CATHOLIC SCHOOLS
— ARCHDIOCESE OF SAN ANTONIO —

Teacher Learning Report
Grade 8 Math

Real Number Relationships	Unit	CHECKPOINT		
		1	2	3
8.2 Number and operations. The student applies mathematical process standards to represent and use real numbers in a variety of forms.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.1(A) apply math in everyday situations ⊗				
8.1(B) use problem-solving models ⊗ *connected 8.1(C)*				

Content	Unit	CHECKPOINT		
		1	2	3
Representation of Real Numbers				
8.2(A) extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers				
8.2(C) convert between standard decimal notation and scientific notation				
Magnitude of Real Numbers				
8.2(D) order a set of real numbers arising from mathematical and real-world contexts				
8.2(B) approximate the value of an irrational number, including π and square roots of numbers less than 225, and locate that rational number approximation on a number line				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.1(E) create representations				
8.1(F) analyze information ⊗ *connected 8.1(D), 8.1(G)*				

Teacher Learning Report
Grade 8 Math

>> Proportional and Non-Proportional Reasoning	Unit	CHECKPOINT		
		1	2	3
8.4 **Proportionality.** The student applies mathematical process standards to explain proportional and non-proportional relationships involving slope.				
8.5 **Proportionality.** The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions.				
8.9 **Expressions, equations, and relationships.** The student applies mathematical process standards to use multiple representations to develop foundational concepts of simultaneous linear equations.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.1(A) apply math in everyday situations ⊗				
8.1(B) use problem-solving models ⊗ *connected 8.1(C)*				

Content	Unit	CHECKPOINT		
		1	2	3
Slope				
8.4(B) graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship				
8.4(A) use similar right triangles to develop an understanding that slope, m, given as the rate comparing the change in y-values to the change in x-values, $(y_2 - y_1) / (x_2 - x_1)$, is the same for any two points (x_1, y_1) and (x_2, y_2) on the same line				
Proportional Reasoning				
8.5(A) represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$				
8.5(E) solve problems involving direct variation				
Non-Proportional Reasoning				
8.4(C) use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems ⊗				
8.5(I) write an equation in the form $y = mx + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations ⊗				
8.5(B) represent linear non-proportional situations with tables, graphs, and equations in the form of $y = mx + b$, where $b \neq 0$				
8.9(A) identify and verify the values of x and y that simultaneously satisfy two linear equations in the form $y = mx + b$ from the intersections of the graphed equations				
Proportional and Non-Proportional Recognition				
8.5(F) distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form $y = kx$ or $y = mx + b$, where $b \neq 0$				
8.5(H) identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems				
Function Identification				
8.5(G) identify functions using sets of ordered pairs, tables, mappings, and graphs ⊗				

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Grade 8 Math

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.1(E) create representations 8.1(F) analyze information ⊗ connected 8.1(D), 8.1(G)				

>> *TEKS clusters typically requiring additional time and focus in the curriculum*

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Teacher Learning Report
Grade 8 Math

Equations and Inequalities	Unit	CHECKPOINT		
		1	2	3
8.8 **Expressions, equations, and relationships.** The student applies mathematical process standards to use one-variable equations or inequalities in problem situations.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.1(A) apply math in everyday situations ⊗ 8.1(B) use problem-solving models ⊗ _connected 8.1(C)_				

Content	Unit	CHECKPOINT		
		1	2	3
Representation and Solutions of Equations/Inequalities				
8.8(C) model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants ⊗				
8.8(A) write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants				
8.8(B) write a corresponding real-world problem when given a one-variable equation or inequality with variables on both sides of the equal sign using rational number coefficients and constants				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.1(E) create representations 8.1(F) analyze information ⊗ _connected 8.1(D), 8.1(G)_				

Teacher Learning Report
Grade 8 Math

>> Geometry and Measurement – Two-Dimensional	Unit	CHECKPOINT		
		1	2	3
8.3 **Proportionality.** The student applies mathematical process standards to use proportional relationships to describe dilations.				
8.10 **Two-dimensional shapes.** The student applies mathematical process standards to develop transformational geometry concepts.				
Connected Knowledge and Skills 8.8				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.1(A) apply math in everyday situations ⊗				
8.1(B) use problem-solving models ⊗ *connected 8.1(C)*				

Content	Unit	CHECKPOINT		
		1	2	3
Triangles and Transversals				
8.8(D) use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles				
Dilations				
8.3(C) use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation				
8.3(A) generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation				
8.3(B) compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane				
8.10(D) model the effect on linear and area measurements of dilated two-dimensional shapes				
Transformations				
8.10(C) explain the effect of translations, reflections over the *x*- or *y*-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation				
8.10(A) generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane				
8.10(B) differentiate between transformations that preserve congruence and those that do not				

Process (Ways to Show)	Unit	CHECKPOINT

Teacher Learning Report
Grade 8 Math

		1	2	3
8.1(E) create representations 8.1(F) analyze information ⊗ *connected 8.1(D), 8.1(G)*				

>> TEKS clusters typically requiring additional time and focus in the curriculum

Teacher Learning Report
Grade 8 Math

Geometry and Measurement – Pythagorean Theorem	Unit	CHECKPOINT		
		1	2	3
8.7 **Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to solve problems. *Connected Knowledge and Skills 8.6*				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.1(A) apply math in everyday situations ⊗ 8.1(B) use problem-solving models ⊗ *connected 8.1(C)*				

Content	Unit	CHECKPOINT		
		1	2	3
Pythagorean Theorem				
8.7(C) use the Pythagorean theorem and its converse to solve problems				
8.6(C) use models and diagrams to explain the Pythagorean theorem				
8.7(D) determine the distance between two points on a coordinate plane using the Pythagorean theorem				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.1(E) create representations 8.1(F) analyze information ⊗ *connected 8.1(D), 8.1(G)*				

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Teacher Learning Report
Grade 8 Math

>> Geometry and Measurement – Three-Dimensional	Unit	CHECKPOINT		
		1	2	3
8.6 **Expressions, equations, and relationships.** The student applies mathematical process standards to develop mathematical relationships and make connections to geometric formulas.				
8.7 **Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to solve problems.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.1(A) apply math in everyday situations ⊗ 8.1(B) use problem-solving models ⊗ *connected 8.1(C)*				

Content	Unit	CHECKPOINT		
		1	2	3
Volume				
8.7(A) solve problems involving the volume of cylinders, cones, and spheres ⊗				
8.6(A) describe the volume formula $V = Bh$ of a cylinder in terms of its base area and its height				
8.6(B) model the relationship between the volume of a cylinder and a cone having both congruent bases and heights and connect that relationship to the formulas				
Surface Area				
8.7(B) use previous knowledge of surface area to make connections to the formulas for lateral and total surface area and determine solutions for problems involving rectangular prisms, triangular prisms, and cylinders ⊗				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.1(E) create representations 8.1(F) analyze information ⊗ *connected 8.1(D), 8.1(G)*				

>> *TEKS clusters typically requiring additional time and focus in the curriculum*

Teacher Learning Report
Grade 8 Math

Data Analysis	Unit	CHECKPOINT		
		1	2	3
8.5 **Proportionality.** The student applies mathematical process standards to use proportional and non-proportional relationships to develop foundational concepts of functions.				
8.11 **Measurement and data.** The student applies mathematical process standards to use statistical procedures to describe data.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.1(A) apply math in everyday situations ⊗				
8.1(B) use problem-solving models ⊗ *connected 8.1(C)*				

Content	Unit	CHECKPOINT		
		1	2	3
Representation of Data				
8.11(A) construct a scatterplot and describe the observed data to address questions of association such as linear, nonlinear, and no association between bivariate data ⊗				
8.11(C) simulate generating random samples of the same size from a population with known characteristics to develop the notion of a random sample being representative of the population from which it was selected				
Interpretation of Data				
8.5(D) use a trend line that approximates the linear relationship between bivariate sets of data to make predictions				
8.5(C) contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not suggest a linear relationship from a graphical representation				
8.11(A) construct a scatterplot and describe the observed data to address questions of association such as linear, nonlinear, and no association between bivariate data ⊗				
8.11(B) determine the mean absolute deviation and use this quantity as a measure of the average distance data are from the mean using a data set of no more than 10 data points				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.1(E) create representations				
8.1(F) analyze information ⊗ *connected 8.1(D), 8.1(G)*				

Teacher Learning Report
Grade 8 Math

Personal Financial Literacy	Unit	CHECKPOINT		
		1	2	3
8.12 **Personal financial literacy.** The student applies mathematical process standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor.				

Process (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
8.1(A) apply math in everyday situations ⊗				
8.1(B) use problem-solving models ⊗ *connected 8.1(C)*				

Content	Unit	CHECKPOINT		
		1	2	3
Calculations				
8.12(D) calculate and compare simple interest and compound interest earnings ⊗				
8.12(A) solve real-world problems comparing how interest rate and loan length affect the cost of credit				
8.12(C) explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time				
8.12(G) estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college				
8.12(B) calculate the total cost of repaying a loan, including credit cards and easy access loans, under various rates of interest and over different periods using an on-line calculator				
Analysis				
8.12(E) identify and explain the advantages and disadvantages of different payment methods				
8.12(F) analyze situations to determine if they represent financially responsible decisions and identify the benefits of financial responsibility and the costs of financial irresponsibility				

Process (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
8.1(E) create representations				
8.1(F) analyze information ⊗ *connected 8.1(D), 8.1(G)*				

Teacher Learning Report
Grade 8 Math

PROCESS STANDARDS: MATHEMATICAL PROCESS STANDARDS		Unit	CHECKPOINT		
			1	2	3
8.1 The student uses mathematical processes to acquire and demonstrate mathematical understanding.	Tools to Know				
	Ways to Show				

TOOLS TO KNOW		Unit	CHECKPOINT		
			1	2	3
8.1(A)	apply mathematics to problems arising in everyday life, society, and the workplace ⊗				
8.1(B)	use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution ⊗				
8.1(C)	select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems				

WAYS TO SHOW		Unit	CHECKPOINT		
8.1(D)	communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate				
8.1(E)	create and use representations to organize, record, and communicate mathematical ideas				
8.1(F)	analyze mathematical relationships to connect and communicate mathematical ideas ⊗				
8.1(G)	display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication				