

# Grade 5

## Introduction:

In Grade 5, instructional time should focus on three critical areas: (1) fractions, (2) decimals, and (3) volume.

The following table indicates the instructional focus for each of the following areas:

<b>Developing Fluency</b>	<b>Developing Understanding</b>
Add and subtract fractions	Division of whole numbers - 2 digit divisors
Add, subtract, multiply whole numbers	Multiply and divide fractions
	The value of the digit in relation to the decimal point (5.NBT.1 and 5.NBT.2)
	Adding, subtracting, multiplying, and dividing decimals
	Volume

1. Students apply their understanding of fractions and fraction models to represent the addition and subtraction of fractions with unlike denominators as equivalent calculations with like denominators. They develop fluency in calculating sums and differences of fractions, and make reasonable estimates of them. Students also use the meaning of fractions, of multiplication and division, and the relationship between multiplication and division to understand and explain why the procedures for multiplying and dividing fractions make sense. (Note: this is limited to the case of dividing unit fractions by whole numbers and whole numbers by unit fractions.)
2. Students develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations. They finalize fluency with multi-digit addition, subtraction, and multiplication. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. They develop fluency in these computations, and make reasonable estimates of their results. Students use the relationship between decimals and fractions, as well as the relationship between finite decimals and whole numbers (i.e., a finite decimal multiplied by an appropriate power of 10 is a whole number), to understand and explain why the procedures for multiplying and dividing finite decimals make sense. They compute products and quotients of decimals to hundredths efficiently and accurately.
3. Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit

for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

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## **Grade 5 Overview**

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### **Operations and Algebraic Thinking**

- Write and interpret numerical expressions.
- Analyze patterns and relationships.

### **Number and Operations in Base Ten**

- Understand the place-value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

### **Number and Operations - Fractions**

- Use equivalent fractions as a strategy to add and subtract fractions.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

### **Measurement and Data**

- Convert like measurement units within a given measurement system.
- Represent and interpret data.
- Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

### **Geometry**

- Graph points on the coordinate plane to solve real-world and mathematical problems.
- Classify two-dimensional figures into categories based on their properties.

### **Mathematical Practices**

- 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.

**Important Definitions:**

Fluency-skill in carrying out procedures flexibly, accurately, efficiently and appropriately.

Know from memory-quick, effortless, recall of facts. (\*\*Notice there are no Kindergarten standards that require students to “know from memory.”)

Strategy: Purposeful manipulations that may be chosen for specific problems, may not have a fixed order, and may be aimed at converting one problem into another. See *also*: computation algorithm.

Algorithm: A set of predefined steps applicable to a class of problems that gives the correct result in every case when the steps are carried out correctly. See *also*: computation strategy.

Trapezoid: A quadrilateral with at least one pair of parallel sides.

Attribute: A quality or feature regarded as a characteristic or inherent part of something.