Cincinnati Hills Christian Academy
Armleder School – Mathematics
Grades K – 6 Scope and Sequence

Vision

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

Competencies: Standards of Mathematical Practice

In the Standards for Mathematical Practice, CHCA students:

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.
- 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: **Place value; composing and decomposing numbers to 20 using ten frames; Fact fluency to 20;** Adding and subtracting single and double digit numbers; numbers to 100; calendar **and telling time**; geometry (sorting and classifying shapes); measuring in standard and non-standard units; telling time; counting coins; graph **and interpret** data; problem solving.

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; rounding/estimating; measuring to the quarter inch; 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; **adding and subtracting with money**.

Grade 4 Topics: Place value for multi-digit whole numbers, rounding and estimation, comparing; properties of operations to perform multi-digit arithmetic, factors/multiples; **creating and analyzing patterns**; 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 understanding of statistical problem solving by formulating statistical questions, collecting and analyzing data, and interpreting results; Display, summarize, and describe data distributions.

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