



Cincinnati Hills Christian Academy

Armleder School – Mathematics

Grades K – 6 Scope and Sequence

Vision: Mathematics is one tool by which we better understand God’s precise, orderly, and sometimes mysterious creation. As a result of a CHCA mathematics education, students will value mathematics and develop proficiency in the use of mathematics. Proficiency in mathematics learning refers to conceptual understanding, procedural fluency, strategic competence, and adaptive reasoning. [*Adding it Up*, NRC, 2001] Students experience instruction based on Standards for Mathematical Practice. [<http://www.corestandards.org/the-standards/mathematics>] Students express an understanding of concepts using a variety of methods and media. Developmentally appropriate instruction challenges and supports students.

Standards: What a CHCA student will know and be able to do in **Mathematics:** *What a CHCA student will know and be able to do in Mathematics K-4:* Demonstrate understanding by applying concepts to problems in the following: ●Operations and Algebraic Thinking. ●Number and Operations in Base Ten. ●Number and Operations—Fractions. ●Measurement and Data. ●Geometry. *By the close of Pre-Algebra:* Demonstrate understanding by applying concepts to problems in the following: ●Ratios and Proportional Relationship. ●The Number System. ●Expressions and Equation. ●Functions. ●Geometry. ●Statistics and Probability. *In courses Algebra I and beyond:* Demonstrate understanding by applying concepts to problems in the following: ●Number and Quantity. ●Algebra. ●Functions. ●Geometry. ●Statistics and Probability. ●Modeling. *In Standards of Mathematical Practice K-12:* ●Be mathematical problem solvers. ●Reason and construct mathematical arguments. ●Communicate mathematically. ●See connections both within mathematics and to other subject areas. ●Look for and make use of structure and patterns. *Theological Integration:* ●See God’s orderliness and mystery reflected in mathematics.

Kindergarten Topics: Clarifying and sorting; patterning; counting numbers; writing numerals; adding and subtracting single digit numbers; building number sense; geometry; non-standard measurement; telling time; graphing data; appropriately using mathematical language; problem solving; place value; size and position.

Grade 1 Topics: Adding and subtracting single and double digit numbers; numbers to 1,000; calendar; geometry (sorting and classifying shapes); measuring in standard and non-standard units; telling time; counting coins; graphing data; problem solving and place value.

Grade 2 Topics: Place value; properties of addition and subtraction; fluently adding and subtracting through 20; understanding, modeling, and solving multi-digit addition and subtraction problems; addition with regrouping; multiplication foundations; measuring and estimating using standard units; telling time; money; graphing and interpreting data; geometry (recognizing shapes and their attributes); fractions foundations.

Grade 3 Topics: Adding, subtracting, and multiplying using algorithms and strategies based on place value and the order of operations; rounding/estimating; building and comparing equivalent fractions; properties of multiplication and division; multiplication and division facts; solving multi-step word problems and using modeling where appropriate; geometry (area, perimeter); representing and interpreting data; telling time, elapsed time; measuring volume and mass.



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Grade 4 Topics: Place value for multi-digit whole numbers, rounding and estimation, comparing; properties of operations to perform multi-digit arithmetic, factors/multiples; building, finding, and comparing equivalent fractions; adding and subtracting fractions; converting between mixed numbers and improper fractions; comparing decimal fractions, adding and subtracting decimals; organizing, graphing, and analyzing data; solving problems involving measurement and conversions within the same system of measurement; geometry (area, perimeter, angles); multi-step problem solving using modeling where appropriate.

Grade 5 Topics: Write and interpret numerical expressions; Analyze patterns and relationships; Understand the place value system; Perform operations with multi-digit whole numbers and with decimals to hundredths; Use equivalent fractions as a strategy to add and subtract fractions; Apply and extend previous understanding of multiplication and division to multiply and divide fractions; Convert like measurement units w/in given measurement system; Represent and interpret data; Geometric measurement: 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 figures into categories based on their properties.

Grade 6 Topics: Understand, apply ratio concepts; fractions by fractions division; Fluently divide multi-digit numbers; Fluently add, subtract, multiply and divide multi-digit decimals; Find common factors/multiples; Understand rational numbers concepts related to number line; Understand integers as factors/multiples; Understand rational numbers concepts related to number line; Understand integers as ordered pairs with coordinate system; Compare, order rational numbers; Write, read and evaluate algebraic expressions; Understand, apply one step equations and inequalities, Represent, analyze dependent, independent variable relationships; Solve, apply area, surface area and volume problems; Develop statistical variability understanding; Summarize, describe data distributions.

Student performance in mathematics is evaluated ongoing to allow for challenge and support.