

Course Syllabus

Mathematics, Grade 4

Grade 4 Math, Final
Guardian Angels School

The Foundations of Learning (1999) curriculum offers kindergarten through grade 12 objectives for the Knowledge and Comprehension levels of Bloom's Taxonomy.

EdVISION developed this curriculum based on extensive research of standardized and state tests. Additional objectives were added to enhance the content areas.

The mathematics component of the Foundations of Learning curriculum focuses on basic skills. Objectives primarily involve the identification, recognition, comprehension, or understanding of various math topics.

The Principles and Standards for School Mathematics describe the mathematical understanding, knowledge, and skills that students should acquire from prekindergarten through grade 12.

The ITBS Form A for mathematics measures the skills and achievement of students.

In this area students concentrate on making mathematical connections and using principles of mathematics to communicate, reason, and solve problems. Students engage in projects which require them to apply number systems, operations, and forms in real-world contexts.

The MEAP assesses student progress in Mathematics.

The Michigan Curriculum Framework describes Mathematics as the science of patterns and relationships and as the language and logic of our technological world. The Michigan Curriculum Framework states that Mathematical power is the ability to explore, to conjecture, to reason logically, and to use a variety of mathematical methods effectively to solve problems; whereas the ultimate goal of mathematics education is for all students to develop mathematical power to participate fully as a citizen and worker in our contemporary world.

The Michigan Curriculum Framework Mathematics Vision Statement states that a mathematically powerful individual should be able to:

- * reason mathematically
- * communicate mathematically
- * problem solve using mathematics

* make connections within mathematics and between mathematics and other fields.

The Foundations of Learning curriculum provides objectives for fourth grade students.

Algebraic Concepts

The Algebraic Concepts Unit includes Competencies/Objectives which focus on algebraic equations and operations. Students explore the symbolic nature of algebraic concepts by identifying and extending patterns in algebra, by following algebraic procedures, and by proving theorems with properties.

- The learner will be able to identify the number sentence to be used in solving a word problem.
- The learner will be able to identify the missing part of an equation.

Data Interpretation

The Data Interpretation Unit includes Competencies/Objectives which focus on the study and use of graphical forms. Students collect and classify data, organize and display data, use logical reasoning, and problem solving.

- The learner will be able to interpret information given in bar graphs.
- The learner will be able to tally information in order to record data.

Decimals

The Decimals Unit includes Competencies/Objectives which focus on number sense and operations with decimals. Students compare and compute decimals, study money, estimate decimals, problem solve using decimals, and reason using decimals.

- The learner will be able to add decimals that do not require regrouping.

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- The learner will be able to add decimals that require regrouping.
- The learner will be able to subtract decimals that do not require regrouping.
- The learner will be able to subtract decimals that require regrouping.
- The learner will be able to identify the decimals that correspond to partially shaded figures.
- The learner will be able to use prior knowledge to estimate the possible prices of small items (candy, toys, etc.).

Fractions

The Fractions Unit includes Competencies/Objectives which focus on number sense and operations with fractions. Students compare and order fractions, study fraction parts, estimate with fractions, reason using fractions, and problem solve using fractions.

- The learner will be able to add two fractions with like denominators where denominators are less than 10.
- The learner will be able to add two fractions with different denominators.
- The learner will be able to subtract two fractions with like denominators where denominators are less than 40.
- The learner will be able to subtract two fractions with different denominators.

Geometry

The Geometry Unit includes Competencies/Objectives which focus on exploring geometric concepts from multiple perspectives. Students study properties and construction of figures, proofs and theorems, history of geometry, transformations, logic, and problem solving.

- The learner will be able to identify vertical lines.
- The learner will be able to identify horizontal lines.

- The learner will be able to recognize congruent figures.

Measurement

The Measurement Unit includes Competencies/Objectives which focus on measurement concepts, applications, and analysis. Students study length, area, circumference, perimeter, volume, weight, formulas, distance, calendar, money, tools, accuracy, units, constructions, patterns, and problem solving.

- The learner will be able to read a standard clock (not digital) and calculate lengths of time through addition and subtraction.
- The learner will be able to measure objects using a metric ruler.
- The learner will be able to convert time between hours and minutes.
- The learner will be able to compare amounts of money and determine the difference.
- The learner will be able to find the perimeter of rectangles.
- The learner will be able to compare areas of real objects using nonstandard units.
- The learner will be able to identify containers used to measure liquids.
- The learner will be able to understand the concept of capacity measurement.
- The learner will be able to determine the area of a square, given the dimensions of a side.

Number Theory

The Number Theory Unit includes Competencies/Objectives which focus on manipulating number forms and classifications. Students make connections between number forms and their real world applications.

- The learner will be able to match word names with whole numbers up to 1000.

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- The learner will be able to determine if a group of numbers is odd or even and complete a number pattern.
- The learner will be able to identify expanded notation for whole numbers less than 1000.
- The learner will be able to identify two equivalent forms by determining which shaded portions of given rectangles are equal.
- The learner will be able to identify equivalent forms of whole numbers using place value (such as 5 tens as 50).
- The learner will be able to identify multiples of one-digit numbers.

Numeration

The Numeration Unit includes Competencies/Objectives which focus on exploring ordinality, identifying and extending number patterns, comparing numbers, and demonstrating number relationships.

- The learner will be able to determine which of two numbers is greater than or less than the other.
- The learner will be able to put numbers that are less than 10,000 in order.
- The learner will be able to round whole numbers to the nearest thousand.
- The learner will be able to use rounding to determine the sum of a given equation.
- The learner will be able to use rounding to determine the difference of a given equation.

Probability/Statistics

The Probability/Statistics Unit includes Competencies/Objectives which focus on data analysis and probability concepts. Students collect, analyze, and make sense of real world data (including overlapping data, inconclusive data, etc.).

- The learner will be able to average up to ten whole numbers (each less than 1000).

Whole Numbers

The Whole Numbers Unit includes Competencies/Objectives which focus on whole number concepts. Students perform operations with whole numbers, use manipulatives to demonstrate whole number concepts, and solve problems with whole numbers in real world contexts.

- The learner will be able to divide one set of manipulatives into two equal sets.
- The learner will be able to use manipulatives to demonstrate concepts related to division.