

**MOORESTOWN TOWNSHIP PUBLIC SCHOOLS
MOORESTOWN, NEW JERSEY**

**Moorestown Upper Elementary School
Mathematics**

**Mathematics
*Grade 4***

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Course Description and Fundamental Concepts

In Grade 4, instructional time should focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry.

(1) Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context.

(2) Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., $15/9 = 5/3$), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

(3) Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

Grade 4 Overview

1. Operations and Algebraic Thinking

- Use the four operations with whole numbers to solve problems.
- Gain familiarity with factors and multiples.
- Generate and analyze patterns.

2. Number and Operations in Base Ten

- Generalize place value understanding for multi-digit whole numbers.
- Use place value understanding and properties of operations to perform multi-digit arithmetic.

3. Number and Operations—Fractions

- Extend understanding of fraction equivalence and ordering.
- Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
- Understand decimal notation for fractions, and compare decimal fractions.

4. Measurement and Data

- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- Represent and interpret data.
- Geometric measurement: understand concepts of angle and measure angles.

5. Geometry

- Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

New Jersey Student Learning Standards (NJSLs)

Subject/Content Standards

Include grade appropriate subject/content standards that will be addressed

4.OA Operations and Algebraic Thinking

- A. Use the four operations with whole numbers to solve problems.
 - 1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
 - 2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
 - 3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
- B. Gain familiarity with factors and multiples.
 - 4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
- C. Generate and analyze patterns.
 - 5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.

4.NBT Number and Operations in Base Ten

- A. Generalize place value understanding for multi-digit whole numbers.
 - 1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.
 - 2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.
 - 3. Use place value understanding to round multi-digit whole numbers to any place.
- B. Use place value understanding and properties of operations to perform multi-digit arithmetic.
 - 4. Fluently add and subtract multi-digit whole numbers using the standard algorithm.
 - 5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

4.NF Number and Operations—Fractions

- A. Extend understanding of fraction equivalence and ordering.
 1. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
 2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.
- B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
 3. Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
 - a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
 - b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2 \frac{1}{8} = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$.
 - c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
 - d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.
 4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
 - a. Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.
 - b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)
 - c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?
- C. Understand decimal notation for fractions, and compare decimal fractions.
 5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$.

6. Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.
7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.

4.MD Measurement and Data

- A. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
 1. Know relative sizes of measurement units within one system of units including km, m, cm, mm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...
 2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
 3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.
- B. Represent and interpret data.
 4. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.
- C. Geometric measurement: understand concepts of angle and measure angles.
 5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
 - a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles.
 - b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees.
 6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
 7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

4.G Geometry

- A. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
 2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
 3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
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Career Awareness, Exploration, Preparation, and Training ([Standard 9.2](#))

List appropriate units below for which standards will be addressed

By Grade 5

Unit Addressed	Core Idea	Standard / Description
Units 1-5	An individual's passions, aptitude and skills can affect his/her employment and earning potential.	<i>9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes. 9.2.5.CAP.2: Identify how you might like to earn an income. 9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations. 9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.</i>
Units 1-5	Income and benefits can vary depending on the employer and type of job or career.	<i>9.2.5.CAP.5: Identify various employee benefits, including income, medical, vacation time, and lifestyle benefits provided by different types of jobs and careers.</i>
Units 1-5	There are a variety of factors to consider before starting a business.	<i>9.2.5.CAP.6: Compare the characteristics of a successful entrepreneur with the traits of successful employees. •</i>

		<i>9.2.5.CAP.7: Identify factors to consider before starting a business.</i>
Units 1-5	Individuals can choose to accept inevitable risk or take steps to protect themselves by avoiding or reducing risk.	<i>9.2.5.CAP.8: Identify risks that individuals and households face.</i> <i>9.2.5.CAP.9: Justify reasons to have insurance.</i>

Life Literacies and Key Skills (Standard 9.4)

List appropriate units below for which standards will be addressed

By Grade 5		
Unit Addressed	Core Idea	Standard / Description
Unit 3 & 5	Creativity and Innovation: Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.	<i>9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3, 7.1.NM.IPERS.6).</i> <i>9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).</i>
Units 1-5	Creativity and Innovation: Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.	<i>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).</i> <i>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).</i>
Units 1-5	Critical Thinking and Problem-solving: The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.	<i>9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).</i> <i>9.4.5.CT.2: Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem (e.g., 2.1.5.CHSS.1, 4-ESS3-1).</i>

		<p>9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.</p> <p>9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).</p>
Units 1-5	<p>Digital Citizenship: Intellectual property rights exist to protect the original works of individuals. It is allowable to use other people’s ideas in one’s own work provided that proper credit is given to the original source.</p>	<p>9.4.5.DC.1: Explain the need for and use of copyrights.</p> <p>9.4.5.DC.2: Provide attribution according to intellectual property rights guidelines using public domain or creative commons media.</p> <p>9.4.5.DC.3: Distinguish between digital images that can be reused freely and those that have copyright restrictions.</p>
Units 1-5	<p>Digital Citizenship: Sending and receiving copies of media on the internet creates the opportunity for unauthorized use of data, such as personally owned video, photos, and music.</p>	<p>9.4.5.DC.4: Model safe, legal, and ethical behavior when using online or offline technology (e.g., 8.1.5.NI.2).</p>
Units 1-5	<p>Digital Citizenship: Digital identities must be managed in order to create a positive digital footprint.</p>	<p>9.4.5.DC.5: Identify the characteristics of a positive and negative online identity and the lasting implications of online activity</p>
Units 3-4	<p>Digital Citizenship: Digital tools have positively and negatively changed the way people interact socially.</p>	<p>9.4.5.DC.6: Compare and contrast how digital tools have changed social interactions (e.g., 8.1.5.IC.1).</p> <p>9.4.5.DC.7: Explain how posting and commenting in social spaces can have positive or negative consequences.</p>
Units 1-5	<p>Digital Citizenship: Digital engagement can improve the planning and delivery of climate change actions.</p>	<p>9.4.5.DC.8: Propose ways local and global communities can engage digitally to participate in and promote climate action (e.g., 6.3.5.GeoHE.1).</p>
Units 1-5	<p>Global and Cultural Awareness: Culture and geography can shape an individual’s experiences and perspectives.</p>	<p>9.4.5.GCA.1: Analyze how culture shapes individual and community perspectives and points of view (e.g., 1.1.5.C2a, RL.5.9, 6.1.5.HistoryCC.8).</p>

Units 3-5	Information and Media Literacy: Digital tools and media resources provide access to vast stores of information, but the information can be biased or inaccurate.	<i>9.4.5.IML.1: Evaluate digital sources for accuracy, perspective, credibility and relevance (e.g., Social Studies Practice - Gathering and Evaluating Sources).</i>
Units 1-5	Information and Media Literacy: Digital tools can be used to modify and display data in various ways that can be organized to communicate ideas.	<i>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). 9.4.5.IML.3: Represent the same data in multiple visual formats in order to tell a story about the data.</i>
Units 1-5	Information and Media Literacy: Accurate and comprehensive information comes in a variety of platforms and formats and is the basis for effective decision-making.	<i>9.4.5.IML.4: Determine the impact of implicit and explicit media messages on individuals, groups, and society as a whole. 9.4.5.IML.5: Distinguish how media are used by individuals, groups, and organizations for varying purposes. (e.g., 1.3A.5.R1a).</i>
Units 1-5	Information and Media Literacy: Specific situations require the use of relevant sources of information.	<i>9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions (e.g., RI.5.7, 6.1.5.HistoryCC.7, 7.1.NM. IPRET.5). 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social (e.g., 2.2.5. PF.5).</i>
Units 1-5	Technology Literacy: Different digital tools have different purposes.	<i>9.4.5.TL.1: Compare the common uses of at least two different digital tools and identify the advantages and disadvantages of using each. 9.4.5.TL.2: Sort and filter data in a spreadsheet to analyze findings. 9.4.5.TL.3: Format a document using a word processing application to enhance text, change page formatting, and include appropriate images, graphics, or symbols.</i>
Units 1-5	Technology Literacy: Collaborating digitally as a team can often develop a better artifact than an individual working alone.	<i>9.4.5.TL.4: Compare and contrast artifacts produced individually to those developed collaboratively (e.g., 1.5.5.CR3a). 9.4.5.TL.5: Collaborate digitally to produce an artifact (e.g., 1.2.5CR1d).</i>

Interdisciplinary Connections ([2020 NJSLs](#))

List any other content standards addressed as well as appropriate units. All arts integration connections may be listed within this chart.

Visual & Performing Arts Integration ([Standard 1](#))

List appropriate units below for which standards (1.1 through 1.5) may be addressed

Unit Addressed	Artistic Process	Anchor Standard
Units 1-5	Creating	<i>Anchor Standard 1: Generating and conceptualizing ideas. Anchor Standard 2: Organizing and developing ideas. Anchor Standard 3: Refining and completing products.</i>
Units 1-5	Connecting	<i>Anchor Standard 10: Synthesizing and relating knowledge and personal experiences to create products. Anchor Standard 11: Relating artistic ideas and works within societal, cultural, and historical contexts to deepen understanding.</i>
Units 1-5	Performing/ Presenting/ Producing	<i>Anchor Standard 4: Selecting, analyzing, and interpreting work. Anchor Standard 5: Developing and refining techniques and models or steps needed to create products. Anchor Standard 6: Conveying meaning through art.</i>
Units 1-5	Responding	<i>Anchor Standard 7: Perceiving and analyzing products. Anchor Standard 8: Applying criteria to evaluate products. Anchor Standard 9: Interpreting intent and meaning.</i>

Other Interdisciplinary Content Standards

List appropriate units below for any other content/standards that may be addressed

Unit Addressed	Content / Standard #	Standard Description
Units 2, 3, 4, 5	3-5-ETS1-2	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
Unit 2	4-PS3-4	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
Unit 5	4-PS4-1	Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.

Unit 5	4-LS1-2	Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways
Unit 4	4-ESS1-1	Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.
Unit 4	4-ESS2-1	Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.
Unit 4	4-ESS2-2	Analyze and interpret data from maps to describe patterns of Earth's features
Unit 2	4-ESS3-2	Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.
Unit 3	6.1.5.CivicsPI.1	Describe ways in which people benefit from and are challenged by working together, including through government, workplaces, voluntary organizations, and families.
Units 1, 3	6.1.5.CivicsPD.3	Explain how and why it is important that people from diverse cultures collaborate to find solutions to community, state, national, and global challenges.
Unit 4	6.1.5.CivicsHR.1	Describe how fundamental rights guaranteed by the United States Constitution and the Bill of Rights contribute to the improvement of American democracy (i.e., freedom of expression, freedom of religion, freedom of the press, freedom of assembly, freedom of petition, the right to vote, and the right to due process).
Unit 3	6.1.5.EconET.1	Identify positive and negative incentives that influence the decisions people make.
Units 1-5	RI.4.1	Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
Units 1-5	RL.4.7	Make connections between specific descriptions and directions in a text and a visual or oral representation of the text.
Units 1-5	RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.

Units 1-5	RI.4.7	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
Units 1-5	RF.4.3	Know and apply grade-level phonics and word analysis skills in decoding and encoding words.
Units 1-5	RF.4.4	Read with sufficient accuracy and fluency to support comprehension.
Units 1-5	W.4.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
Units 1-5	W.4.4	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
Units 1-5	SL.4.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
Units 1-5	L.4.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.

Pacing Guide (All Dates are approximate based on the school calendar)

Unit/ Topic	Month (w/Approx number of Teaching Days)
Number and Operations in Base Ten Place Value Add and Subtract Whole Numbers	September (~19 days)
Number and Operations in Base Ten Understand Multiplication and Division Multiply with One-Digit Numbers	October (~19 days)
Number and Operations in Base Ten Multiply with One-Digit Numbers Multiply with Two-Digit Numbers	November (~16 days)
Number and Operations in Base Ten Multiply with Two-Digit Numbers Divide by a One-Digit Number	December (~15 days)
Operations and Algebraic Thinking Patterns and Sequences	January (~18 days)
Number and Operations - Fractions Fractions	
Number and Operations - Fractions Fractions Operations with Fractions	February (~18 days)
Number and Operations - Fractions Fractions and Decimals	March (~15-20 days)
Measurement and Data Customary Measurement	
Measurement and Data Perimeter and Area	April (~15-20 days)
Geometry Geometry	
Geometry Geometry	May (~18 days)
Measurement and Data Metric Measurement	
Measurement and Data Metric Measurement	June (~15 days)

Units: Scope & Sequence

Unit 1: Number and Operations in Base Ten

Chapter 1: Place Value

Chapter 2: Add and Subtract Whole Numbers

Chapter 3: Understand Multiplication and Division

Chapter 4: Multiply by One-Digit Numbers

Chapter 5: Multiply by Two-Digit Numbers

Chapter 6: Divide by a One-Digit Number

Step 1 – Desired Results: What do I want my students to learn?

Standards

[NJSLs](#) - 4.NBT.A, 4.NBT.A.1, 4.NBT.A.2, 4.NBT.A.3, 4.NBT.B, 4.NBT.B.4, 4.NBT.B.5, 4.NBT.B.6, MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8

[NJSLs Career Awareness, Exploration, Preparation, and Training](#)

[NJSLs Life Literacies and Key Skills](#)

[NJSLs Interdisciplinary Connections](#)

Unit Big Ideas:

(What Fundamental Concepts Should be Learned during this Unit?)

- How does place value help represent the value of numbers?
- What strategies can I use to add or subtract?
- How are multiplication and division related?
- How can I communicate multiplication?
- How can I multiply by a two-digit number?
- How does division affect numbers?

Objectives

Chapter 1: Place Value

Students will be able to...

- Identify the place value of digits in multi-digit numbers.
- Read and write multi-digit whole numbers.
- Compare numbers using a number line and a place-value chart.
- Order numbers by using a place-value chart and comparing the digit values.
- Estimate numbers by rounding.
- Use the four-step plan to solve problems.

Chapter 2: Add and Subtract Whole Numbers

Students will be able to...

- Use addition properties and subtraction rules to add and subtract.
- Use patterns to solve addition and subtraction problems.
- Use mental math to add and subtract.
- Estimate sums and differences of multi-digit numbers.
- Add multi-digit whole numbers.
- Subtract multi-digit whole numbers.
- Subtract multi-digit numbers, when some digits are zeros.
- Solve problems by drawing a diagram.
- Solve multi-step word problems using addition and subtraction.

Chapter 3: Understand Multiplication and Division

Students will be able to...

- Understand how multiplication and division are related.
- Relate division and subtraction.
- Recognize the comparison of two groups as another strategy to use when multiplying.
- Use comparison to solve problems.
- Use multiplication properties and division rules.
- Use the Associative Property of Multiplication to solve problems.
- Find factors and multiples of whole numbers.
- Check answers for reasonableness.

Chapter 4: Multiply With One-Digit Numbers

Students will be able to...

- Multiply multiples of 10, 100, and 1,000 using basic facts and patterns.
- Estimate products by rounding.
- Explore multiplication using models.
- Explore multiplication using area models and partial products.
- Multiply a two-digit number by a one-digit number.
- Explore multiplication with regrouping using models.
- Use the Distributive Property to make multiplication easier.
- Multiply a two-digit number by a one-digit number.
- Multiply a multi-digit number by a one-digit number.
- Determine if a problem needs an estimate or an exact answer.
- Multiply multi-digit numbers with zeros by a one-digit number.

Chapter 5: Multiply With Two-Digit Numbers

Students will be able to...

- Use properties and algorithms to multiply by tens.
- Estimate products by rounding.
- Explore multiplying by two-digit numbers.
- Multiply two, two-digit numbers.
- Use multiplication to solve multi-step word problems.
- Solve problems by making a table.

Chapter 6: Divide By a One-Digit Number

Students will be able to...

- use basic facts and patterns to divide mentally.
- estimate quotients, using compatible numbers, basic facts, and place value.
- use place value and models to explore dividing by one-digit numbers.
- solve problems by making a model
- divide with remainders and check using multiplication and addition.
- interpret what the remainder means in the context of a division problem.
- determine where to place the first digit when dividing.
- use the Distributive Property and partial quotients to divide.
- solve division problems with greater numbers.
- solve division problems that result in quotients that have zeros
- solve multi-step word problems using more than one operation.

Unit 2: Operations and Algebraic Thinking

Chapter 7: Patterns and Sequences

Step 1 – Desired Results: What do I want my students to learn?

Standards

[NJSLS](#) - 4.OA.A, 4.OA.A.1, 4.OA.A.2, 4.OA.A.3, 4.OA.B, 4.OA.B.4, 4.OA.C, 4.OA.C.5, MP1, MP2, MP3, MP4, MP 5, MP6, MP7, MP8

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[NJSLS Interdisciplinary Connections](#)

Unit Big Ideas:

(What Fundamental Concepts Should be Learned during this Unit?)

- How are patterns used in mathematics?

Objectives

Chapter 7: Patterns and Sequences

Students will be able to...

- describe nonnumeric growing and repeating patterns.
- identify, describe, and extend numeric patterns.
- extend patterns and write observations about the pattern.
- look for a pattern to solve problems.
- find and use rules to write addition and subtraction equations.
- find and use rules to write multiplication and division equations.
- use order of operations to solve problems.
- explore equations with two operations.
- use tables to recognize and write equations with two or more operations.

Unit 3: Numbers and Operations - Fractions

Chapter 8: Fractions

Chapter 9: Operations with Fractions

Chapter 10: Fractions and Decimals

Step 1 – Desired Results: What do I want my students to learn?

Standards

[NJSL](#) - 4.NF.A, 4.NF.A.1, 4.NF.A.2, 4.NF.B, 4.NF.B.3, 4.NF.B.3a, 4.NF.B.3b, 4.NF.B.3c, 4.NF.B.3d, 4.NF.B.4, 4.NF.B.4a, 4.NF.B.4b, 4.NF.B.4c, 4.NF.C, 4.NF.C.5, 4.NF.C.6, 4.NF.C.7, MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8

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Unit Big Ideas:

(What Fundamental Concepts Should be Learned during this Unit?)

- How can different fractions name the same amount?
- How can I use operations to model real-world fractions?
- How are fractions and decimals related?

Objectives

Chapter 8: Fractions

Students will be able to...

- Find factors and multiples of whole numbers.
- Determine if a number is prime or composite.
- Explore equivalent fractions.
- Find equivalent fractions.
- Write a fraction in simplest form.
- Compare and order fractions.
- Use benchmark fractions to compare and order numbers.
- Use logical reasoning to solve problems.
- Represent mixed numbers by decomposing them into a sum of whole numbers and unit fractions.
- Write mixed numbers and improper fractions.

Chapter 9: Operations with Fractions

Students will be able to...

- Use models to add like fractions
- Add like fractions
- Use models to subtract like fractions
- Subtract like fractions
- Work backward to solve problems.
- Add mixed numbers
- Subtract mixed numbers
- Use models to multiply fractions
- Multiply fractions by whole numbers.

Chapter 10: Fractions and Decimals

Students will be able to...

- Explore using place-value charts and grids to model decimals
- Model and describe tenths as part of the base-ten system.
- Model and describe hundredths as part of the base-ten system
- Explore using grids and number lines to model the relationship between decimals and fractions
- Identify, read and write tenths and hundredths as decimals and fractions.
- Use place-value and equivalent fractions to add two fractions with respective denominators 10 and 100
- Compare and order decimals to hundredths by reasoning about their size.
- Find extra or missing information when solving problems.

Unit 4: Measurement and Data

Chapter 11: Customary Measurement

Chapter 12: Metric Measurement

Chapter 13: Perimeter and Area

Step 1 – Desired Results: What do I want my students to learn?

Standards

[NJSLs](#) - 4.MD.A, 4.MD.A.1, 4.MD.A.2, 4.MD.A.3, 4.MD.B, 4.MD.B.4, 4.MD.C, 4.MD.C.5, 4.MD.C.5a, 4.MD.C.5b, 4.MD.C.6, 4.MD.C.7, MP1, MP2, MP3, MP4, MP5, MP6, MP7, MP8

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Unit Big Ideas:

(What Fundamental Concepts Should be Learned during this Unit?)

- Why do we convert measurements?
- How can conversion of measurements help me solve real-world problems?
- Why is it important to measure perimeter and area?

Objectives

Chapter 11: Customary Measurement

Students will be able to...

- estimate and measure length using customary units.
- convert customary units of length.
- estimate and measure customary capacities.
- convert customary units of capacity.
- estimate and measure customary units of weight.
- convert customary units of weight.
- convert units of time.
- display measurement data in a line plot.
- solve problems involving measurement.
- solve problems using the guess, check, and revise strategy.

Chapter 12: Metric Measurement

Students will be able to...

- Estimate and measure lengths within the metric system.
- Estimate and measure metric capacities.
- Estimate and measure mass and learn the difference between weight and mass.
- Make an organized list to solve problems.
- Convert metric units.
- Solve problems involving measurement.

Chapter 13: Perimeter and Area

Students will be able to...

- Find the perimeter of a figure.
- Solve a simpler problem to solve problems.
- Explore the area of a figure
- Find the area of rectangles and squares.
- Relate area to perimeter.

Unit 5: Geometry

Chapter 14: Geometry

Step 1 – Desired Results: What do I want my students to learn?

Standards

[NJSLS](#) - 4.G.A, 4.G.A.1, 4.G.A.2, 4.G.A.3, MP1, MP2, MP3, MP4, MP 5, MP6, MP7, MP8

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Unit Big Ideas:

(What Fundamental Concepts Should be Learned during this Unit?)

- How are different ideas about Geometry connected?

Objectives

Chapter 14: Geometry

Students will be able to...

- Draw points, lines, line segments and rays and identify these in two-dimensional figures.
- Draw parallel, intersecting and perpendicular lines and identify these in two-dimensional figures.
- Understand concepts of angles and angle measurement.
- Use the concept of angle measurement to classify angles.
- Use a protractor to measure angles to the nearest degree.
- Use a protractor to draw angles of a specific measure.
- Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical situations.
- Classify triangles based on angle measure and describe triangles using their attributes.
- Classify quadrilaterals using their attributes.

Please contact content supervisor for any questions.