

Mathematics

Grade Five

NJ DOE, NJSLA: In Grade Five, 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	Time	Overview
<u>Unit 1</u> Whole Number Operations Volume	27 days	In this Unit, students learn that volume is a three-dimensional amount of space within a three-dimensional space. Students connect their prior knowledge of tiling a space to find an area to begin measurement of volume. Students create models of rectangular prisms and analyze their attributes. Students relate volume to multiplication and addition and recognize that an accurate and efficient formula for finding is $\text{Volume} = \text{length} \times \text{width} \times \text{height}$, or $\text{Volume} = \text{Area of base} \times \text{height}$. Students extend their knowledge of multiplication of multi-digit factors by applying place value to deconstruct a factor and apply multiplication with an area model to find partial products and then combine to find a product. Students transfer their understanding of the partial products model to using the standard algorithm for multiplication problems with whole numbers.
<u>Unit 2</u> Decimals and Fractions	37 days	In this Unit, students extend their understanding of equivalent fractions to represent decimals in different ways. Students learn that the value of any place is $\frac{1}{10}$ that of the place to the left and is 10 times that of the place to the right. Students use models and strategies that they have applied with whole numbers, to operations with decimals. Students read, write and compare decimals to the thousandths place. Students add and subtract decimals to the hundredths place. Students develop strategies to add and subtract fractions with unlike denominators and apply these skills to solve word problems.
<u>Unit 3</u> More Decimals and Fractions	41 days	In this Unit, students apply concepts for multiplying and dividing whole numbers to decimals. Students use models to demonstrate the inverse relationship between multiplication and division. Students transfer understanding of place value, area models and estimation to calculate with accuracy and efficiency. Students divide whole numbers by unit fractions and apply linear models to demonstrate the algorithm. Students apply scaling by whole numbers and fractions, and multiply and divide fractions to solve word problems.
<u>Unit 4</u> Measurement, Data, and Geometry	22 days	In this Unit, students convert measurements from smaller units to larger units using previously learned models to help them to reason about the relative sizes of the units. Students will also expand their work with addition and subtraction of fractions to multiplication and division of fractions based on measurement data. Students will use Venn Diagrams and tree diagrams to classify the hierarchies of two-dimensional shapes according to properties of angle size, number, length and orientation of sides.
<u>Unit 5</u> Algebraic Thinking & the Coordinate Plane	18 days	In this Unit, students use grouping symbols to clarify the order in which parts of a numerical expression must be evaluated. Students will take written and/or spoken expressions and write them with numbers and mathematical symbols. Students will be introduced to the coordinate plane and will plot points of the x and y coordinates and understand the relationship between the data. As students analyze mathematical relationships between two patterns they learn to use tables and graphs to organize and make sense of data.

Content Continuum

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*

Grade Five 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

KEY FEATURES OF REVISION

- Incorporates 2023 NJDOE Math Standards Updates inclusive of Climate Change Guidance
- Intentional Focus on Math Discourse and Academic and Math Vocabulary
- Extensive inclusion of Prerequisite Skills
- Incorporation of Personalized Instruction - My Path lessons

INSTRUCTIONAL / SUPPLEMENTAL MATERIALS

[Illustrative Mathematics](#)

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