SDJA Mathematics- GMLS (K-5)

Mathematics education at SDJA is formed by the belief that all students are capable of learning mathematics and should be encouraged to excel. Through a comprehensive curriculum designed using current research on math education and student learning, the math department strives to develop students' curiosity, initiative and confidence in using logical problem solving skills and strategies.

The goal of the mathematics program for all students is the mastery of mathematical concepts and logical problem solving skills, incorporating real world applications of mathematical ideas and methods, collaborative active learning, and exposure to the intrinsic rhythm of mathematics.

Grades K-5

The math curriculum for grades K-5 is *Math in Focus*, which is Houghton Mifflin's version of Singapore Math. *Math in Focus* provides the Singapore Math curriculum— emphasizing mastery of basic mathematical concepts and highlighting problem solving as the focus of mathematics learning. One bedrock approach in the Singapore Math program is that fewer topics taught in greater depth allows students to gain a more meaningful understanding of the concepts and skills needed as the student's math education progresses.

Singapore Math teaches students math concepts in a three-step process: concrete, pictorial, and abstract. This approach is based on psychological studies that show people learn in three stages by first handling real objects before transitioning to pictures and then to symbols. Through this process SDJA students build the fundamentals needed for problem solving.

Lower School

Kindergarten

In Kindergarten the main emphasis for students is the study of numbers. Utilizing the Singapore three-step process, students learn to represent and compare whole numbers. Geometric concepts are introduced as students learn to describe shapes and space.

First Grade

In the first grade students develop an understanding of addition, subtraction, and the strategies for addition and subtraction of whole numbers. They also learn the relationship and place value of tens and ones. Students develop an understanding of linear measurement. The geometric emphasis during the first grade is the composing, decomposing and comparing of geometric shapes.

Second Grade

Second graders expand their fluency with addition and subtraction by extending their understanding of place value in base ten. They learn to use using standard units of measure and relate addition and subtraction to measured length. Building on their earlier exposure to shapes, students use geometric concepts to describe and analyze shapes. Students learn to use measuring tools accurately and use data to develop critical thinking skills.

Third Grade

In the third grade the concepts of fractions, multiplication, division and measurement are the core concepts of students' study. They develop an understanding of multiplication and division and strategies for multiplication and division and develop an understanding of fractions, especially unit fractions (fractions with numerator of 1). The geometric emphasis is developing an understanding of the structure of rectangular arrays and of the concept of area. Student also learn to describe and analyze two-dimensional shapes.

Fourth Grade

In grade four, students focus on developing and understanding and fluency with multi-digit multiplication and dividing to find quotients involving multi-digit dividends. They develop an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers. Students expand their understanding of geometric figures and that they can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

Fifth Grade

In the fifth grade students develop fluency with addition and subtraction of fractions, and develop an understanding of the multiplication of fractions and of division of fractions and mixed numbers. They integrate decimal fractions into the place value system and develop an understanding of operations with decimals to hundredths. Students' geometry studies address developing an understanding of the concept of volume and the measuring of it.