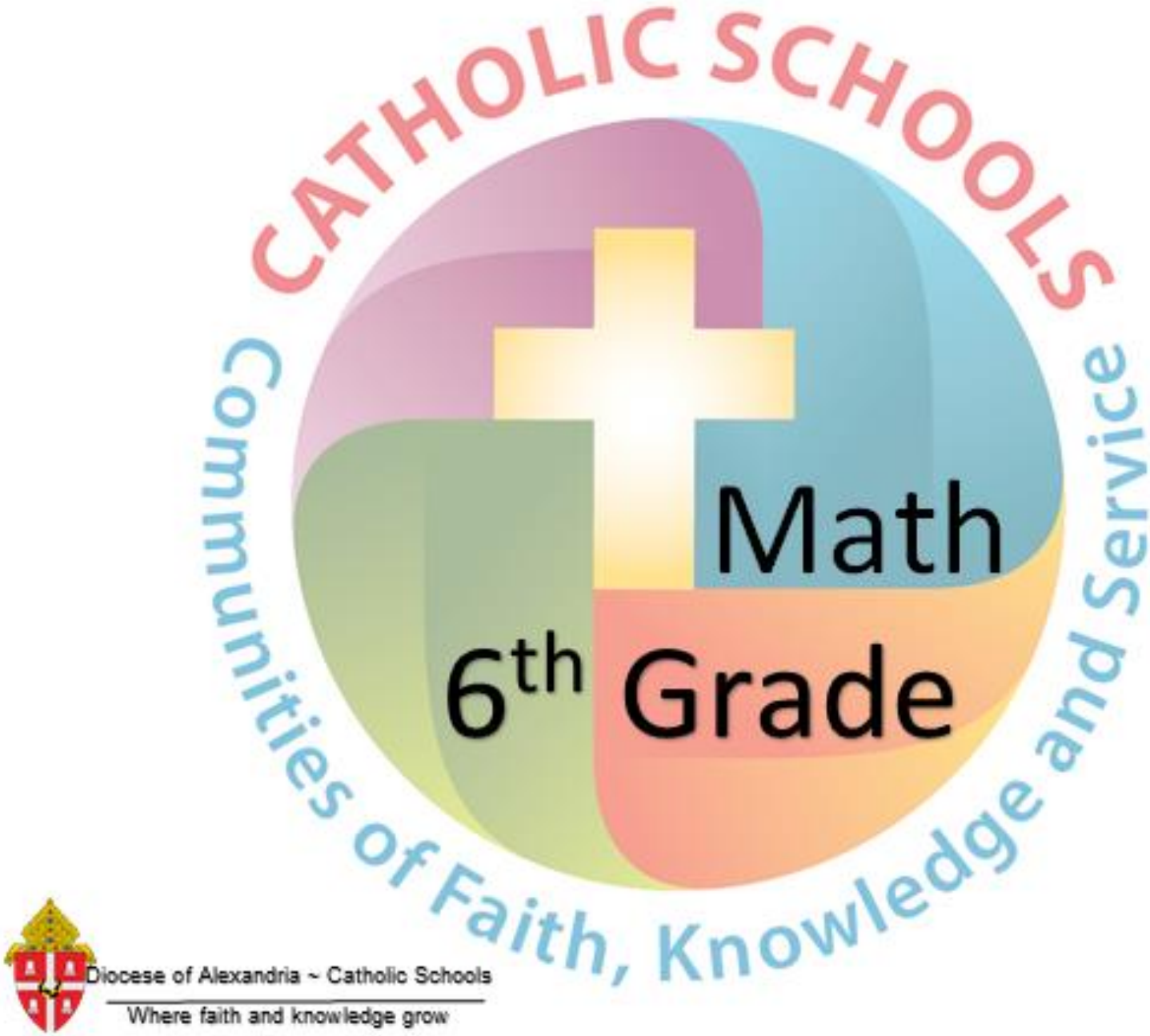

Diocese of Alexandria ~ Catholic Schools

Where faith and knowledge grow

DIOCESE OF ALEXANDRIA

As the Diocese of Alexandria seeks to provide a comprehensive learning environment, we are charged to "Teach More" by showing how all learning flows from and relates to our Creator. In this way, we will give our teaching a deeper meaning and purpose than simply the content itself. With this as our goal, the Catholic Schools Office has intertwined our selected curricular standards with the Catholic Standards developed by the Cardinal Newman Society. Through the merging of these two curricula, English Language Arts, Mathematics, Science, and Social Studies, teachers will be provided a roadmap to guide student's understanding and recognition of the relationship between learning and the connection to our God.

Thomas E. Roque, Sr.
Superintendent of Catholic Schools

DIOCESE OF ALEXANDRIA

Through comprehensive review of curricula from high performing districts throughout the United States in combination with parochial schools and Newman Cardinal Standards, the Curriculum Team for the Diocese of Alexandria has generated curricula for English Language Arts, Mathematics, Science, and Social Studies. The development of this framework is designed to guide the instructional path of teachers as they focus on the formation of their students in the areas of faith, academic excellence, responsible citizenry, and effective communication and collaboration. This process is a continuous improvement process with no defined beginning or end.

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Frameworks

THE DIOCESE of ALEXANDRIA

HOW TO USE

The frameworks are guides to instruction. The frameworks assist teachers in planning and pacing instruction. Specific dates or weeks that may be included in this document are for reference. Each school and teacher must consider the make-up of their students, focusing on the needs and strengths of each child when pacing and planning instruction.

The cycles for the year help pace instruction and ensure students have consistent coverage of the content. The duration (the suggested amount of time to spend on each cycle) does not accommodate for the scheduling of special events, inclement weather or school events. Teachers, with principal guidance, should adjust pacing as needed to accommodate for these events.

RESEARCH-BASED HIGH-YIELD PRACTICES FOR INSTRUCTION

These strategies have proven effective in affecting student learning and achievement gains. As you plan daily instruction, consider how and where to integrate these strategies into the instructional sequence. Effect size is in parentheses. Please refer to the works of John Hattie for a complete description of instructional effect size.

- Classroom Discussion/Discourse (.82)
- Teacher Clarity/making the learning visible with expectations for learning (.75)
- Reciprocal Teaching (.74)
- Feedback (.73)
- Metacognitive Strategies (.69)

Student focusAreas

Essential Questions
• *How does mathematics help us understand God's creation?* • *How does the use of math help us to understand the importance of clarity, reality and goodness?* • *How do we solve addition and subtraction sentences to solve real world problems with and without concrete objects?* • *What are the ethical, moral, and legal implications of Internet use?* • *How does the study of mathematics enable us to understand, communicate, and live Gospel values?*

Catholic School – Mathematic Standards (CS.GS)	
CS.M.K6.GS.1	Demonstrate the mental habits of precise, determined, careful and accurate questioning, inquiry, and reasoning.
CS.M.K6.GS.2	Develop lines of inquiry (as developmentally appropriate) to understand why things are true and why they are false.
CS.M.K6.GS.3	Recognize the power of the human mind as both a gift from God and a reflection of Him in whose image and likeness we were made.
CS.M.K6.GS.4	Survey the truths about mathematical objects that are interesting in their own right and independent of human opinions.

Ratios and Proportional Relationships (DOA.6.RP)

STANDARDS		ACT Reporting Category *ACT Knowledge and Skills*
Understand ratio concepts and use ratio reasoning to solve problems		
DOA.6.RP.A.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*	**Ratios and Proportional Relationships** **Justification and Explanation** **Modeling** Ratios Proportions
DOA.6.RP.A.2	Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."*	
DOA.6.RP.A.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.	
DOA.6.RP.A.3a	Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.	
DOA.6.RP.A.3b	Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what unit rate were lawns being mowed?*	
DOA.6.RP.A.3c	Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $30/100$ times the quantity); solve problems involving finding the whole, given a part and the percent.	
DOA.6.RP.A.3d	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	

The Number System (DOA.6.NS)

STANDARDS		ACT Reporting Category *ACT Knowledge and Skills*
Apply and extend previous understandings of multiplication and division to divide fractions by fractions		
DOA.6.NS.A.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for* $(2/3) \div (3/4)$ *and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that* $(2/3) \div (3/4) = 8/9$ *because* $3/4$ *of* $8/9$ *is* $2/3$. (*In general,* $(a/b) \div (c/d) = ad/bc$.) *How much chocolate will each person get if 3 people share* $1/2$ *lb of chocolate equally? How many* $3/4$*- cup servings are in* $2/3$ *of a cup of yogurt? How wide is a rectangular strip of land with length* $3/4$ *mi and area* $1/2$ *square mi?*	**The Number System** **Justification and Explanation** **Modeling** Extending Operations Rational Number Concepts & Operations
Compute fluently with multi-digit numbers and find common factors and multiples		
DOA.6.NS.B.2	Fluently divide multi-digit numbers using the standard algorithm.	**The Number System** **Justification and Explanation** **Modeling** Extending Operations Rational Number Concepts & Operations
DOA.6.NS.B.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	
DOA.6.NS.B.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4* (*9 + 2*).	

The Number System (DOA.6.NS)

STANDARDS		ACT Reporting Category *ACT Knowledge and Skills*
Apply and extend previous understandings of numbers to the system of rational numbers		
DOA.6.NS.C.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	**The Number System** **Justification and Explanation** **Modeling** Extending Operations Rational Number Concepts & Operations
DOA.6.NS.C.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	**The Number System** **Justification and Explanation** **Modeling** Extending Operations Rational Number Concepts & Operations
DOA.6.NS.C.6a	Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite.	
DOA.6.NS.C.6b	Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.	
DOA.6.NS.C.6c	Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	

The Number System (DOA.6.NS) continued…

STANDARDS		ACT Reporting Category *ACT Knowledge and Skills*
Apply and extend previous understandings of numbers to the system of rational numbers		
DOA.6.NS.C.7	Understand ordering and absolute value of rational numbers.	**The Number System** **Justification and Explanation** **Modeling** Extending Operations Rational Number Concepts & Operations
DOA.6.NS.C.7a	Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.	
DOA.6.NS.C.7b	Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write –3 oC > –7 oC to express the fact that –3 oC is warmer than –7 oC.	
DOA.6.NS.C.7c	Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.*	
DOA.6.NS.C.7d	Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.*	
DOA.6.NS.C.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	**The Number System** **Justification and Explanation** **Modeling** Extending Operations Rational Number Concepts & Operations

Expressions and Equations (DOA.6.EE)

STANDARDS		ACT Reporting Category *ACT Knowledge and Skills*
Apply and extend previous understandings of arithmetic to algebraic expressions		
DOA.6.EE.A.1	Write and evaluate numerical expressions involving whole-number exponents.	**Expressions & Equations** **Justification and Explanation** **Modeling** Expressions Linear Equations
DOA.6.EE.A.2	Write, read, and evaluate expressions in which letters stand for numbers.	
DOA.6.EE.A2a	Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as 5 – y.*	
DOA.6.EE.A.2b	Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.*	
DOA.6.EE.A.2c	Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas $V = s^3$ and $A = 6 s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.*	
DOA.6.EE.A.3	Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3(2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y+ y to produce the equivalent expression 3y.*	
DOA.6.EE.A.4	Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.*	

Expressions and Equations (DOA.6.EE) continued…

STANDARDS		ACT Reporting Category *ACT Knowledge and Skills*
Reason about and solve one-variable equations and inequalities		
DOA.6.EE.B.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	**Expressions & Equations** **Justification and Explanation** **Modeling** Expressions Linear Equations
DOA.6.EE.B.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	
DOA.6.EE.B.7	Solve real-world and mathematical problems by writing and solving equations and inequalities of the form $x + p = q$ and $px = q$ *for cases in which p, q and x are all nonnegative rational numbers.* Inequalities will include $<$, $>$, $\leq$, and $\geq$.	
DOA.6.EE.B.8	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	
Represent and analyze quantitative relationships between dependent and independent variables		
DOA.6.EE.C.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.*	**Expressions & Equations** **Justification and Explanation** **Modeling** Expressions Linear Equations

Geometry (DOA.6.G)		
STANDARDS		**ACT Reporting Category** ***ACT Knowledge and Skills***
Solve real-world and mathematical problems involving area, surface area, and volume		
DOA.6.G.A.1	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real- world and mathematical problems.	**Geometry** **Justification and Explanation** **Modeling** Figures and Their Properties Measurement of Figures
DOA.6.G.A.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = l\ w\ h$ and $V = b\ h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	
DOA.6.G.A.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	
DOA.6.G.A.4	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	

Statistics and Probability (DOA.6.SP)

STANDARDS		ACT Reporting Category *ACT Knowledge and Skills*
Develop understanding of statistical variability		
DOA.6.SP.A.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*	**Statistics and Probability** **Justification and Explanation** **Modeling** Descriptive Statistics Inferential Statistics Probability
DOA.6.SP.A.2	Understand that a set of data collected to answer a statistical question has a distribution that can be described by its center, spread, and overall shape.	
DOA.6.SP.A.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	
Summarize and describe distributions		
DOA.6.SP.B.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	**Statistics and Probability** **Justification and Explanation** **Modeling** Descriptive Statistics Inferential Statistics Probability
DOA.6.SP.B.5	Summarize numerical data sets in relation to their context, such as by:	
DOA.6.SP.B.5a	Reporting the number of observations.	
DOA.6.SP.B.5b	Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	
DOA.6.SP.B.5c	Giving quantitative measures of center (median and/or mean) and variability (interquartile range) as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	
DOA.6.SP.B.5d	Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	