Mathematics | Grade 4

In Grade 4, instructional time should focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

Critical Area #1

Developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends.

Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.

Critical Area #2

Developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers.

Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., 15/9 = 5/3), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

Critical Area #3

Understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

Adopted October 2010

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Grade 4 Overview

Operations and Algebraic Thinking	OA

A.   Use the four operations with whole numbers to solve problems.
B.   Gain familiarity with factors and multiples.
C.   Generate and analyze patterns.

Number and Operations in Base Ten	NBT

D.   Generalize place value understanding for multi-digit whole numbers.
E.   Use place value understanding and properties of operations to perform multi-digit arith

Number and Operations—Fractions	NF

F.   Extend understanding of fraction equivalence and ordering.
G.   Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
H.   Understand decimal notation for fractions, and compare decimal fractions.

Measurement and Data	MD

I.   Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
J.   Represent and interpret data.
K.   Geometric measurement: understand concepts of angle and measure angles.

Geometry	G

L.   Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

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