

Catholic Identity: Integration of Our Faith

- 4.1A display a sense of wonder about mathematical relationships *
- 4.1B respond to the beauty, harmony, proportion, radiance, and wholeness present in mathematics *
- 4.1C show interest in how the mental processes evident within mathematics help us with the development of natural virtues *
- 4.1D exhibit appreciation for the process of discovering meanings and truths and not just arriving at an answer *

Learning Process Standards

4.2 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	
4.2A	apply mathematics to problems arising in everyday life, society, and the workplace	4.2D	create and use representations to organize, record, and communicate mathematical ideas
4.2B	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	4.2E	analyze mathematical relationships to connect and communicate mathematical ideas
4.2C	exhibit joy at solving difficult mathematical problems and operations*	4.2F	develop lines of inquiry to understand why things are true and why they are false*

Place Value of Whole Numbers and Decimals

4.3 Place value. The student represents, compares, and orders whole numbers and decimals and understands relationships related to place value.

Applied Standards		Supporting Standards	
4.3A	represent the value of the digit in whole numbers through 1,000,000,000 using expanded notation and numerals	4.3A.1	interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left
		4.3A.2	compare and order whole numbers to 1,000,000,000 and represent comparisons using the symbols $>$, $<$, or $=$
4.3B	represent the value of the digit in decimals to the hundredths using expanded notation and numerals	4.3B.1	represent decimals, including tenths and hundredths, using concrete, visual models, number lines and money
		4.3B.2	compare and order decimals using concrete and visual models to the hundredths
		4.3B.3	represent decimals to the tenths or hundredths as distances from zero on a number line

Fractions

4.4 Number and operations. The student represents and generates fractions to solve problems.

4.4C	compare two fractions with different numerators and different denominators and represent the comparison using the symbols $>$, $=$, or $<$	4.4C.1	determine if two given fractions are equivalent
		4.4C.2	relate decimals to fractions that name tenths and hundredths
		4.4C.3	represent fractions to the tenths or hundredths as distances from zero on a number line
4.4D	represent and solve addition and subtraction of fractions with equal denominators using objects and pictorial models that build to the number line and properties of operations	4.4D.1	represent a fraction a/b as a sum of fractions $1/b$, where a and b are whole numbers, $b > 0$, including when $a > b$
		4.4D.2	decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations

Whole Number and Decimal Operations		
4.4 Number and operations. The student uses strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy.		
4.4E	add and subtract whole numbers and decimals to the hundredths place	4.4E.1 round whole numbers to a given place value through the hundred thousand place
4.4F	solve with fluency one- and two-step problems involving multiplication	4.4F.1 determine products of a number and 10 or 100 using properties of operations and place value understandings 4.4F.2 represent the product of 2 two-digit numbers using arrays, area models, or equations 4.4F.3 multiply up to a four-digit number by a one-digit number and to multiply a two-digit number by a two-digit number
4.4G	solve with fluency one- and two-step problems involving division, including interpreting remainders	4.4G.1 represent the quotient of up to a four-digit whole number divided by a one-digit whole number using arrays, area models, or equations 4.4G.2 use strategies and algorithms, including the standard algorithm, to divide up to a four-digit dividend by a one-digit divisor
4.4H	represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity	4.4H.1 represent problems using an input-output table and numerical expressions to generate a number pattern that follows a given rule representing the relationship of the values in the resulting sequence and their position in the sequence
Geometry		
4.6 Geometry and Measurement. The student analyzes geometric attributes in order to develop generalizations about their properties.		
4.6A	classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size	4.6A.1 identify points, lines, line segments, rays, angles, and perpendicular and parallel lines 4.6A.2 identify and draw one or more lines of symmetry, if they exist, for a two-dimensional figure 4.6A.3 apply knowledge of right angles to identify acute, right, and obtuse triangles
4.6B	determine the approximate measures of angles in degrees to the nearest whole number using a protractor	4.6B.1 draw an angle with a given measure 4.6B.2 determine the measure of an unknown angle formed by two non-overlapping adjacent angles given one or both angle measures
Measurement		
4.6 Geometry and Measurement. The student selects appropriate customary and metric units, strategies, and tools to solve problems involving measurement.		
4.6C	solve problems related to perimeter and area of rectangles where dimensions are whole numbers	4.6C.1 use models to determine the formulas for the perimeter of a rectangle ($l + w + l + w$ or $2l + 2w$), including the special form for perimeter of a square ($4s$) and the area of a rectangle ($l \times w$)
4.6D	solve problems that deal with measurements of length, intervals of time, liquid volumes, mass, and money using addition, subtraction, multiplication, or division as appropriate	4.6D.1 identify relative sizes of measurement units within the customary and metric systems 4.6D.2 convert measurements within the same measurement system, customary or metric, from a smaller unit into a larger unit or a larger unit into a smaller unit when given other equivalent measures represented in a table
Data Analysis		
4.7 Data Analysis.		
4.7A	solve one- and two-step problems using data in whole number, decimal, and fraction form in a frequency table, dot plot, or stem-and-leaf plot	4.7A1 represent data on a frequency table, dot plot, or stem-and-leaf plot marked with whole numbers and fractions