

MTB4's Focus on Critical Areas in Grade 5

In Grade 5, students focus on the following areas as designated by the Common Core State Standards. Concepts and procedures are regularly revisited throughout the year as students' understanding builds and deepens.

- **Developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions).**

In Units 2–12, students systematically review and are assessed on small groups of multiplication and the related division facts that can be solved using similar strategies to maintain and increase proficiency, and to aid in their conceptual development of fraction operations. This practice can be found regularly in the Daily Practice and Problems and Home Practice.

Unit	Multiplication and Division Facts	Focus
2	5s and 10s	Use strategies fluently
3	2s and 3s	
4	9s	
5	Square Numbers	
6	Last Six Facts	
7	Last Six Facts	
8	Review All Facts	

In Unit 2, students use multiple representations and real-world contexts to support the development of fraction concepts. Students represent fractions with area models; make connections and translate between representations to compare, order, and find equivalent fractions; decompose fractions into the sums of smaller fractions; and develop strategies for adding and subtracting fractions that include finding common denominators.

In Unit 5, students explore division strategies to find the simplest form of fractions. Students are introduced to ratios as they use fractions to express the relationship between two quantities.

In Unit 9, students deepen their understanding about number properties and patterns and their understandings of multiplication to prepare for operations with fractions. Students develop number sense as they flexibly decompose and compose numbers using their factors. This also provides skills necessary for operations with fractions.

In Unit 10, students solve problems that involve adding and subtracting fractions and mixed numbers using models. They develop and use strategies that include finding a common denominator. Students develop procedures for multiplying a

fraction times a whole number, use patterns to multiply fractions, and use multiplication to bridge division of fractions.

In Unit 11, students use ratios and strategies for finding equivalent fractions to solve problems and make comparisons.

- **Extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations.**

In Unit 7, students use models to divide multidigit numbers by one- and two-digit divisors. They develop strategies for estimation, mental math, and paper-and-pencil methods to divide multidigit numbers.

In Unit 8, students represent and identify numbers to the thousandths place using area models, number lines, words, symbols, and expanded form number sentences. They make connections and translate among these representations. Students connect representations of fractions and decimals and use them to represent the same quantity. Students use their understanding of place value to compare and order decimals to the thousandths place. They extend their understanding of place value and operations to develop strategies to add, subtract, multiply and divide decimals.

In Unit 9, students deepen their understanding about number properties and patterns, and develop number sense as they flexibly decompose and compose numbers using their factors. This provides skills necessary for division and operations with decimal fractions.

- **Developing understanding of volume.**

In Unit 3, students learn about how Archimedes estimated the volume of the universe in grains of sand and continue to develop understanding about volume as an attribute of three-dimensional space.

In Unit 4, students understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume and use multiplication and division strategies to find the volume of rectangular prisms. Students select appropriate units, strategies, and tools for solving multistep problems involving volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. There are also numerous DPPs and HP problems that involve multistep volume problems.

In Unit 7, students deepen their understanding of the use of variables and standard units of measurement such as volume in mathematics and scientific investigation.

In Unit 11, students measure the mass and volume of different amounts of clay and different-sized steel spheres to solve real world and mathematical problems. Students use their knowledge of mass, volume, and density as they complete several extension activities, and learn how Archimedes used displacement to find the volume of a gold crown.