



# Cincinnati Hills Christian Academy

## Lower School Lower Elementary – Mathematics

### *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.

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**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.

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**Kindergarten Topics:** Sorting; patterning; counting and number sense; writing numerals; composing and decomposing numbers including adding and subtracting single digit numbers; strategies for counting and problem solving using ten frames and number bonds; geometry (attributes, modeling, and composing two and three dimensional shapes); measurement including time and money; graphing data; estimating. (K-Prep at developmentally appropriate levels.)

**Grade 1 Topics:** Extending counting sequences to 120; develop number sense; properties of addition and subtraction facts to 20 using number bonds and ten frames to compose and decompose numbers; fact fluency of addition and subtraction facts to 10; introduce mental math; place value; strategies for addition and subtraction with double digit computation; geometry (attributes and composition of two and three dimensional shapes and fractions); tools for standard measurement; time, money, calendar; length, mass; graphing data; estimation; introduce bar modeling as a strategy for problem solving and algebraic thinking.

**Grade 2 Topics:** Place value through 1000; properties of addition and subtraction; fluently add and subtract through 20; understand and solve multi-digit addition and subtraction problems through 1000; problem solving using bar modeling and algebraic thinking; mental math; multiplication and division with 2, 3, 4, 5, and 10; time; money (count and make combinations of bills and coins); graph and interpret data; fractions; geometry (recognize two and three dimensional shapes and their attributes); estimate and measure using standard units.



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***Math 2 Accelerated Topics:*** Accelerated math classes will cover the second grade topics. More emphasis will be placed on the extension and application of all concepts. Students will be expected to use critical thinking skills and problem solving strategies to deepen their mathematical understanding and performance.

***Grade 3 Topics:*** Place value through 10,000; using a variety of strategies including mental math, rounding, and estimation to solve multi-digit addition and subtraction problems to 10,000; properties of multiplication and division; multiplication and division facts through 12 x 12; solve multi-step problem solving using bar modeling and algebraic thinking; fractions; geometry: angles, lines classification of polygons, congruency, and symmetry; area, perimeter; graphing and interpreting data using bar graphs and line plots; money; time; temperature; metric length, mass and volume; U.S. Standard Customary length, weight, and capacity.

***Math 3 Accelerated Topics:*** Accelerated math classes will cover the third grade topics. More emphasis will be placed on the extension and application of all concepts. Students will be expected to use critical thinking skills and problem solving strategies to deepen their mathematical understanding and performance.