions with rational coefficients using properties of operations
Supporting	7.SMC.EE.1.1-2.b	Factor linear expressions with rational coefficients using properties of operations
Supporting	7.SMC.EE.1.1-3.b	Expand linear expressions with rational coefficients using properties of operations
Supporting	7.SMC.EE.1.2.b	Solve problems by rewriting an expression in different forms
	7.SMC.EE.2	**Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**
Focus	7.SMC.EE.2.1-1.c	Solve multi-step real-life and mathematical problems using positive and negative rational numbers in any form, including whole numbers, fractions, and decimals
Supporting	7.SMC.EE.2.1-2.c	Calculate with positive and negative rational numbers in any form using properties of operations
Focus	7.SMC.EE.2.1-3.c	Convert between numeric forms using properties of operations
Focus	7.SMC.EE.2.1-4.c	Assess the reasonableness of solutions by mentally computing and estimating with positive and negative rational numbers
Focus	7.SMC.EE.2.2-1.c	Solve word problems leading to equations of the form px + q = r, where p, q, and r are specific rational numbers
Supporting	7.SMC.EE.2.2-2.c	Solve word problems leading to equations of the form p(x + q) = r, where p, q, and r are specific rational numbers

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Supporting	7.SMC.EE.2.2-3.c	Compare the algebraic and arithmetic solutions to word problems by showing the sequence of operations used in each approach
Supporting	7.SMC.EE.2.2-4.c	Solve word problems leading to inequalities of the form px + q > r, where p, q, and r are specific rational numbers
Supporting	7.SMC.EE.2.2-5.c	Solve word problems leading to inequalities of the form px + q < r, where p, q, and r are specific rational numbers
Supporting	7.SMC.EE.2.2-6.c	Solve word problems by graphing the solution set of an algebraic inequality
Supporting	7.SMC.EE.2.2-7.c	Interpret a graph showing the solution set of an algebraic inequality in the context of a word problem
Status:	**OCS Code:**	**Strand: *Geometry (G)***
	7.SMC.G.1	**Draw, construct, and describe geometrical figures and describe the relationships between them.**
Focus	7.SMC.G.1.1-1.a	Solve problems involving scale drawings of geometric figures
Supporting	7.SMC.G.1.1-2.a	Reproduce a scale drawing using a different scale
Focus	7.SMC.G.1.2.b	Draw geometric shapes with given conditions
Supporting	7.SMC.G.1.3.c	Describe the two-dimensional figures that result from slicing three-dimensional figures
	7.SMC.G.2	**Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.**
Supporting	7.SMC.G.2.1-1.a	Memorize the formulas for the area and circumference of a circle
Supporting	7.SMC.G.2.1-2.a	Solve problems using the formulas for the area and circumference of a circle
Supporting	7.SMC.G.2.2-1.b	Write equations for an unknown angle in a figure in a multi-step problem
Focus	7.SMC.G.2.2-2.b	Solve equations for an unknown angle in a figure using facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem
Focus	7.SMC.G.2.3-1.c	Solve real world and mathematical problems involving area of two- and three-dimensional objects
Focus	7.SMC.G.2.3-2.c	Solve real world and mathematical problems involving volume of two- and three-dimensional objects
Supporting	7.SMC.G.2.3-3.c	Solve real world and mathematical problems involving surface area of two- and three-dimensional objects
Status:	**OCS Code:**	**Strand: *Statistics and Probability (SP)***
	7.SMC.SP.1	**Use random sampling to draw inferences about a population.**
Focus	7.SMC.SP.1.1-1.a	Compare the characteristics of a sample to a statistical population
Supporting	7.SMC.SP.1.1-2.a	Determine under which conditions a sample is representative of a population
Focus	7.SMC.SP.1.1-3.a	Determine under which conditions information obtained from a sample can support valid inferences
Supporting	7.SMC.SP.1.2-1.b	Use data from a random sample to draw inferences about a population
Supporting	7.SMC.SP.1.2-2.b	Compare multiple or simulated samples of the same size to determine the variation in an estimate or prediction
	7.SMC.SP.2	**Draw informal comparative inferences about two populations.**
Supporting	7.SMC.SP.2.1-1.b	Compare the visual overlap of two numerical data distributions with similar variabilities
Supporting	7.SMC.SP.2.1-2.b	Measure the difference between the centers of two overlapping numerical data distributions by expressing the difference as a multiple of a measure of variability
Supporting	7.SMC.SP.2.2-1.b	Use measures of center and variability for numerical data from random samples to draw informal comparative inferences about two populations
Supporting	7.SMC.SP.2.2-2.b	Draw inferences from two populations by comparing measures of center and variability for numerical data from random samples
	7.SMC.SP.3	**Investigate chance processes and develop, use, and evaluate probability models.**
Supporting	7.SMC.SP.3.1.a	Show that the likelihood or probability of a chance event occurring is a number between 0 and 1
Supporting	7.SMC.SP.3.2-1.b	Approximate the probability of a chance event occurring by collecting data on the chance process that produces it
Supporting	7.SMC.SP.3.2-2.b	Approximate the probability of a chance event occurring by observing its long-run relative frequency
Supporting	7.SMC.SP.3.2-3.b	Predict the approximate relative frequency given the probability of a chance event
Supporting	7.SMC.SP.3.3-1.b	Develop a uniform probability model by assigning equal probability to all outcomes of an event
Focus	7.SMC.SP.3.3-2.b	Use a uniform probability model to determine the probabilities of an event

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Supporting	7.SMC.SP.3.3-3.b	Develop a non-uniform probability model by observing frequencies in data generated from a chance process
Supporting	7.SMC.SP.3.4-1.a	Show that the probability of a compound event is the fraction of outcomes in the sample space for which the event occurs
Focus	7.SMC.SP.3.4-2.b	Create a list, table, or tree diagram to represent sample spaces for compound events
Supporting	7.SMC.SP.3.4-3.b	Describe the outcomes of a compound event in everyday language, by analyzing a sample space which composes an event
Supporting	7.SMC.SP.3.4-4.c	Design a simulation to generate frequencies for compound events
Supporting	7.SMC.SP.3.4-5.c	Use a simulation to generate frequencies for compound events
DOMAIN: Standards for Mathematical Practices		
Status:	**OCS Code:**	**Strand: *Solve Problems (MP1)***
	7.SMP.1	**1. Make sense of problems and persevere in solving them.**
Focus	7.SMP.1.c	Make sense of problems and persevere in solving them
Status:	**OCS Code:**	**Strand: *Reason (MP2)***
	7.SMP.2	**2. Reason abstractly and quantitatively.**
Focus	7.SMP.2.c	Reason abstractly and quantitatively
Status:	**OCS Code:**	**Strand: *Construct Arguments (MP3)***
	7.SMP.3	**3. Construct viable arguments and critique the reasoning of others.**
Supporting	7.SMP.3.c	Construct viable arguments and critique the reasoning of others
Status:	**OCS Code:**	**Strand: *Model (MP4)***
	7.SMP.4	**4. Model with mathematics.**
Focus	7.SMP.4.c	Model with mathematics
Status:	**OCS Code:**	**Strand: *Use Tools (MP5)***
	7.SMP.5	**5. Use appropriate tools strategically.**
Focus	7.SMP.5.c	Use appropriate tools strategically
Status:	**OCS Code:**	**Strand: *Attend to Precision (MP6)***
	7.SMP.6	**6. Attend to precision.**
Supporting	7.SMP.6.c	Attend to precision
Status:	**OCS Code:**	**Strand: *Use Structure (MP7)***
	7.SMP.7	**7. Look for and make use of structure.**
Supporting	7.SMP.7.c	Look for and make use of structure
Status:	**OCS Code:**	**Strand: *Express Regularity (MP8)***
	7.SMP.8	**8. Look for and express regularity in repeated reasoning.**
Supporting	7.SMP.8.c	Look for and express regularity in repeated reasoning

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