



The First Academy Lower School Mathematics

MATHEMATICS

VISION

Mathematics is one tool by which we better understand God's precise, orderly, and sometimes mysterious creation. As a result of a mathematics education, students will value this tool and develop literacy in the use of mathematics. In seeking solutions students incorporate technology and problem solving skills. Developmentally appropriate instruction challenges and supports students by incorporating abstract thinking skills. Students experience abundant opportunities to reason mathematically and recognize the connection between mathematics to other disciplines. Students express an understanding of concepts using a variety of methods and media. (CHCA, 2004)

STANDARDS

What a TFA student will know and be able to do in Mathematics:

- Understand and apply the concepts of:
 - Number and Operation Sense
 - Patterns, Functions, Symbols, and Models
 - Geometry and Measurement
 - Data Analysis, Statistics, and Probability
- Be mathematical problem solvers
- Communicate mathematically
- Identify connections within mathematics and to other subject areas
- Apply mathematical representations to foster understanding of mathematics
- Identify God's orderliness and mystery reflected in mathematics.

Kindergarten Topics:

- *Sorting
- *Patterning
- *Counting numbers
- *Writing numerals
- *Adding and subtracting single digit numbers
- *Shape recognition
- *Symmetry
- *Non-standard measurement
- *Telling time
- *Graphing data

- *Estimating
- *Problem-solving
- *Geometry
- *Measurement
- *Counting coins
- *Comparing sets
- *Calendar concepts

First Grade Topics:

****Number Sense and Operations***

- Numbers to 500
- Greater than/ less than
- Place value
- Fractions
- Problem solving using addition and subtraction
- Algebraic equations and patterning

****Data/Statistics***

- Reading Venn diagrams
- Graphs and tables
- Identifying outcomes.

****Geometry/ Measurement***

- Plane and solid shapes
- Linear and liquid measurement
- Telling time to 5 minutes
- Money
- Calendar
- Weight
- Temperature

****Math Procedures***

- Symbolic notation
- Addition and subtraction facts to 13

Second Grade Topics:

****Number Sense and Operations***

- Numbers to 1000
- Greater than/less than
- Place value
- Fractions to 1/8
- Addition and subtraction with regrouping

****Data/Statistics***

- Read and interpret tables and graphs
- Identify outcomes
- *Geometry Measurement*
- Geometric shapes
- Symmetry
- Value of money and coins
- Measuring length and temperature

****Math Procedures***

- Addition and subtraction facts to 18
- Multiplication facts 0 to 5

Third Grade Topics:

- *Number sense and operations
- *Patterns
- *Relationships
- *Beginning algebra
- *Data
- *Statistics
- *Probability
- *Geometry and measurement
- *Number facts
- *Computation with whole numbers and decimals
- *Conversion of measurements
- *Mastery of multiplication facts through 12
- *Introduction of division
- *Basic problem solving and mental computation
- *Introduction of fractions and decimals

Fourth Grade Topics:

- **Number Sense and Operations*
 - Solve problems using estimation strategies
- **Patterns, Relationships and Algebra*
- **Data, Statistics and Probability*
 - Solve problems involving tables and graphs
- **Geometry and Measurement*
 - Solve problems involving the concept of time and the concept of money
 - Computations with fractions, whole numbers, decimals
 - Multi-digit multiplication and division

Fifth Grade Topics:

- *Understand prime and composite numbers
- *Factors
- *Multiples
- *Multiply/divide multi-digit whole numbers stating remainders as fractions/decimals
- *Apply divisibility rules
- *Decimal place value
- *Compare
- *Add
- *Subtract
- *Multiply decimals
- *Divide decimals by whole numbers
- *Divide fractions by whole numbers
- *Number theory
- *Measure length, mass, volume, area in metric and customary units which integrates with science
- *Compare and converts units of measurement

- *Classification of polygons
- *Determine perimeter of polygons
- *Find area of squares/triangles
- *Explore circles, radius, diameter, circumference, pi, congruency
- *Graphing, data analysis including comparison of mean, median, mode, range, ratio, proportion
- *Probability and statistics
- *Solve simple algebraic equations
- *Problem solving/estimation used throughout
- *Consistent review of previous concepts and practice of computation