# Snapshot – Grade 7 Math

**Catholic Schools** DIOCESE of DALLAS

## Catholic Identity Standards

**7.1** **Catholic identity standards.** The student understands and integrates the content of what is learned into their faith and daily life.*

| Ways to Grow | | |
|---|---|---|
| | 7.1A | recognize that every human life is sacred because each person is created and loved by God* |
| | 7.1B | describe ways to take part in/be responsible to the community by discerning and using our God-given gifts* |
| | 7.1C | recognize and oppose unjust social structures and work toward justice for all* |
| | 7.1D | see God at work in all things and as expressed in the sacraments* |
| | 7.1E | connect scripture, tradition, and the models of Mary and the saints to guide, grow, and deepen faith* |

## Learning Process Standards

**7.2** **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 | |
|---|---|---|---|
| 7.2A | apply mathematics to problems arising in everyday life, society, and the workplace | 7.2D | create and use representations to organize, record, and communicate mathematical ideas |
| 7.2B | 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 | 7.2E | analyze mathematical relationships to connect and communicate mathematical ideas |
| | | 7.2F | exhibit appreciation for the ongoing nature of mathematical inquiry and develop lines of inquiry to understand why things are true and why they are false* |
| 7.2C | exhibit habits of thinking quantitatively and in an orderly manner, especially through immersion in mathematical observations found within creation* | | |

## Rational Number Representations and Operations

**7.4** **Number and operations.** The student adds, subtracts, multiplies, and divides rationale numbers while solving problems and justifying solutions.

| Applied Standards | | Supporting Standards | |
|---|---|---|---|
| 7.4A | solve problems using addition, subtraction, multiplication, and division of rational numbers | 7.4A.1 | add, subtract, multiply, and divide rational numbers fluently |
| | | 7.4A.2 | extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers |

## Proportional Reasoning

**7.5** **Proportionality.** The student represents and solves problems involving proportional relationships.

| | | | |
|---|---|---|---|
| 7.5A | represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$ | 7.5A.1 | calculate unit rates from rates in mathematical and real-world problems |
| | | 7.5A.2 | determine the constant of proportionality ($k = y/x$) within mathematical and real-world problems |
| 7.5B | represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$ | | |
| 7.5C | solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems | | |

## Geometry and Measurement

| 7.6 | **Geometry and measurement.** The student solves geometric problems involving proportional relationships and volume. | | |
|---|---|---|---|
| 7.6A | determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles | 7.6A.1 | solve problems involving the lateral and total surface area of a rectangular prism, rectangular pyramid, triangular prism, and triangular pyramid by determining the area of the shape's net |
| 7.6B | solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids | 7.6B.1 | model the relationship between the volume of a rectangular prism and a rectangular pyramid having both congruent bases and heights and connect that relationship to the formulas |
| | | 7.6B.2 | explain verbally and symbolically the relationship between the volume of a triangular prism and a triangular pyramid having both congruent bases and heights and connect that relationship to the formulas |
| 7.6C | solve mathematical and real-world problems involving similar shape and scale drawings | 7.6C.1 | generalize the critical attributes of similarity, including ratios within and between similar shapes |
| 7.6D | write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships | | |
| 7.6E | determine the circumference and area of circles | 7.6E.1 | describe $\pi$ as the ratio of the circumference of a circle to its diameter |

## Data Analysis

| 7.7 | **Data analysis.** The student uses statistical representations to analyze data. | | |
|---|---|---|---|
| 7.7A | solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents | 7.7A.1 | use data from a random sample to make inferences about a population |
| 7.7B | compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads | 7.7B.1 | compare two populations based on data in random samples from these populations, including informal comparative inferences about differences between the two populations |

## Probability

| 7.7 | **Data analysis.** The student uses probability and statistics to describe or solve problems involving proportional relationships. | | |
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| 7.7C | determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces | 7.7C.1 | represent sample spaces for simple and compound events using lists and tree diagrams |
| | | 7.7C.2 | select and use different simulations to represent simple and compound events with and without technology |
| | | 7.7C.3 | find the probabilities of a simple event and its complement and describe the relationship between the two |
| 7.7D | solve problems using qualitative and quantitative predictions and comparisons from simple experiments | 7.7D.1 | make predictions and determine solutions using experimental data for simple and compound events |
| | | 7.7D.2 | make predictions and determine solutions using theoretical probability for simple and compound events |
| | | 7.7D.3 | use data from a random sample to make inferences about a population |

## Equations and Inequalities

| 7.8 | **Algebra.** The student solves one-variable equations and inequalities. | | |
|---|---|---|---|
| 7.8A | model and solve one-variable, two-step equations and inequalities | 7.8A.1 | write one-variable, two-step equations and inequalities |
| | | 7.8A.2 | represent solutions for one-variable, two-step equations and inequalities on number lines |