Middle School Mathematics

The students will develop their mathematical ability while learning to value mathematics and its uses in daily life. Solving problems using a variety of approaches and communicating ideas clearly and logically are emphasized. Technology is integrated through Aleks, a web-based assessment and learning system. Students participate in math contests offered by neighboring high schools.

Holy Family incorporates the Illinois Learning Standards/Common Core Standards: Mathematically proficient students will be able to:

- Make sense of problems and persevere in solving them
- Reason abstractly and quantitatively
- Construct viable arguments and critique the reasoning of others
- Model with mathematics
- Use appropriate tools strategically
- Attend to precision
- Look for and make use of structure
- Look for and express regularity in repeated reasoning

Grades 5 and 6 utilize the enVision Math Program, a spiral curriculum, which begins in Kindergarten. Content and specialized vocabulary that is introduced in the primary grades is built upon in a more complex manner in junior high. Algebra concepts also continue to build, and, in Grades 7 and 8, become the main focus.

5th Grade students will be able to:

- Write and interpret numerical expressions
- Analyze patterns and relationships
- Understand the place value system
- Perform operations with multi-digit numbers and with decimals to hundredths
- Use equivalent fractions as a strategy to add and subtract fractions
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions
- Convert like measurement units within a given measurement system
- Represent and interpret data
- Understand concepts of volume and relate volume to multiplication and to addition
- Graph points on the coordinate plane to solve real-world and mathematical problems
- Classify two-dimensional and three-dimensional figures into categories based on their properties

6th Grade students will be able to:

- Understand the concepts and use ratio reasoning to solve problems
- Apply and extend previous understanding of multiplication and division to divide fractions by fractions

- Compute fluently with multi-digit numbers and find common factors and multiples
- Apply and extend previous understandings of numbers to the system of rational numbers
- Apply and extend previous understandings of arithmetic to algebraic expressions
- Reason about and solve one-variable equations and inequalities
- Represent and analyze quantitative relationships between dependent and independent variables
- Solve real-world and mathematical problems involving area, surface area and volume
- Develop understanding of statistical variability
- Summarize and describe distributions

Grade 7 focuses on a Pre-Algebra program by the publisher, McDougal Littell. Students prepare for high school testing in the fall of their 8th Grade year.
7th Grade students will be able to:

- Analyze proportional relationships and use them to solve real-world and mathematical problems.
- Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.
- Use properties of operations to generate equivalent expressions.
- Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
- Draw, construct and describe geometrical figures and describe the relationships between them.
- Solve real-life and mathematical problems involving angle measure, area, surface area and volume.
- Use random sampling to draw inferences about a population.
- Draw informal comparative inferences about two populations.
- Investigate chance processes and develop, use and evaluate probability models.

Grade 8 utilizes an Algebra 1 textbook, equivalent to a freshman level course. (McDougal Littell). Skills taught are in line per Articulation meetings with high school teachers.
8th Grade students will be able to:

- Know that there are numbers that are not rational, approximate them by rational numbers
- Work with radicals and integer exponents
- Understand the connections between proportional relationships, lines and linear equations
- Analyze and solve linear equations and pairs of simultaneous linear equations
- Define, evaluate, and compare functions
- Use functions to model relationships between quantities
- Understand congruence and similarity using physical models and interactive software

- Understand and apply the Pythagorean Theorem
- Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres
- Investigate patterns of association in bivariate data