



Mathematics
Course: Grade 5

In Grade 5, instructional time should focus on three critical areas: (1) 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); (2) 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; and (3) developing understanding of volume.

New Jersey Student Learning Standards for Mathematics

Unit 1	20 days	In Unit 1 students build on their prior work with area and explore ways to find the area of rectangles with fractional side lengths. Students also learn about volume, understanding that they can find the volume of a rectangular prism using two strategies: packing the prism with unit cubes, or by multiplying the dimensions of the figure. Students will be expected to apply the appropriate volume formula when given the formulas and a set of whole number dimensions. Student will also understand the purpose of grouping symbols, and evaluate expressions with one set of symbols. Students will be expected to place one set of grouping symbols to make a number sentence true.
Unit 2	20 days	In Unit 2, students will explore patterns in the base ten place value system and ways of representing large numbers. Students will write whole numbers in expanded form using place-value. Students will write expressions to model situations. Students will be able to translate between powers of 10 in exponential notation and standard notation and multiply a whole number by a power of ten. Students are also introduced to the standard algorithm for multiplication and will review partial quotients division. Student will use the partial quotients algorithm with up to 3-digit dividends and 1-digit or simple 2-digit divisors. Students will perform one-step unit conversions within the same measurement system.
Unit 3	20 days	In Unit 3 students build on fractional concepts from previous grades to understand fractions as division. They also use visual models to make estimates, add and subtract fractions and mixed numbers, and check the reasonableness of their answers. Students will solve number stories involving addition and subtraction of fractions and mixed numbers with like denominators. Students will identify benchmarks close to fractions less than or equal to 2 and use them to make reasonable estimates for fraction sums and differences. Students will solve fraction-of problems as a foundation for multiplication of fractions by whole numbers.
Unit 4	20 days	In Unit 4, students read, write and represent decimals through thousandths in a variety of ways and learn strategies to compare, order and round decimals. They apply whole number algorithms to add and subtract decimals through tenths with regrouping and through hundredths without regrouping. They are also introduced to the first quadrant of the coordinate grid. Students understand that information from some real-world and mathematical problems can be represented as ordered pairs and graphed on a coordinate grid.
Unit 5	20 days	In Unit 5, students will fluently multiply multi-digit whole numbers using the standard algorithm. Students develop strategies for adding and subtracting fractions and mixed numbers with unlike denominators. They also connect fraction thinking to multiplication and generalize a fraction multiplication algorithm. Students find the area of a rectangle with fractional side lengths by counting unit-fraction tiles. Student use area models to represent and find fraction products. Students use tools and models to solve real-world problems involving multiplication of fractions by whole numbers or fractions by fractions. Students are introduced to fraction division and use models to solve problems involving division of a unit fraction by a whole number or division of a whole number by a unit fraction when the problems are in context.
Unit 6	20 days	In Unit 6, students find whole number quotients of whole numbers with up to four-digit dividends and two-digit divisors using strategies based on place-value the properties of operations, and/or the relationship between multiplication and division. Students multiply and divide decimals by powers of ten. They investigate how patterns can be used to convert measurements in metric units, learn how line plots can be used to organize and analyze data, and explore finding volume of figures that are not rectangular prisms. Students place fractional data on a line plot when the number and scale are provided and use the information to solve single-step problems. Students recognize volume as an attribute of solid figures and understand concepts of volume measurement. Students apply volume formulas to solve real-world and mathematical problems.
Unit 7	20 days	In Unit 7, students learn two methods for multiplying mixed numbers. Students find the area of a rectangle with fractional side lengths by tiling it or by multiplying the side lengths. Student will divide unit fractions by whole numbers and whole numbers by unit fractions. Students will use data on line plots to solve multi-step problems involving addition and subtraction. They review attributes of 2-dimensional figures and categorize shapes based on their properties. Students graph points on coordinate grids to visualize numerical patterns and represent real-world problems.
Unit 8	20 days	In Unit 8, students apply and extend many skills and concepts they have learned throughout the year to engaging real-world problems. Students will add, subtract, multiply and divide decimals to hundredths. Students will multiply a fraction or a whole number by a fraction. Students will compare the size of a product to one factor, based on the size of the other factor; explain the effects of multiplying by fractions greater than or less than one, explain the effects of multiplying by fractions equal to one. Students will convert among different sized standard measurement units within a given measurement system and use these conversions to solve multi-step, real-world problems. Students will understand and use a Cartesian coordinate grid in two-dimensions.

Content Continuum

Grade 5 Mathematics

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.)

New Jersey Student Learning Standards

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, multiplication, and division. They apply their understandings of models for decimals, decimal notation, and properties of operations to add and subtract decimals to hundredths. Students use the relationship between decimals and fractions to understand and explain why the procedures for multiplying and dividing finite decimals make sense. Students recognize volume as an attribute of three-dimensional space. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose 3-D shapes and find volumes of right rectangular prisms. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

New Jersey Student Learning Standards

INSTRUCTIONAL / SUPPLEMENTAL MATERIALS

- [Text- Everyday Mathematics 4](#)
- [Engageny.org](#)
- [Illustrative Mathematics](#)
- [New Jersey Model Curriculum](#)

KEY FEATURES OF REVISION

- Aligned to New Jersey Student Learning Standards
- Aligned to Understanding By Design Framework
- Aligned to Webb's Depth of Knowledge
- Problem Based Assessments & Rubrics
- Additional on-line support and resources

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