

Catholic Identity Standards

6A.0 The student understands and integrates the content of what is learned into their faith and daily life.

- 6A.0A recognize that every human life is sacred because each person is created and loved by God
- 6A.0B describe ways to take part in/be responsible to the community by discerning and using our God-given gifts
- 6A.0C recognize and oppose unjust social structures and work toward justice for all
- 6A.0D see God at work in all things and as expressed in the sacraments
- 6A.0E connect scripture, tradition, and the models of Mary and the saints to guide, grow, and deepen faith

Mathematical Process Standards

6A.1 The student uses mathematical processes to acquire and demonstrate mathematical understanding.

- 6A.1A apply mathematics to problems arising in everyday life, society, and the workplace
- 6A.1B 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
- 6A.1C 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
- 6A.1D communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
- 6A.1E create and use representations to organize, record, and communicate mathematical ideas
- 6A.1F analyze mathematical relationships to connect and communicate mathematical ideas
- 6A.1G display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication
- 6A.GS2* develop lines of inquiry (as developmentally appropriate) to understand why things are true and why they are false
- 6A.GS3* recognize the power of the human mind as both a gift from God and a reflection of Him in whose image and likeness we are made
- 6A.GS4* survey the truths about mathematical objects that are interesting in their own right and independent of human opinions
- 6A.DS1* display a sense of wonder about mathematical relationships as well as confidence in mathematical certitude
- 6A.DS2* respond to the beauty, harmony, proportion, radiance, and wholeness present in mathematics
- 6A.DS3* show interest in the pursuit of understanding for its own sake
- 6A.DS4* exhibit joy at solving difficult mathematical problems and operations

Numeracy--Foundations of Rational Numbers

6A.2 The student applies mathematical process standards to represent and use rational numbers in a variety of forms.

- 6A.2A classify sets and subsets using a visual representation such as a Venn diagram or a hierarchy to describe relationships between sets of rational numbers
- 6A.2B identify a number, its opposite, and its absolute value
- 6A.2C represent benchmark fractions and percents such as 1%, 10%, 25%, 33 1/3%, and multiples of these values using 10 by 10 grids, strip diagrams, number lines, and numbers as proportional relationships
- 6A.2D generate equivalent forms of fractions, decimals, and percents using real-world problems as proportional relationships, including problems that involve money
- 6A.2E use equivalent fractions, decimals, and percents to show equal parts of the same whole as proportional relationships
- 6A.2F locate, compare, and order integers and rational numbers using a number line
- 6A.2G order a set of rational numbers arising from mathematical and real-world contexts
- 6A.2H use coordinate geometry to identify locations on a plane, including graphing points in all four quadrants using ordered pairs of rational numbers

Numeracy--Operations with Rational Numbers

6A.3 The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions.

- 6A.3A recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values
- 6A.3B 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
- 6A.3C extend representations for division to include fraction notation such as a/b represents the same number as $a \div b$ where $b \neq 0$
- 6A.3D represent integer operations with concrete models and connect the actions with the models to standardized algorithms
- 6A.3E add, subtract, multiply, and divide integers fluently
- 6A.3F add, subtract, multiply, and divide rational numbers
- 6A.3G generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization
- 6A.3H balance a check register that includes deposits, withdrawals, and transfers
- 6A.3I create and organize a financial assets and liabilities record and construct a net worth statement

Numeracy--Applications of Percents

6A.4 The student applies mathematical process standards to solve problems involving percents as proportional relationships.

- 6A.4A solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models
- 6A.4B calculate the sales tax for a given purchase and calculate income tax for earned wages

Proportionality--Foundations of Ratios and Rates

6A.5 The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations.

- 6A.5A give examples of ratios as multiplicative comparisons of two quantities describing the same attribute
- 6A.5B give examples of rates as the comparison by division of two quantities having different attributes, including rates as quotients
- 6A.5C represent ratios and percents with concrete models, fractions, and decimals
- 6A.5D represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions

Proportionality--Applications of Ratios and Rates

6A.6 The student applies mathematical process standards to solve problems involving proportional relationships.

- 6A.6A apply qualitative and quantitative reasoning to solve prediction and comparison of real world problems involving ratios and rates
- 6A.6B calculate unit rates from rates in mathematical and real-world problems
- 6A.6C convert within and between measurement systems, including the use of proportions and the use of unit rates

One-Variable Expressions, Equations, and Relationships--Foundations of One-Variable Relationships

6A.7 The student applies mathematical process standards to develop concepts of expressions and equations.

- 6A.7A distinguish between expressions and equations verbally, numerically, and algebraically
- 6A.7B determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations
- 6A.7C generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties

One-Variable Expressions, Equations, and Relationships--Applications of One-Variable Relationships

6A.8 The student applies mathematical process standards to use equations and inequalities to represent situations and solve problems.

- 6A.8A write one-variable, one- and two-step equations and inequalities to represent constraints or conditions within problems
- 6A.8B write corresponding real-world problems given one-variable, one- and two-step equations or inequalities
- 6A.8C represent solutions for one-variable, one- and two-step equations and inequalities on number lines
- 6A.8D model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts
- 6A.8E model and solve one-variable, two-step equations and inequalities
- 6A.8F determine if the given value(s) make(s) one-variable, one- and two-step equations and inequalities true

Two-Variable Equations and Relationships--Foundations of Linear Relationships

6A.9 The student applies mathematical process standards to use multiple representations to describe algebraic relationships.

- 6A.9A identify independent and dependent quantities from tables and graphs
- 6A.9B write an equation that represents the relationship between independent and dependent quantities from a table
- 6A.9C represent a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$
- 6A.9D 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

Two-Variable Equations and Relationships--Applications of Proportional Relationships

6A.10 The student applies mathematical process standards to represent and solve problems involving proportional relationships.

- 6A.10A represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$

Geometric Expressions, Equations, and Relationships--Foundations of Geometric Concepts Equations

6A.11 The student applies mathematical process standards to use geometry to represent relationships.

- 6A.11A model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes
- 6A.11B 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

Geometric Expressions, Equations, and Relationships--Applications of Geometric Concepts

6A.12 The student applies mathematical process standards to use geometry to represent relationships and solve problems.

- 6A.12A extend previous knowledge of triangles and their properties to include 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
- 6A.12B determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles where dimensions are positive rational numbers
- 6A.12C solve problems involving the volume of right rectangular prisms and triangular prisms
- 6A.12D write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships

Data Science--Foundations of Measurement and Data

6A.13 The student applies mathematical process standards to represent and analyze data.

- 6A.13A distinguish between situations that yield data with and without variability

6A.13B represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots

Data Science--Applications of Measurement and Data

6A.14 The student applies mathematical process standards to use numerical or graphical representations to analyze and solve problems.

6A.GS1* demonstrate the mental habits of precise, determined, careful, and accurate questioning, inquiry, and reasoning

6A.14A use the graphical representation of numeric data to describe the center, spread, and shape of the data distribution

6A.14B 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

6A.14C interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots

6A.14D solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents

6A.14E compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads

6A.14F 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

Personal Financial Literacy--Money Management

6A.15 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.

6A.DS5* show interest in how the mental processes evident within the discipline of mathematics (such as order, perseverance, and logical reasoning) help us with the development of the natural virtues (such as self-discipline and fortitude)

6A.15A compare the features and costs of a checking account and a debit card offered by different local financial institutions

6A.15B identify and explain the advantages and disadvantages of different payment methods, including distinguishing between debit cards and credit cards

6A.15C explain why it is important to establish a positive credit history

6A.15D describe the information in a credit report and how long it is retained

6A.15E describe the value of credit reports to borrowers and to lenders

6A.15F explain various methods to pay for college, including through savings, grants, scholarships, student loans, and work-study

6A.15G compare the annual salary of several occupations requiring various levels of post secondary education or vocational training and calculate the effects of the different annual salaries on lifetime income