

Catholic Identity: Integration of Our Faith

- 6.1A display a sense of wonder about mathematical relationships *
- 6.1B respond to the beauty, harmony, proportion, radiance, and wholeness present in mathematics *
- 6.1C show interest in how the mental processes evident within mathematics help us with the development of natural virtues *
- 6.1D exhibit appreciation for the process of discovering meanings and truths and not just arriving at an answer *

Mathematical Learning Process Standards

6.2 Learning Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding, demonstrating the mental habits of precise, determined, careful, and accurate questioning, inquiry, and reasoning. *

Tools to Know		Ways to Show	
6.2A	apply mathematics to problems arising in everyday life, society, and the workplace	6.2D	create and use representations to organize, record, and communicate mathematical ideas
6.2B	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	6.2E	analyze mathematical relationships to connect and communicate mathematical ideas
6.2C	exhibit joy at solving difficult mathematical problems and operations*	6.2F	develop lines of inquiry to understand why things are true and why they are false*

Rational Numbers

6.4 Number and operations. The student represents addition, subtraction, multiplication, and division of rational numbers while solving problems and justifying the solutions.

Applied Standards		Supporting Standards	
6.4A	order a set of rational numbers arising from mathematical and real-world contexts	6.4A.1	classify whole numbers, integers, and rational numbers using a visual representation such as a Venn diagram to describe relationships between sets of numbers
		6.4A.2	locate, compare, and order integers and rational numbers using a number line
6.4B	multiply and divide positive rational numbers fluently	6.4B.1	extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$
		6.4B.2	recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values
		6.4B.3	determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one
6.4C	add, subtract, multiply, and divide integers fluently	6.4C.1	identify a number, its opposite, and its absolute value
		6.4C.2	represent integer operations with concrete models and connect the actions with the models to standardized algorithms

Proportional Reasoning

6.5 Proportionality. The student solves problems involving proportional relationships.

6.5A	solve real-world problems using percent	6.5A.1	generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money
		6.5A.2	represent ratios and percents with concrete models, fractions, and decimals
6.5B	apply qualitative and quantitative reasoning to solve prediction and comparison of real-world problems involving ratios and rates	6.5B.1	represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions
		6.5B.2	convert units within a measurement system, including the use of proportions and unit rates

Geometry and Measurement	
6.6	Geometry and Measurement. The student use geometry to represent relationships and solve problems.
6.6A	convert units within a measurement system, including the use of proportions and unit rates
6.6B	determine the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle
6.6C	determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers
	6.6C.1 model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes 6.6C.2 write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers

Data Analysis	
6.7	Data analysis. The student uses statistical representations to analyze data.
6.7A	interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots
6.7B	Use appropriate numerical or categorical data with numerical summaries to analyze and interpret a set of data
	6.7A.1 represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots 6.7B.1 summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread), and use these summaries to describe the center, spread, and shape of the data distribution 6.7B.2 summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution 6.7B.3 use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution

Expressions, Equations, and Inequalities	
6.8	Algebra. The student uses equations and inequalities to solve problems.
6.8A	generate equivalent numerical expressions using order of operations, including whole number exponents, and prime factorization
6.8B	model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts
	6.8A.1 generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties 6.8A.2 determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations 6.8B.1 write one-variable, one-step equations and inequalities 6.8B.2 represent solutions for one-variable, one-step equations and inequalities on number lines

Algebraic Representations	
6.8	Algebra. The student uses multiple representations to describe algebraic relationships.
6.8C	represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$
	6.8C.1 compare two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships 6.8C.2 identify independent and dependent quantities from tables and graphs 6.8C.3 write an equation that represents the relationship between independent and dependent quantities from a table 6.8C.4 graph points in all four quadrants using ordered pairs of rational number