

SCHOOL DISTRICT OF THE CHATHAMS

Mathematics Grade 3 Full Year

Course Overview

In Grade 3 mathematics, students will focus on four critical areas in alignment with the New Jersey Student Learning Standards for Mathematics. First, students will develop understanding of multiplication and division and strategies for multiplication and division within 100. Second, students will gain an understanding of fractions, especially unit fractions. Next, students will recognize the structure of rectangular arrays of area and apply their understanding. Finally, students will describe and analyze two-dimensional shapes. Students will engage in a variety of differentiated activities throughout the year, aligned with the Standards for Mathematical Practice.

New Jersey Student Learning Standards

The New Jersey Student Learning Standards (NJSLS) can be located at www.nj.gov/education/cccs/2020/.

Operations and Algebraic Thinking:

- 3.OA.A. Represent and solve problems involving multiplication and division.
- 3.OA.B. Understand properties of multiplication and the relationship between multiplication and division.
- 3.OA.C. Multiply and divide within 100.
- 3.OA.D. Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Number and Operations in Base Ten:

- 3.NBT.A. Use place value understanding and properties of operations to perform multi-digit arithmetic.

Number and Operations–Fractions:

- 3.NF. A. Develop understanding of fractions as numbers.

Measurement and Data:

- 3.MD.A. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- 3.MD.B. Represent and interpret data.
- 3.MD.C. Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
- 3.MD.D. Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

Technology Standards

- 9.4.5.DC.4: Model safe, legal, and ethical behavior when using online or offline technology (e.g., 8.1.5.NI.2).
- 9.4.5.DC.6: Compare and contrast how digital tools have changed social interactions (e.g., 8.1.5.IC.1).
- 9.4.5.IML.2: Create a visual representation to organize information about a problem or issue (e.g., 4.MD.B.4, 8.1.5.DA.3).

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- 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).
- 9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6).
- 9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.
- 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global

Career Ready Practices

- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.
- CRP12. Work productively in teams while using cultural global competence.

Interdisciplinary Connections

English Language Arts:

- NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

Science:

- 3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.

Units of Study

Unit 1 - Understanding Multiplication and Division with Whole Numbers (~ 10 days)

- How are multiplication and division related?

Unit 2 - Multiplication Facts: Use Patterns (~ 11 days)

- How do patterns differ in products when the factors change?

Unit 3 - Apply Properties: Multiplication Facts for 3, 4, 6, 7, 8 (~ 11 days)

- How can one use properties as strategies to solve problems?

Unit 4 - Use Multiplication to Divide: Division Facts (~ 16 days)

- How can one use the relationship between operations to solve problems?

Unit 5 - Fluently Multiply and Divide Within 100 (~ 8 days)

- What are strategies to solve multiplication and division facts?

Unit 6 - Connect Area to Multiplication and Addition (~ 10 days)

- Why do we need to measure the area of a surface?
- Can we find the area of an irregular shape?

Unit 7 - Represent and Interpret Data (~ 8 days)

- How can representing data help us to interpret it and draw conclusions?
- How can one determine the best representation to display data?

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Unit 8 - Use Strategies and Properties to Add and Subtract (~ 12 days)

- Why is place value important?
- How does estimation help with number sense?

Unit 9 - Fluently Add and Subtract Within 1,000 (~ 13 days)

- What are standard procedures for adding and subtracting whole numbers?

Unit 10 - Multiply by Multiples of 10 (~ 8 days)

- What are ways to multiply by multiples of 10?

Unit 11 - Use Operations with Whole Numbers to Solve Problems (~ 12 days)

- How can patterns help us solve problems?

Unit 12 - Understand Fractions as Numbers (~17 days)

- Why do we need fractions?

Unit 13 - Fraction Equivalence and Comparison (~13 days)

- Why are there different ways to represent a fraction?
- How do different representations of fractions help us compare fractions?

Unit 14 - Solve Time, Capacity and Mass Problems (~ 16 days)

- Why is it important to measure?
- Why can't all measurements be done the same way?
- How are different measurements related?

Unit 15 - Attributes of Two-Dimensional Shapes (~ 8 days)

- How do we define shapes and polygons?
- What types of attributes are consistent and which ones differ among shapes?

Unit 16 - Solve Perimeter Problems (~ 7 days)

- Why would we want to find the perimeter of a figure?
- What are different ways we can measure and label perimeter?
- How can you identify if you are asked to find the perimeter or area?

Learning Objectives/Discipline Standards of Practice

Learning Objectives:

- Name different meanings for multiplication and division.
- Discover unknown multiplication facts using patterns and properties.
- Discover unknown multiplication facts using known facts.
- Discover unknown division facts using known multiplication facts
- Identify strategies to solve multiplication and division facts.
- Measure and calculate the area of a rectangle.
- Represent, interpret and analyze data
- Estimate and use mental math to calculate sums and differences.
- Calculate the sums and differences of whole numbers.
- Multiply by multiples of 10.
- Solve two-step word problems using addition, subtraction, multiplication and division.

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- Discover different interpretations of a fraction.
- Compare fractions in more than one way.
- Measure and calculate time, capacity, and mass.
- Describe and analyze two-dimensional shapes.
- Calculate the perimeter of a polygon.

Discipline Standards of Practice:

MP.1: Make sense of problems and persevere in solving them

MP.2: Reason abstractly and quantitatively

MP.3: Construct viable arguments

MP.4: Model with Mathematics

MP.5: Use appropriate tools strategically

MP.6: Attend to precision

MP.7: Look for and make use of structure

MP.8: Look for and express regularity in repeated reasoning

Instructional Resources and Materials

Whole class resources have been identified with an asterisk.

Resources

- *Big Ideas Math MRL CC Grade 3, 2022*

Materials

- Illustrative Mathematics
- Inside Mathematics
- Exemplars
- IXL
- Xtramath
- Beast Academy
- Manipulatives*
- Math Word Wall*

Assessment Strategies

Assessment is designed to measure a student's mastery of a course standard and learning objective. Assessment can be used for both instructional purposes (formative assessment) and for evaluative purposes (summative assessment).

The following is a general list of the many forms assessment may take in learning.

- Tests
- Quizzes
- Projects
- Unit Assessments