Mathematics Department

Grade 4

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Effective Date: September 2024

Scope and Sequence

Month	Grade 4	
September	**Grade 4 Math Baseline Assessment** **Chapter 1: Working with Whole Numbers**	
October	**Chapter 2: Multiplication and Division** **Grade 4 Benchmark Assessment 1: by end of October/early November**	**Strategies Interventions: Bridges Volume 5 (Multiplication Facts)** **Strategies Interventions: Bridges Volumes 6** **Volume 7 (Word Problems)**
November	**Chapter 3: Fractions and Mixed Numbers**	**Strategies Interventions: Bridges Volume 8**
December	**Finish Chapter 3**	**Strategies Interventions: Bridges Volume 9**
January	**Chapter 4: Decimals** **Grade 4 BM 2**	
February	**Chapter 6 (Book B): Area and Perimeter (can push Ch 5 to April)**	
March	**Finish Chapter 6** **Grade 4 Math Spring Summative Assessment 2024** **Chapter 7: Angles and Line Segments**	
April	**Chapter 5: Units of Measurement** **Ch 5 alternate assessment- Measurement**	

May	**Chapter 9: Tables & Line Graphs**	
June	**Chapter 8: Polygons and Symmetry**	

Unit 1

Whole Numbers
Multiplication & Division

Summary and Rationale

Number theory, the study of whole numbers and their properties, has a long history and is still an active field of inquiry. In this unit, place value concepts are reviewed and extended to the ten-thousands. Students represent numbers to 100,000 in various ways and apply what they know about comparing numbers to larger numbers.

Students build on their knowledge of rounding numbers to estimate sums, differences, products, and quotients and use estimation skills to determine if an answer is reasonable. They determine if estimates or exact answers are needed and apply estimation skills in real-world situations.

Students are introduced to factors, multiples, least common multiples, and greatest common factors in this unit. They use basic multiplication and division facts to find factors and multiples, break down whole numbers into factors, and multiply them to get multiples.

Students advance to multiplying and dividing multi-digit numbers. The place-value concept, which students are familiar with, is used in multiplication and division. Students discover that division is the inverse of multiplication and use estimation to check the reasonableness of answers.

Recommended Pacing

Math in Focus Chapter 1: Working with Whole Numbers
Math in Focus Chapter 2: Multiplication and Division

Standards

Number and Operations in Base Ten

4.NBT.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 ÷ 70 = 10 by applying concepts of place value and division.*
4.NBT.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.
4.NBT.3	Use place value understanding to round multi-digit whole numbers to any place.

4.NBT.4	With accuracy and efficiency, add and subtract multi-digit whole numbers using the standard algorithm.
4.NBT.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.
4.NBT.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.
Operations and Algebraic Thinking	
4.OA.1	Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 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.
4.OA.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.[1]
4.OA.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.
4.OA.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.
4.OA.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.*
Mathematical Practices	
K-12.MP.1	Make sense of problems and persevere in solving them.
K-12.MP.2	Reason abstractly and quantitatively.
K-12.MP3	Construct viable arguments and critique the reasoning of others.
K-12.MP.4	Model with mathematics.
K-12.MP.5	Use appropriate tools strategically.

K-12.MP.6	Attend to precision.
K-12.MP.7	Look for and make use of structure.
K-12.MP.8	Look for and express regularity in repeated reasoning.
Interdisciplinary Connections	
ELA	
Math journal, math vocabulary discussions, reading topic-related books, providing explanations	
SL.1.1.	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). B. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. C. Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.3.	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
SL.1.6.	Produce complete sentences when appropriate to task and situation.
Science	
3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
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.
Integration of Technology	
Use of SmartBoard, playing online games	
8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
Career Readiness, Life Literacies and Key Skills	
9.1.5.CR.1	Compare various ways to give back and relate them to your strengths, interests, and other personal factors.
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.
9.2.5.CI.3	Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.
9.2.5.CT.1	Identify and gather relevant data that will aid in the problem-solving process.
9.2.5.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.
9.2.5.CT.3	Describe how digital tools and technology may be used to solve problems.
9.2.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
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.

Instructional Focus

Enduring Understandings:	**Essential Questions:**
Whole numbers can be compared and ordered according to the place value of their digits. When two factors are multiplied, the product is a multiple of both numbers. Knowing factors and multiples of numbers can help in estimating products and quantities. Place value is used to multiply and divide multi-digit numbers. Estimation can be used to check the reasonableness of an answer. Division is the inverse of multiplication.	What is a factor? What is a multiple? How are factors and multiples related? When would it be more useful to multiply than to use repeated addition? When will you use division in your daily life? How are multiplication and division related?

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 1: Working with Whole Numbers
Math in Focus Assessment Guide Chapter 2: Multiplication and Division
Math in Focus Cumulative Review 1 (Chapters 1 and 2)
Benchmark Assessments

Objectives (SLO)

Students will know:	Students will be able to:
● Ten thousand ● Hundred thousand ● Standard form, word form, expanded form ● Reasonable estimate ● Front-end estimation ● Rounding ● Product, quotient ● Factor, common factor ● Greatest common factor (GCF) ● Prime number, composite number ● Multiple, common multiple ● Least common multiple (LCM) ● Round, estimate ● Product ● Regroup ● Quotient, remainder	● Write numbers to 100,000 in standard form, word form, and expanded form. ● Compare and order numbers to 100,000. ● Identify how much more or less one number is than another number. ● Find the rule in a number pattern. ● Add multi-digit numbers with and without regrouping. ● Subtract multi-digit numbers with and without regrouping. ● Round numbers to estimate sums, differences, products, and quotients. ● Estimate to check that an answer is reasonable. ● Decide whether an exact answer or an estimate is needed. ● Find the common factors and greatest common factor of two whole numbers. ● Identify prime numbers and composite numbers. ● Find multiples of whole numbers. ● Find common multiples and the least common multiple of two or more numbers. ● Multiply multi-digit numbers by o one-digit number using an array model. ● Use different methods to multiply up to four-digit numbers by one-digit numbers, with or without regrouping. ● Multiply two two-digit numbers using an area model. ● Multiply by two-digit numbers with and without regrouping. ● Estimate products. ● Model regrouping in division. ● Divide a three-digit number by a one-digit number with regrouping. ● Divide up to a four-digit number by a one-digit number with regrouping, and with and without remainders. ● Estimate quotients.

	● Solve real-world problems. ● Solve multi-step word problems using the four operations. ● Represent the problems with a letter standing for the unknown quantity.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 1: Working with Whole Numbers
Math in Focus Resources Chapter 2: Multiplication and Division

Resources and Manipulatives
Place-value chart
Place-value chips
Number cards
Prime numbers table
Number cubes
Base-ten blocks
Place-value chart
Place-value chips
Calendar

Online Resources
HMH Ed: Your Friend in Learning

Literacy Connections
Sea Squares by Joy N. Hulme
Each Orange had 8 Slice: A Counting Book by Paul Giganti

Tier 1 Modifications and Accommodations

Including special education students, Multilingual Language Learners (MLLs), students at risk of school failure, gifted and talented students, and students with 504 plans;

General Modifications for students struggling to learn:

Small group instruction within the classroom
Differentiation through content, process, product,and environment
Individual feedback and praise towards what is done correctly based upon effort, attitude and strategy.
Help students manage individual stressors for the student and plan alternate pathways for completion of assignments..

Special Education - Reteach/Extra practice workbook pages, anchor charts, scaffolded explanations of topics, manipulatives, additional time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

*These are only suggested ideas to modify instruction, modifications and accommodations should be tailored to each student's IEP and needs. Also, see textbook for Differentiated Instruction ideas in each chapter

504 - Reteach/Extra practice pages, anchor charts, scaffolded explanations of topics, manipulatives, extra time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

MLL - Select activities which reinforce chapter vocabulary and connections among these words such as:
A Word Wall which includes terms, definitions, and examples
Drawings and numbers to show examples of terms

Gifted and Talented - Enrichment workbook, Put on Your Thinking Cap pages and resources, higher-level questions, challenge packets, KenKen and other puzzles, leading group work

Career Readiness, Life Literacies, and Key Skills NJSLS

Please select all standards that apply to this unit of study:

Act as a responsible and contributing community members and employee
Attend to financial well-being
Consider the environmental, social and economic impacts of decisions
Demonstrate creativity and innovation
Utilize critical thinking to make sense of problems and persevere in solving them
Model integrity, ethical leadership and effective management
Plan education and career paths aligned to personal goals
Use technology to enhance productivity increase collaboration and communicate effectively
Work productively in teams while using cultural/global competence

Suggestions on integrating these standards can be found at: https://www.nj.gov/education/standards/clicks/

Unit 2

Fractions and Mixed Numbers

Summary and Rationale

In earlier grades, students learned to represent fractions pictorially, as a sum of unit fractions, and on a number line. They have learned how to find equivalent fractions and compare and order fractions less than one and are familiar with the term, like fractions . In this unit students will first extend their knowledge of equivalent fractions and apply the learning of common factors to simplify fractions and identify fractions in simplest form. They will then learn to add and subtract like and unlike fractions with and without renaming. The unlike fractions at this level are restricted to denominators that are multiples of one of them, which are called related fractions, so that only one fraction needs to be renamed.

Students will be introduced to improper fractions and their equivalent mixed numbers. They will extend their understanding of the fraction of a set to multiply a fraction by a whole number. Students will convert improper fractions to mixed numbers and vice versa, and will also apply their knowledge of finding common factors and multiples to add and subtract related fractions. They will visualize the equivalent fraction as a multiple of the unit fraction with the common denominator. Students will use both concrete models such as fraction circles and tiles, and visual representations to develop extensive understanding of these concepts. Students will apply these concepts to solve real world problems throughout the unit.

Recommended Pacing

Math in Focus Chapter 3: Fractions and Mixed Numbers

Standards

Number and Operations-Fractions	
4.NF.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.
4.NF.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 ½. 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.
4.NF.3	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.

4.NF.3a	Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
4.NF.3b	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 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*
4.NF.3c	Add and subtract mixed numbers with the same 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.
4.NF.3d	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.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
4.NF.4a	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 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).*
4.NF.4b	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 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)*
4.NF.4c	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?*
4.NF.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 100.2 For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.
Operations and Algebraic Thinking	
4.OA.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.
Data Literacy	
4.DL.5	Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, ⅛). 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.
Mathematical Practices	
K-12.MP.1	Make sense of problems and persevere in solving them.

K-12.MP.2	Reason abstractly and quantitatively.
K-12.MP3	Construct viable arguments and critique the reasoning of others.
K-12.MP.4	Model with mathematics.
K-12.MP.6	Attend to precision.
K-12.MP.7	Look for and make use of structure.
Interdisciplinary Connections	
ELA	
Math journal, math vocabulary discussions, reading topic-related books, providing explanations	
SL.1.1.	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). B. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. C. Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.3.	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
SL.1.6.	Produce complete sentences when appropriate to task and situation.
Science	
3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
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.
Integration of Technology	
Use of SmartBoard, playing online games	
8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
Career Readiness, Life Literacies and Key Skills	
9.1.5.CR.1	Compare various ways to give back and relate them to your strengths, interests, and other personal factors.

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.
9.2.5.CI.3	Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.
9.2.5.CT.1	Identify and gather relevant data that will aid in the problem-solving process.
9.2.5.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.
9.2.5.CT.3	Describe how digital tools and technology may be used to solve problems.
9.2.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
9.4.5.IML.2	Create a visual representation to organize information about a problem or issue.
9.4.5.IML.3	Represent the same data in multiple visual formats in order to tell a story about the data.
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

Instructional Focus

Enduring Understandings:	**Essential Questions:**
Fractions and mixed numbers are used to name whole and parts of a whole. Equivalent fractions can be found by multiplying or dividing the numerator and denominator by the same number. A fraction is in simplest form when the numerator and denominator do not contain any common factors other than 1. Equivalent fractions can be used to compare unlike fractions.	Can a fraction be greater than one? How do you know if a fraction is in simplest form? How can you find equivalent fractions? How can you use equivalent fractions and benchmark fractions to compare fractions? How is an improper fraction converted into a mixed number?

A number line can be used to compare unlike fractions. Fractions are greater as they move to the right, as they are closer to 1. Benchmark fractions on a number line can be used to compare unlike fractions. A mixed number includes a whole number and a fraction. Improper fractions are equal to or greater than one. An improper fraction has a numerator that is greater than the denominator. The denominator tells us how many pieces make each whole and the numerator tells us how many pieces we have in all. Since an improper fraction is greater than or equal to one, it can be represented as a mixed number. To convert an improper fraction to a mixed number, find how many wholes can be made and how many fractional pieces are left. Fractions and mixed numbers can be added and subtracted. To add like fractions (fractions with the same denominator), add the numerators and keep the same denominator. To add or subtract unlike fractions, find a common multiple of both denominators and use that as the denominator of both fractions. To add like mixed numbers, one strategy is to group wholes and fractional parts and then perform the operations on each group. The resulting answer may need to be further simplified. To subtract mixed numbers, use the same process. If you don't have enough fraction pieces to subtract, rename one of the wholes. Fractions can be written as sums of unit fractions and as a multiple of a unit fraction.	How is a mixed number converted into an improper fraction? How do you add or subtract like fractions and mixed numbers? How do you add or subtract unlike fractions and mixed numbers? How do you multiply a whole number by a fraction?
Evidence of Learning (Assessments)	
Math in Focus Assessment Guide Chapter 3: Fractions and Mixed Numbers *Math in Focus* Cumulative Review 2 (Chapters 3 and 4) Benchmark Assessments	

Objectives (SLO)

Students will know:	Students will be able to:
● Numerator, denominator ● Equivalent fraction ● Unlike fraction ● Simplify ● Simplest form ● Benchmark Fraction ● Improper fraction ● Mixed Number ● Common denominator ● Common numerator ● Division rule ● Multiplication rule . .	● Use multiplication to find equivalent fractions. ● Write a fraction in simplest form. ● Use equivalent fractions to compare unlike fractions. ● Use benchmark fractions to compare unlike fractions. ● Compare and order fractions. ● Add and subtract like fractions. ● Express the sum of a whole number and a proper fraction as a mixed number. ● Write an improper fraction in simplest form. ● Write an improper fraction as a mixed number. ● Write a mixed number as an improper fraction. . ● Add mixed numbers with like denominators. ● Subtract mixed numbers with like denominators. ● Subtract fraction from a whole number. ● Represent a fraction as a multiple of a unit fraction. ● Multiply a whole number and a fraction, and relate the product to a multiple of a unit fraction. ● Find a fractional part of a number. ● Multiply a fraction and a whole number. ● Solve real-world problems involving adding and subtracting fractions. ● Show data in a line plot with a scale of fractions of a unit. ● Solve real-world problems involving adding and subtracting fractions using data in a line plot. ● Solve real-world problems involving multiplying whole numbers and fractions

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 3: Fractions and Mixed Numbers

<u>Resources and Manipulatives</u>
Fraction strips
Fraction tiles
Fraction circles
Fraction bar models
Number cubes
Connecting cubes

<u>Online Resources</u>

HMH Ed: Your Friend in Learning

Literacy Connections
Top 10 of Everything: 200 by R. Ash
Scholastic Kids Almanac for the 21st Century by E. Pascoe and D. Kops

Tier 1 Modifications and Accommodations

Including special education students, Multilingual Language Learners (MLLs), students at risk of school failure, gifted and talented students, and students with 504 plans;

General Modifications for students struggling to learn:

Small group instruction within the classroom
Differentiation through content, process, product,and environment
Individual feedback and praise towards what is done correctly based upon effort, attitude and strategy.
Help students manage individual stressors for the student and plan alternate pathways for completion of assignments.

Special Education - Reteach/Extra practice workbook pages, anchor charts, scaffolded explanations of topics, manipulatives, additional time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention.

*These are only suggested ideas to modify instruction, modifications and accommodations should be tailored to each student's IEP and needs. Also, see textbook for Differentiated Instruction ideas in each chapter.

504 - Reteach/Extra practice pages, anchor charts, scaffolded explanations of topics, manipulatives, extra time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

MLL - Select activities which reinforce chapter vocabulary and connections among these words such as:
A Word Wall which includes terms, definitions, and examples
Drawings and numbers to show examples of terms

Gifted and Talented - Enrichment workbook, Put on Your Thinking Cap pages and resources, higher-level questions, challenge packets, KenKen and other puzzles, leading group work
Learning Extension: Adding and Subtracting Unlike Fractions (6.1 and 6.2)

Career Readiness, Life Literacies, and Key Skills NJSLS

Please select all standards that apply to this unit of study:

Act as a responsible and contributing community members and employee
Attend to financial well-being
Consider the environmental, social and economic impacts of decisions
Demonstrate creativity and innovation
Utilize critical thinking to make sense of problems and persevere in solving them
Model integrity, ethical leadership and effective management
Plan education and career paths aligned to personal goals
Use technology to enhance productivity increase collaboration and communicate effectively
Work productively in teams while using cultural/global competence

Suggestions on integrating these standards can be found at: https://www.nj.gov/education/standards/clicks/

Unit 3

Decimals

Summary and Rationale

Decimals are an extension of the base-ten system of writing whole numbers. Decimals can represent amounts that are parts of a whole and are useful for representing numbers less than one and numbers between consecutive whole numbers. In this unit, students learn to recognize, compare, and round decimals to tenths and hundredths. Number lines and pictorial representations are used to represent, compare, and round decimals.

IN earlier grades students were introduced to numbers to two decimal places in the context of money. Students learn that the period used to separate dollars and cents in money is called a decimal point, which is used to separate the whole number part and the fractional part. They will again express monetary amounts using monetary notation, as well as expressing measurements, such as meters, as decimals. Students will use their prior knowledge to add one tenth and one hundredth, which will also lead to the development in identifying, counting, and forming patterns involving decimals. They will use this to complete sequences involving number patterns with decimals and also understand the rule of teh pattern.

Students make the connection between equivalent fractions and decimals through models and number lines and will learn the different methods that can be used to express a decimal as a fraction and vice versa. They will use model and number lines to compare decimals and write number sentences using inequality symbols. All of these concepts will prepare students to learn to add and subtract tenths and hundredths.

Recommended Pacing

Math in Focus Chapter 4: Decimals

Standards

Number and Operations-Fractions

4.NF.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 100.2 For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.
4.NF.6	Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.
4.NF.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.

Operations and Algebraic Thinking	
4.OA.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.*
Measurement	
4.M.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.
Mathematical Practices	
K-12.MP.1	Make sense of problems and persevere in solving them.
K-12.MP.2	Reason abstractly and quantitatively.
K-12.MP3	Construct viable arguments and critique the reasoning of others.
K-12.MP.4	Model with mathematics.
K-12.MP.6	Attend to precision.
K-12.MP.7	Look for and make use of structure.
K-12.MP.8	Look for and express regularity in repeated reasoning.
Interdisciplinary Connections	
ELA	
Math journal, math vocabulary discussions, reading topic-related books, providing explanations	
SL.1.1.	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). B. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. C. Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.3.	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
SL.1.6.	Produce complete sentences when appropriate to task and situation.

Science	
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.
4-ESS2-2	Analyze and interpret data from maps to describe patterns of Earth's features.
Integration of Technology	
Use of SmartBoard, playing online games	
8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
Career Readiness, Life Literacies and Key Skills	
9.1.5.CR.1	Compare various ways to give back and relate them to your strengths, interests, and other personal factors.
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.
9.2.5.CI.3	Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.
9.2.5.CT.1	Identify and gather relevant data that will aid in the problem-solving process.
9.2.5.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.
9.2.5.CT.3	Describe how digital tools and technology may be used to solve problems.
9.2.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
9.4.5.IML.2	Create a visual representation to organize information about a problem or issue.
9.4.5.IML.3	Represent the same data in multiple visual formats in order to tell a story about the data.
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

Instructional Focus

Enduring Understandings:	**Essential Questions:**
Decimals are another way to show amounts that are parts of a whole. Decimals are useful for representing numbers less than one and numbers between consecutive whole numbers. A decimal has a decimal point to the right of the one's place and digits to the right of the decimal point. The decimal point is used to separate the whole number part and the fractional part. The digits to the right of the decimal point represent fractional parts of a whole. Most decimals can be written as a fraction. Fractions can be written in decimal form by renaming the fraction so that it has a denominator of 10 or 100. These fractions can then be simplified if necessary. Decimals can be compared using equivalent fractions and/or a number line. Decimals can be added in the same ways as whole numbers.	How are decimals and fractions related? What is the significance of the decimal point? How do you represent a fraction as a decimal? How do you represent a decimal as a fraction? How can you compare decimals? How do you add decimals? Where are decimals in the real world?

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 4: Decimals
Math in Focus Cumulative Review 2 (Chapters 3 and 4)
Benchmark Assessments

Objectives (SLO)

Students will know:	Students will be able to:
● Tenth, hundredth ● Decimal form ● Decimal point ● Expanded form ● Placeholder zero ● Equivalent fraction and decimal	● Read and write tenths in decimal and fractional forms ● Represent and interpret tenths models. ● Read and write hundredths in decimal and fractional forms ● Represent and interpret hundredths models. ● Compare and order decimals. ● Complete number patterns.

- Round decimals to the nearest whole number or tenth.
- Express a fraction as a decimal and a decimal as a fractions.
- Add tenths and hundredths.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 4: Decimals

Resources and Manipulatives
Decimal place-value chart
Place-value chips
Decimal cards
Fraction cards
Decimal bars
Unit cubes
Decimal squares in tenths and hundredths

Online Resources
HMH Ed: Your Friend in Learning

Tier 1 Modifications and Accommodations

Including special education students, Multilingual Language Learners (MLLs), students at risk of school failure, gifted and talented students, and students with 504 plans;

General Modifications for students struggling to learn:

Small group instruction within the classroom
Differentiation through content, process, product,and environment
Individual feedback and praise towards what is done correctly based upon effort, attitude and strategy.
Help students manage individual stressors for the student and plan alternate pathways for completion of assignments.
.

Special Education - Reteach/Extra practice workbook pages, anchor charts, scaffolded explanations of topics, manipulatives, additional time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

*These are only suggested ideas to modify instruction, modifications and accommodations should be tailored to each student's IEP and needs. Also, see textbook for Differentiated Instruction ideas in each chapter.

504 - Reteach/Extra practice pages, anchor charts, scaffolded explanations of topics, manipulatives, extra time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

MLL - Select activities which reinforce chapter vocabulary and connections among these words such as:
A Word Wall which includes terms, definitions, and examples
Drawings and numbers to show examples of terms

Gifted and Talented - Enrichment workbook, Put on Your Thinking Cap pages and resources, higher-level questions, challenge packets, KenKen and other puzzles, leading group work Extension Topics: Adding and Subtracting Decimals (Chapter 8)- in preparation for Grade 5

Career Readiness, Life Literacies, and Key Skills NJSLS

Please select all standards that apply to this unit of study:

- Act as a responsible and contributing community members and employee
- Attend to financial well-being
- Consider the environmental, social and economic impacts of decisions
- Demonstrate creativity and innovation
- Utilize critical thinking to make sense of problems and persevere in solving them
- Model integrity, ethical leadership and effective management
- Plan education and career paths aligned to personal goals
- Use technology to enhance productivity increase collaboration and communicate effectively
- Work productively in teams while using cultural/global competence

Suggestions on integrating these standards can be found at: https://www.nj.gov/education/standards/clicks/

Unit 4

Measurement & Data

Summary and Rationale

In earlier grades, students learned to measure length, wright ,and capacity using metric and customary units.
In this unit, students further their understanding of length, weight, capacity, and volume in small and large customary and metric units of measure. With the exposure to real-world problems, students are able to make sense of what they learn in parallel context situations encountered in everyday life.

This unit also contains opportunities to convert measurements in both customary and metric measurements. Students will use the four operations and apply their knowledge of fractions for some of these problems.

Students have learned to tell time to the minute and measure time in hours and minutes. In this unit, they will extend those concepts to measuring time in seconds. They will also convert minutes to seconds and hours to minutes. They will begin to understand a 24-hour clock. Students will also have opportunities to solve real-world problems involving time.

In earlier grades, students learned to construct and analyze frequency tables, pictures, graphs, bar graphs, and line plots. They also used the four operations to solve problems based on the graphs. This unit, students will learn to use tables and graphs as visual tools for representing and analyzing data. They will earn to collect and organize data in tables , as well as interpret line graphs and tables. Students will discover how data that is tabulated or plotted on graphs can be retrieved easily and can show patterns and trends. Comparing, analyzing and classifying are some of the skills students will apply as they look for patterns and trends.

Students are introduced to line graphs, which are graphs with two numerical axes that show data continuously from left to right. This is unlike a bar graph, which categorizes data. The concepts related to line graphs will help students in middle school when they begin to study functional relationships. Students will use the four operations of whole numbers when they analyze data presented in graphs and tables to solve real world problems.

Recommended Pacing

Math in Focus Chapter 5: Conversion of Measurements
Math in Focus Chapter 9: Tables and Line Graphs

Standards

Measurement

4.M.1	Know relative sizes of measurement units within one system of units including km, m, cm; 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), ...*
4.M.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.
Data Literacy	
4.DL.1	Create data-based questions, generate ideas based on the questions, then refine the questions.
4.DL.2	Develop strategies to collect various types of data and organize data digitally.
4.DL.3	Understand that subsets of data can be selected and analyzed for a particular purpose.
4.DL.4	Analyze visualizations of a single data set, share explanations, and draw conclusions that the data supports.
Operations and Algebraic Thinking	
4.OA.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.
4.OA.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.*
Mathematical Practices	
K-12.MP.1	Make sense of problems and persevere in solving them.
K-12.MP.2	Reason abstractly and quantitatively.
K-12.MP3	Construct viable arguments and critique the reasoning of others.
K-12.MP.4	Model with mathematics.
K-12.MP.5	Use appropriate tools strategically.

K-12.MP.6	Attend to precision.
K-12.MP.7	Look for and make use of structure.
Interdisciplinary Connections	
ELA	
Math journal, math vocabulary discussions, reading topic-related books, providing explanations	
SL.1.1.	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). B. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. C. Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.3.	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
SL.1.6.	Produce complete sentences when appropriate to task and situation.
Science	
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.
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.
4-ESS2-2	Analyze and interpret data from maps to describe patterns of Earth's features.
3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
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.
Integration of Technology	
Use of SmartBoard, playing online games	
8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
Career Readiness, Life Literacies and Key Skills	
9.1.5.CR.1	Compare various ways to give back and relate them to your strengths, interests, and other personal factors.

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.
9.2.5.CI.3	Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.
9.2.5.CT.1	Identify and gather relevant data that will aid in the problem-solving process.
9.2.5.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.
9.2.5.CT.3	Describe how digital tools and technology may be used to solve problems.
9.2.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
9.4.5.IML.2	Create a visual representation to organize information about a problem or issue.
9.4.5.IML.3	Represent the same data in multiple visual formats in order to tell a story about the data.
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

Instructional Focus

Enduring Understandings:	**Essential Questions:**
Length, weight, and capacity can be measured using customary and metric units. Length can be measured in inches, feet, yards, and miles. (Customary) Length can be measured in centimeters, meters and kilometers.(Metric) Weight can be measured in ounces, pounds, and tons.(Customary)	When and how do we measure length? When and how do we measure weight? Where do we find units of capacity such as cups, pints, quarts, gallons, and fluid ounces? How do we measure time? How does organizing data make it easier to understand? How is data in a line graph organized and interpreted?

Weight can be measured in milligrams, grams, and kilograms. (Metric) Volume can be measured in cups, pints, quarts, gallons, and fluid ounces. (Customary) Volume can be measured in milliliters, liters, and kiloliters. (Metric) Time can be measured in seconds, minutes, and hours. Graphs and tables are visual tools for showing and analyzing data. Information can be analyzed to find a typical value for a data set. Line graphs have two numerical axes and show data continuously from left to right.	

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 5: Conversion of Measurements
Math in Focus Cumulative Review 3 (Chapters 5 and 6)
Math in Focus Assessment Guide Chapter 9: Tables and Line Graphs
Math in Focus Cumulative Review 4 (Chapters 7 through 9)
Benchmark Assessments

Objectives (SLO)

Students will know:	Students will be able to:
● Inch (in.), half-inch, foot (ft), yard (yd), mile (mi) ● Ounce (oz), pound (lb), ton (T) ● Fluid ounce, Cup (c), pint (pt), quart (qt), gallon (gal) ● Centimeter, meter, kilometer ● Milligram, gram kilogram ● Milliliter, liter, kiloliter ● Seconds, minutes, hours. ● Data ● Table ● Tally chart ● Row, column, intersection, ● Line graph ● Horizontal axis, vertical axis	● Measure and estimate length in customary units. ● Use inch, foot, yard, and mile as units of measurement for lengths. ● Convert between different units of measurement of length within the customary system. ● Measure and estimate weight and volume in customary units ● Use ounce, pound, and ton as units of measurement for weight. ● Read scales in ounce (oz) and pound (lb). ● Measure capacity with cup (c), pint (pt), quart, (qt), and gallon (gal). ● Estimate and find the actual capacity of a container. ● Relate units of capacity to one another.

- Convert between different units of measurement of weight and volume within the customary system.
- Understand the relative sizes of measurement units.
- Measure and estimate length in metric units.
- Convert metric units of length.
- Convert metric units of mass and volume.
- Measure time in seconds.
- Convert units of time.
- Read and tell time using the 24-hour clock.
- Represent measurement quantities using line diagrams and look for patterns.
- Solve real world problems involving customary, metric units and time.
- Create a table from data collected
- Interpret data given a table.
- Read and interpret data in a table, using rows, columns, and intersections.
- Make, read, and interpret line graphs.
- Choose an appropriate graph to display a given data set.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 5: Conversion of Measurements
Math in Focus Resources Chapter 9: Tables and Line Graphs

Resources and Manipulatives
Line graphs
Grid Paper

Online Resources
HMH Ed: Your Friend in Learning

Literacy Connections
How Much is a Million? by David Schwartz
If You Made a Million by David Schwartz

Tier 1 Modifications and Accommodations

Including special education students, Multilingual Language Learners (MLLs), students at risk of school failure, gifted and talented students, and students with 504 plans;

General Modifications for students struggling to learn:

Small group instruction within the classroom
Differentiation through content, process, product,and environment

Individual feedback and praise towards what is done correctly based upon effort, attitude and strategy.
Help students manage individual stressors for the student and plan alternate pathways for completion of assignments.

*These are only suggested ideas to modify instruction, modifications and accommodations should be tailored to each student's IEP and needs. Also, see textbook for Differentiated Instruction ideas in each chapter.

Special Education - Reteach/Extra practice workbook pages, anchor charts, scaffolded explanations of topics, manipulatives, additional time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention.

*These are only suggested ideas to modify instruction, modifications and accommodations should be tailored to each student's IEP and needs. Also, see textbook for Differentiated Instruction ideas in each chapter.

MLL - Select activities which reinforce chapter vocabulary and connections among these words such as:
A Word Wall which includes terms, definitions, and examples
Drawings and numbers to show examples of terms

504 - Reteach/Extra practice pages, anchor charts, scaffolded explanations of topics, manipulatives, extra time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

Gifted and Talented - Enrichment workbook, Put on Your Thinking Cap pages and resources, higher-level questions, challenge packets, KenKen and other puzzles, leading group work

Career Readiness, Life Literacies, and Key Skills NJSLS

Please select all standards that apply to this unit of study:

Act as a responsible and contributing community members and employee
Attend to financial well-being
Consider the environmental, social and economic impacts of decisions
Demonstrate creativity and innovation
Utilize critical thinking to make sense of problems and persevere in solving them
Model integrity, ethical leadership and effective management
Plan education and career paths aligned to personal goals
Use technology to enhance productivity increase collaboration and communicate effectively
Work productively in teams while using cultural/global competence

Suggestions on integrating these standards can be found at: https://www.nj.gov/education/standards/clicks/

Unit 5

Geometry
(Spatial Geometry & Geometric Measurement)

Summary and Rationale

In this unit, students identify and relate angles, perpendicular lines, and parallel lines to real-life objects and are encouraged to see angles and lines in planes shapes and three-dimensional objects. Students learn that angles can be seen everywhere around them. Angles are formed when two rays or sides of a figure meet. Students estimate angle measures, measure angles with a protractor, and are introduced to the degree symbol. They also learn to draw angles to 180° using a protractor and make connections between angles and turns.

Students extend their knowledge of lines to line segments and continue to explore parallel and perpendicular lines. They learn to use a drawing triangle to draw perpendicular, parallel, horizontal, and vertical line segments when a grid is not provided.

Students learn the properties of squares and rectangles. They apply their knowledge of angles and parallel and perpendicular line segments to identify and define squares and rectangles. Students also decompose shapes that are made up of squares and rectangles. These use the properties of squares and rectangles to find unknown angle measures and side lengths of figures.

Students learn the concept of symmetry, as well as how to check for congruency, determine symmetric figures, and draw a line of symmetry to produce congruent halves and symmetric figures.

Students learn to find the area and perimeter of figures using formulas. They find the perimeter of composite figures. Students apply the properties of squares and rectangles to find one side of a square or rectangle given its perimeter or area. They also solve real-world problems involving area and perimeter of figures.

Recommended Pacing

Math in Focus Chapter 6: Area and Perimeter
Math in Focus Chapter 7: Angles and Line Segments
Math in Focus Chapter 8: Polygons and Symmetry

Standards

Geometry	
4.G.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

4.G.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.
4.G.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.
Measurement	
4.M.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 teh flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*
4.M.4	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
4.M.4a	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 1/360 of a circle is called a “one-degree angle,” and can be used to measure angles.
4.M.4b	An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.
4.M.5	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
4.M.6	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.
Operations and Algebraic Thinking	
4.OA.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.
Mathematical Practices	
K-12.MP.1	Make sense of problems and persevere in solving them.
K-12.MP.2	Reason abstractly and quantitatively.
K-12.MP3	Construct viable arguments and critique the reasoning of others.
K-12.MP.4	Model with mathematics.

K-12.MP.5	Use appropriate tools strategically.
K-12.MP.6	Attend to precision.
K-12.MP.7	Look for and make use of structure.
Interdisciplinary Connections	
ELA	
Math journal, math vocabulary discussions, reading topic-related books, providing explanations	
SL.1.1.	Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. A. Follow agreed-upon norms for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion). B. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. C. Ask questions to clear up any confusion about the topics and texts under discussion.
SL.1.3.	Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
SL.1.6.	Produce complete sentences when appropriate to task and situation.
Science	
3-5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
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.
Integration of Technology	
Use of SmartBoard, playing online games	
8.1.2.A.4	Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums).
Career Readiness, Life Literacies and Key Skills	
9.1.5.CR.1	Compare various ways to give back and relate them to your strengths, interests, and other personal factors.
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.
9.2.5.CI.3	Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.
9.2.5.CT.1	Identify and gather relevant data that will aid in the problem-solving process.
9.2.5.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.
9.2.5.CT.3	Describe how digital tools and technology may be used to solve problems.
9.2.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
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.

Instructional Focus

Enduring Understandings:	**Essential Questions:**
Angles can be seen and measured when two rays or sides of a shape meet. Line segments can go up and down, from side to side, and in every direction. Parallel lines never intersect. Perpendicular lines intersect at right angles. A horizontal line is one that is parallel to the level around. A vertical line is one that is perpendicular to a horizontal line. Squares and rectangles are four- sided figures with special properties. A square has four sides of equal length and four right angles. The opposite sides are parallel. A rectangle has four sides and four right angles. The opposite sides are parallel and have the same length.	How is an angle formed? How are angles measured? How are parallel and perpendicular line segments different? How are vertical and horizontal lines related? Are all squares also classified as rectangles? Are all rectangles also classified as squares? What is line symmetry? Which figures have line symmetry? What is the area? What is the perimeter? What are the formulas for area and perimeter?

A square is a subset of a rectangle. All squares are rectangles, but not all rectangles are squares. Figures can have line symmetry. Area and perimeter of a square, rectangle, or composite figure can be found by counting squares or using a formula. The area formula for any rectangle is length x width. Area is the amount of surface covered by a figure and is measured in square units. Area can be measured by counting the number of same-sized units of area that cover the shape without gaps overlaps. Perimeter is the distance around a figure.	How are perimeter and area related? How are they different?
Evidence of Learning (Assessments)	
Math in Focus Chapter 6: Area and Perimeter *Math in Focus* Cumulative Review 3 (Chapters 5 and 6) *Math in Focus* Chapter 7: Angles and Line Segments *Math in Focus* Chapter 8: Polygons and Symmetry *Math in Focus* Cumulative Review 4 (Chapters 7 through 9) Benchmark Assessments	
Objectives (SLO)	
Students will know: ● Ray ● Vertex ● Protractor ● Degrees ● Inner scale, outer scale ● Acute angle ● Obtuse angle ● Right angle ● Straight angle ● Turn ● Additive ● Perpendicular lines and line segments ● Drawing triangle ● Parallel lines and line segments ● Base ● Horizontal lines, vertical lines	Students will be able to: ● Make a right angle and compare angles to right angles. ● Identify right angles in plane shapes. ● Define and identify perpendicular lines. ● Define and identify parallel lines. ● Estimate and measure angles with a protractor. ● Estimate whether the measure of an angle is less than or greater than a right angle (90°). ● Use a protractor to draw acute and obtuse angles. ● Relate ¼, ½, ¾, and full turns to the number of right angles (90°). ● Understand that an angle that turns through 1/360 of a circle is called a “one-degree angle.” ● Find unknown angles using addition or subtraction. ● Solve addition and subtraction problems to find unknown angles on a diagram in real-world problems. ● Draw perpendicular line segments.

- Square
- Rectangle
- Length
- Width
- Composite figure
- Line of symmetry
- Symmetric figure
- Rectangle
- Length
- Width
- Area formula
- Perimeter formula

- Draw parallel line segments.
- Identify vertical and horizontal lines.
- Understand and apply properties of squares and rectangles.
- Find unknown angle measures and side lengths of squares and rectangles.
- Identify a line of symmetry of a figure.
- Draw a shape or pattern about a line of symmetry.
- Complete a symmetric shape or pattern.
- Create symmetric patterns on grid paper.
- Estimate the area of a rectangle using grid squares.
- Find the area of a rectangle using a formula.
- Solve problems involving the area and perimeter of squares and rectangles.
- Find the perimeter and area of a composite figure.
- Solve word problems involving estimating areas of figures.
- Solve word problems involving area and perimeter of composite figures.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 6: Area and Perimeter
Math in Focus Resources Chapter 7: Angles and Line Segments
Math in Focus Resources Chapter 8: Polygons and Symmetry

Resources and Manipulatives
Protractors
Table for Measuring angles
Angle strips
Straightedge
Drawing triangle
Centimeter ruler
Centimeter grid paper
Geoboards
Dot paper
Shape cut-outs

Online Resources
HMH Ed: Your Friend in Learning

www.mathleague.com/help/geometry/angles.htm (Angle notes)
www.mathplayground.com/measuringangles.html (Using a protractor)
www.math-play.com/Polygon-Game.html (Polygons)
www.mrnussbaum.com/shapeinvaders.htm (Polygon and shapes games)

Literacy Connections
The Greedy Triangle by Marilyn Burns

Math Curse by Jon Scieska

Tier 1 Modifications and Accommodations

Including special education students, Multilingual Language Learners (MLLs), students at risk of school failure, gifted and talented students, and students with 504 plans;

General Modifications for students struggling to learn:

Small group instruction within the classroom
Differentiation through content, process, product,and environment
Individual feedback and praise towards what is done correctly based upon effort, attitude and strategy.
Help students manage individual stressors for the student and plan alternate pathways for completion of assignments..

Special Education - Reteach/Extra practice workbook pages, anchor charts, scaffolded explanations of topics, manipulatives, additional time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention.

*These are only suggested ideas to modify instruction, modifications and accommodations should be tailored to each student's IEP and needs. Also, see textbook for Differentiated Instruction ideas in each chapter.

MLL - Select activities which reinforce chapter vocabulary and connections among these words such as:
A Word Wall which includes terms, definitions, and examples
Drawings and numbers to show examples of terms

504 - Reteach/Extra practice pages, anchor charts, scaffolded explanations of topics, manipulatives, extra time for work, group work, visual aids, modeling, hands-on learning activities, small group work for more individualized attention

Gifted and Talented - Enrichment workbook, Put on Your Thinking Cap pages and resources, higher-level questions, challenge packets, KenKen and other puzzles, leading group work
Extension Topics:
Rotational Symmetry (Chapter 13- Lesson 13.3)
Tessellations (Chapter 14)
www.coolmath4kids.com/tesspag1.html (Tessellations notes)

Career Readiness, Life Literacies, and Key Skills NJSLS

Please select all standards that apply to this unit of study:

Act as a responsible and contributing community members and employee
Attend to financial well-being
Consider the environmental, social and economic impacts of decisions
Demonstrate creativity and innovation
Utilize critical thinking to make sense of problems and persevere in solving them
Model integrity, ethical leadership and effective management

Plan education and career paths aligned to personal goals
Use technology to enhance productivity increase collaboration and communicate effectively
Work productively in teams while using cultural/global competence

Suggestions on integrating these standards can be found at: https://www.nj.gov/education/standards/clicks/