BENCHMARK REPORT
MATHEMATICS GRADE 7

ARCHDIOCESE OF CHICAGO

7th Grade		
DOMAIN: Standards for Mathematical Content		
OCS Code:	**Strand:** *Ratios and Proportional Relationships (RP)*	**Rating**
7.SMC.RP.1	**Analyze proportional relationships and use them to solve real-world and mathematical problems.**	Priority
7.SMC.RP.1.1.a	Compute unit rates associated with ratios of fractions	
7.SMC.RP.1.2-1.a	Determine the proportional relationship between two quantities	
7.SMC.RP.1.2-2.b	Identify the constant of proportionality or unit rate in a variety of contexts	
7.SMC.RP.1.2-3.b	Represent proportional relationships by writing an equation	
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	
7.SMC.RP.1.3.c	Use proportional relationships to solve multistep ratio and percent problems	
OCS Code:	**Strand:** *The Number System (NS)*	**Rating**
7.SMC.NS.1	**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**	Priority
7.SMC.NS.1.1-1.a	Describe situations in which opposite quantities combine to make 0	
7.SMC.NS.1.1-2.b	Recognize p + q as the number located a distance $|q|$ from p	
7.SMC.NS.1.1-3.a	Show that a number and its opposite have a sum of zero	
7.SMC.NS.1.1-4.b	Interpret sums of rational numbers by describing real world contexts	
7.SMC.NS.1.1-5.b	Recognize subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$	
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	
7.SMC.NS.1.1-7.c	Apply the principle of absolute value difference in real world contexts	
7.SMC.NS.1.1-8.c	Add and subtract rational numbers using properties of operations	
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	
7.SMC.NS.1.2-2.c	Interpret products of rational numbers in real world contexts	
7.SMC.NS.1.2-3.b	Divide integers with non-zero divisors	
7.SMC.NS.1.2-4.b	Recognize that every quotient of integers with a non-zero divisor is a rational number	
7.SMC.NS.1.2-5.c	Interpret quotients of rational numbers in real world contexts	
7.SMC.NS.1.2-6.c	Multiply and divide rational numbers by applying properties of operations	
7.SMC.NS.1.2-7.b	Convert a rational number to a decimal using long division	
7.SMC.NS.1.2-8.b	Show that the decimal form of a rational number terminates in zeros or eventually repeats	
7.SMC.NS.1.3.c	Solve real world and mathematical problems using the four operations with rational numbers	
OCS Code:	**Strand:** *Expressions and Equations (EE)*	**Rating**
7.SMC.EE.1	**Use properties of operations to generate equivalent expressions.**	Priority
7.SMC.EE.1.1-1.b	Add and subtract linear expressions with rational coefficients using properties of operations	
7.SMC.EE.1.1-2.b	Factor linear expressions with rational coefficients using properties of operations	
7.SMC.EE.1.1-3.b	Expand linear expressions with rational coefficients using properties of operations	
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.**	Priority
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	
7.SMC.EE.2.1-2.c	Calculate with positive and negative rational numbers in any form using properties of operations	
7.SMC.EE.2.1-3.c	Convert between numeric forms using properties of operations	
7.SMC.EE.2.1-4.c	Assess the reasonableness of solutions by mentally computing and estimating with positive and negative rational numbers	
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	

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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	
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	
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	
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	
7.SMC.EE.2.2-6.c	Solve word problems by graphing the solution set of an algebraic inequality	
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	
OCS Code:	**Strand:** *Geometry (G)*	**Rating**
7.SMC.G.1	**Draw, construct, and describe geometrical figures and describe the relationships between them.**	Supporting
7.SMC.G.1.1-1.a	Solve problems involving scale drawings of geometric figures	
7.SMC.G.1.1-2.a	Reproduce a scale drawing using a different scale	
7.SMC.G.1.2.b	Draw geometric shapes with given conditions	
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.**	Priority
7.SMC.G.2.1-1.a	Memorize the formulas for the area and circumference of a circle	
7.SMC.G.2.1-2.a	Solve problems using the formulas for the area and circumference of a circle	
7.SMC.G.2.2-1.b	Write equations for an unknown angle in a figure in a multi-step problem	
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	
7.SMC.G.2.3-1.c	Solve real world and mathematical problems involving area of two- and three-dimensional objects	
7.SMC.G.2.3-2.c	Solve real world and mathematical problems involving volume of two- and three-dimensional objects	
7.SMC.G.2.3-3.c	Solve real world and mathematical problems involving surface area of two- and three-dimensional objects	
OCS Code:	**Strand:** *Statistics and Probability (SP)*	**Rating**
7.SMC.SP.1	**Use random sampling to draw inferences about a population.**	Priority
7.SMC.SP.1.1-1.a	Compare the characteristics of a sample to a statistical population	
7.SMC.SP.1.1-2.a	Determine under which conditions a sample is representative of a population	
7.SMC.SP.1.1-3.a	Determine under which conditions information obtained from a sample can support valid inferences	
7.SMC.SP.1.2-1.b	Use data from a random sample to draw inferences about a population	
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.**	Priority
7.SMC.SP.2.1-1.b	Compare the visual overlap of two numerical data distributions with similar variabilities	
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	
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	
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	
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	
7.SMC.SP.3.2-2.b	Approximate the probability of a chance event occurring by observing its long-run relative frequency	
7.SMC.SP.3.2-3.b	Predict the approximate relative frequency given the probability of a chance event	

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

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