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Mathematics Department

Grade 3

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Effective Date: September 2023

Scope and Sequence

Month	Grade 3	
September	**Grade 3 Math Baseline Assessment** **Chapter 1: Numbers to 10,000**	
October	**Chapter 2: Addition Within 10,000** **Chapter 3: Subtraction Within 10,000** **Note: Grade 3 Standard: Students must be able to add and subtract fluently within 1,000 using strategies involving place value, properties of operations, and the relationship between addition and subtraction**	**Strategies Interventions: Bridges** **Volume 3: Addition & Subtraction Multi Digit** **Volume 4- Word problems**
November	**Finish Chapter 3** **Grade 3 Benchmark Assessment 1** **Chapter 4: Multiplication Tables**	
December	**Chapter 5 Multiplication**	**Strategies Intervention: Bridges Volume 5 (beginning of)**
January	**Chapter 6 Using Bar Models: The Four Operations** **Grade 3 Benchmark Assessment 2**	**Strategies Intervention: Bridges Volumes 4 and 7 (Word Problems)**
February	**Chapter 7 Fractions**	**Strategies Intervention: Bridges Volume 8 (beginning of)**

March	**Chapter 8 Measurement** **Chapter 9 Area & Perimeter** **Area- Look at NJSLA problems involving area** **Grade 3 Benchmark Assessment 3**	
April	**Chapter 10 Time**	
May	**Chapter 11 Graphs and Line Plots** **Grade 3 Math Spring Summative Assessment**	
June	**Chapter 12 Angles, Lines, and Two-Dimensional Figures**	

Unit 1

Numbers to 10,000
Addition & Subtraction

Summary and Rationale

This unit is designed to cement a student's understanding of place value. Students have learned how to count, read and write numbers up to 1,000 in Grade 2. Students will learn how to read and write numbers up to 10,000.
Given a multi-digit number, students will identify the place value of each digit in the number and express the number in standard, word, and expanded forms. Students will compare and verbally describe sets of numbers using the terms *least* and *greatest*. Using these skills, they will write numbers in increasing or decreasing order. Students will also apply the number and place value concepts to identify and complete number patterns and find missing numbers on a number line.

An important application of place value and number sense is rounding. The number line can be used as a visual representation that illustrates the rounding concept. Students will learn to round to the nearest ten and hundred. They will also use rounding to estimate sums and differences and check the reasonableness of answers.

In Grade 2, students used base-ten blocks, place-value charts, vertical form, and the part-whole concept to add and subtract numbers up to 1,000 with and without regrouping. Students will rename, add, and subtract greater numbers and understand addition and subtraction as they relate to place value. The emphasis is on building procedural knowledge with deep understanding. The inverse relationship between addition and subtraction is revisited as students are reminded to check answers to subtraction using addition. Fluency is expected only within 1,000.

Students will use pictorial representations to represent and solve multi-step addition and subtraction real world problems.

Recommended Pacing

Math in Focus Chapter 1: Numbers to 10,000. - 3 weeks
Math in Focus Chapter 2: Addition Within 10,000 - 1 week
Math in Focus Chapter 3: Subtraction Within 10,000 - 2 weeks
Math in Focus Chapter 6: Using Bar Models: The Four Operations

Standards

Numbers & Operations in Base Ten

3.NBT.1	Use place value understanding to round whole numbers to the nearest 10 or 100.

3.NBT.2	Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
Operations & Algebraic Thinking	
3.OA.8	Solve two-step word problems using the four operations. 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.
3.OA.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*
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.

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:**
Numbers to 10,000 can be counted and compared. Estimation strategies can be used to find and check sums and differences. Greater numbers can be added the same way two-digit	How do we add greater numbers? How do we subtract greater numbers? How can bar models help solve real-world addition and subtraction problems?

numbers are added, with or without regrouping. Greater numbers can be subtracted with or without regrouping. Addition and subtraction bar models can be used to solve two-step real-world problems.	

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 1: Numbers to 10,000.
Math in Focus Assessment Guide Chapter 2: Addition Within 10,000
Math in Focus Assessment Guide Chapter 3: Subtraction Within 10,000
Math in Focus Cumulative Review 1 (Chapters 1 through 3)
Math in Focus Assessment Guide Chapter 6: Using Bar Models: The Four Operations
Math in Focus Cumulative Review 2 (Chapters 4 through 6)

Objectives (SLO)

Student will know:	Student will be able to:
● Word form, standard form, expanded form ● Digit, place-value chart, place-value strips ● Greater than, less than, least, greatest ● Rule ● Number line ● Round ● Estimate ● About ● Nearest ten ● Reasonable ● Overestimate ● Regroup ● Sum, difference	● Use base-ten blocks and a place-value chart to count, read, write, and represent numbers to 10,000. ● Count by 1s, 10s, 100s, and 1,000s to 10,000. ● Read and write numbers to 10,000 in standard form, expanded form, and word form. ● Use base-ten blocks and place value to compare and order numbers. ● Use a number line to round numbers to the nearest ten or hundred. ● Use rounding to estimate sums and differences. ● Estimate to check the reasonableness of answers. ● Add two-digit numbers mentally with and without regrouping. ● Subtract two-digit numbers mentally with and without regrouping. ● Use different strategies to add two-digit numbers close to 100 mentally. ● Round numbers to estimate sums and differences. ● Add greater numbers with and without regrouping. ● Use base-ten blocks to subtract with and without regrouping. ● Use base-ten blocks to subtract across zeros. ● Write subtraction number sentences. ● Solve subtraction word problems. ● Use bar models to solve two-step real-world problems involving addition and subtraction. . .

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 1: Numbers to 10,000.
Math in Focus Resources Chapter 2: Addition Within 10,000
Math in Focus Resources Chapter 3: Subtraction Within 10,000
Math in Focus Resources Chapter 6: Using Bar Models: The Four Operations

Resources and Manipulatives
Base-ten blocks
Place-value chart
Place-value strips
Place-value mat
Number cards
Number cubes

Math in Focus Virtual Manipulatives

Online Resources
HMH Ed: Your Friend in Learning

https://www.ixl.com/math/grade-3 Grade 3 Concepts by Topic
https://www.splashmath.com/number-games-for-3rd-graders Number Games
https://www.splashmath.com/place-value-games-for-3rd-graders Place Value Games
http://www.abcya.com/base_ten.htm Base Ten Blocks
http://www.abcya.com/rounding_numbers.htm Rounding Game
https://jr.brainpop.com/math/numbersense/rounding/ Rounding Video

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/f

Unit 2

Multiplication & Division

Summary and Rationale

Both multiplication and division are associated with the part-whole concept. In this unit, students multiply using different models such as number lines, dot paper, and area models. These use skip-counting to multiply mentally and base-ten blocks and place-value charts to multiply greater numbers with and without regrouping.

Division concepts are extended to division situations where there may be remainders. Students are made aware that the dividend does not always divide exactly into equal groups, but sometimes leaves a remainder. Students learn the steps of vertical division (long division) to divide with or without regrouping or a remainder.

The conceptual skills between multiplication and division are strengthened. Students use related multiplication facts to divide. They apply the inverse relationship of multiplication and division to write division statements from multiplication sentences.

Pictorial representations are used to solve different kinds of multiplication and division word problems. Drawing bar models provides students with a systematic means of organizing information and determining the calculations needed to solve the problem. Bar models simplify the problems by showing clearly what steps need to be taken to answer the question.

Recommended Pacing

Math in Focus Chapter 4: Multiplication Tables
Math in Focus Chapter 5: Multiplication
Math in Focus Chapter 6: Using Bar Models: The Four Operations

Standards

Numbers & Operations in Base Ten	
3.NBT.3	Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and properties of operations.
Operations & Algebraic Thinking	
3.OA.1	Interpret products of whole numbers, e.g. interpret 5x7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 x 7.*

3.OA.2	Interpret whole- number quotients of whole numbers, e.g. interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*
3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g. by using drawings and equations with a symbol for the unknown number to represent the problem.
3.OA.4	Determine the unknown number in a division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 x ? = 48, 5 = ? ÷ 3, 6 x 6 = ?*
3.OA.5	Apply properties of operations as strategies to multiply and divide. *Examples: If 6 x 4 = 24 is known, then 4 x 6 = 24 is also known. (Commutative property of multiplication.) 3 x 5 x 2 can be found by 3 x 5 = 15, then 15 x 2 = 30, or by 5 x 2 = 10, then 3 x 10 = 30. (Associative property of multiplication.) Knowing that 8 x 5 = 40 and 8 x 2 = 16, one can find 8 x 7 as 8 x (5 + 2) = (8 x 5) + (8 x 2) = 40 + 16 = 56. (Distributive property.)*
3.OA.6	Understand division as an unknown- factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*
3.OA.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.
3.OA.8	Solve two-step word problems using the four operations. 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.
3.OA.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*
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.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.
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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.
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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:**
Multiplication and division use equal groups. Multiplication is repeated addition and division is repeated subtraction. Array models, area models and mental math can be used to multiply. The answer to a multiplication problem is called the product. Division is the process of sharing or grouping. The answer to a division problem is called the quotient. In sharing, the total amount (the dividend) is divided by the number of equal groups (the divisor) to find the number of items in each group. In grouping, the total amount (the dividend) is divided by the number of items in each group (the divisor) to find the number of equal groups. Using related multiplication facts can help to divide mentally because multiplication and division are opposite operations. Bar models can be used to solve different kinds of multiplication and division real-world problems.	What strategies can be used to multiply and divide? How are multiplication and area of rectangles related? How do multiplication facts help you divide? How are multiplication and division related? How do bar models help solve multiplications and division word problems?

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 4: Multiplication Tables.
Math in Focus Assessment Guide Chapter 5: Multiplication
Math in Focus Assessment Guide Chapter 6: Using Bar Models: The Four Operations
Math in Focus Cumulative Review 2 (Chapters 4 through 6)

Objectives (SLO)

Students will know or learn:

- Times
- Equal groups
- Skip-count
- Multiply
- Repeated Addition
- Multiplication sentence, multiplication story
- Related multiplication facts
- Array model
- Area model
- Share
- Divide
- Repeated Subtraction
- Division sentence, division story
- Dot paper
- Number line
- Commutative Property
- Associative Property
- Multiplication Property of One
- Multiplication Property of Zero
- Factor
- Product
- Dividend
- Divisor
- Quotient

Student will be able to:

- Review and practice multiplication facts of 2,3,4,5,10.
- Use multiplication properties.
- Understand multiplication by using array models.
- Practice multiplication facts of 6.
- Understand multiplication by using area models.
- Practice multiplication facts of 7.
- Understand multiplication by using number lines.
- Practice multiplication facts of 8.
- Practice multiplication facts of 9.
- Divide to find the number of items in each group.
- Identify related multiplication and division facts.
- Write and express division sentences for real-world problems.
- Divide to find the number of groups.
- Multiply ones, tens, and hundreds mentally.
- Use related multiplication facts to divide.
- Use patterns to divide multiples of 10 and 100.
- Use bar models to solve real world multiplication and division problems.
- Write multiplication and division sentences to solve real word problems.
- Choose the correct operations in two-step word problems.
- Solve two-step word problems using the four operations.
- Represent unknown quantities with letters.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 4: Multiplication Tables
Math in Focus Resources Guide Chapter 5: Multiplication
Math in Focus Resources Guide Chapter 6: Using Bar Models: The Four Operations

<u>Resources and Manipulatives</u>
Number lines
Dot paper
Counters
Connecting cubes
Number cubes

Number train
Number cards
Area models
Square grid paper
Geoboards
Square tiles
Half-square tiles
Multiplier cards
Number board
Question cards
Base-ten blocks
Place-value mat
Game cards
Paper strips
Multiplication/division flashcards

Online Resources
HMH Ed: Your Friend in Learning

https://www.ixl.com/math/grade-3 Grade 3 Concepts by Topic
https://www.splashmath.com/multiplication-games-for-3rd-graders Multiplication Games
https://www.splashmath.com/division-games-for-3rd-graders Division Games
http://www.abcya.com/multiplication_mine.htm Multiplication Mine Game
http://www.abcya.com/math_facts_game.htm Math Facts Game
https://jr.brainpop.com/math/multiplicationanddivision/arrays/ Arrays Video
https://jr.brainpop.com/math/multiplicationanddivision/repeatedaddition/ Repeated Addition Video
https://jr.brainpop.com/math/multiplicationanddivision/repeatedsubtraction/ Repeated Subtraction Video
https://jr.brainpop.com/math/multiplicationanddivision/multiplyingby0or1/ Multiplying by 0 or 1 Video

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 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.

*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 book, 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 3

Fractions

Summary and Rationale

In grade 2, students were introduced to the idea of fractions through using geometric models and shapes to visualize the relationship between the parts and the whole. In this unit, students will learn to represent a fraction in a more abstract symbolic level and define the numerator and denominator. Students will use concrete materials and visual representations to demonstrate how the number of parts in the whole determines the fraction. Students will then use concrete models to see how the parts are combined to make a whole, including more than one whole. They will then extend this understanding to a fraction of a set and will identify how many objects are in each part and how many are in the whole. Students will use their understanding of division and multiplication to help them solve problems involving the number of items in the parts of a set. Students begin to compare the sizes of fractions using concrete models such as fraction circles and tiles and pictorial representations of these. They will learn to see and compare fractions using points and distances on a number line. Students will begin to compare fractions abstractly with the same numerator and denomiator.

Recommended Pacing

Math in Focus Chapter 7: Fractions

Standards

Numbers & Operations - Fractions	
3.NF.1	Understand a fraction *1/b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a/b* as the quantity formed by a parts of size *1/b*.
3.NF.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram.
3.NF.2a	Represent a fraction *1/b* on a number line diagram by defining the interval 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size *1/b* and that the endpoint of the part based at 0 locates the number *1/b* on the number line.
3.NF.2b	Represent a fraction *a/b* on a number line diagram by marking off a length of *1/b* from 0. Recognize that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line.
3.NF.3	Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.

3.NF.3a	Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
3.NF.3b	Recognize and generate simple equivalent fractions, e.g., ½ = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.
3.NF.3c	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*
3.NF.3d	Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.
Geometry	
3.G.2	Partition shapes into equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as ¼ of the area of the shape.*
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.
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Integration of Technology	
Use of SmartBoard, playing online games	
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Career Readiness, Life Literacies and Key Skills	
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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.
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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 can be used to describe equal parts of a whole. Fractions can be modeled using fraction circles and fraction tiles or visual representations of these. Fractions must be modeled using equal parts of a whole. The number of equal parts in the whole determines the denominator of the fraction. The equal parts are combined to make a whole and can be used to make more than one whole. In a pictorial representation, the number of equal parts in the whole is the denominator and the number of shaded parts is the numerator. When the number of shaded and unshaded parts are added, they make the whole, or the total number of parts. A unit fraction is a fraction that names one of the equal parts of the whole. Ex: ¼, ⅓, ½ Any fraction can be written as the sum of like unit fractions. A whole number can be written as a fraction with a denominator of one. Fractions can be used to describe parts of a set. The set must be divided into equal groups. Equivalent means to be equal or the same. Fractions can be compared using visual representations that show that the amount shaded is equal. A number line can be used to compare fractions. Fractions are greater as they move to the right, as they are closer to 1. Equivalent fractions are the same distance from zero on a number line.	How can fractions be modeled? What is a unit fraction? What does the denominator of a fraction tell us? What does the numerator tell us? What are equivalent fractions? How can you compare the size of fractions? How can you find or show equivalent fractions? What are “like fractions”? Where are fractions found in the real world?

Like fractions are fractions with the same denominator. When comparing fractions with the same numerator, the greater the denominator, the lesser the fraction. When comparing fractions with the same denominator, the greater the numerator, the greater the fraction. Fractions that are equivalent to 1 have the same numerator and denominator since they both represent parts of the whole.	

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 7: Fractions
Math in Focus Cumulative Review 3 (Chapters 7 through 9)

Objectives (SLO)

Students will know or learn: ● Whole ● Fraction ● Equal parts ● Numerator, denominator ● Unit Fraction ● Equivalent fractions ● Number line ● Benchmark fraction ● Like, Unlike Fraction	Student will be able to: ● Read, write, and identify fractions for halves, thirds, fourths, and eighths. ● Show fractions and whole using models. ● Identify numerator and denominator. ● Represent fractions using fraction circles and tiles. ● Read, write and identify fractions of a whole. ● Show fractions as points or distances on a number line. ● Express whole numbers as fractions. ● Use multiplications and division to find equivalent fractions. ● Read, write, and identify fractions of a set. ● Find the number of items in a fraction of a set. ● Use models to identify equivalent fractions. ● Compare fractions using models of the same size. ● Compare and order fractions using benchmark fractions..

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 7: Fractions

<u>Resources and Manipulatives</u>
Connecting cubes
Fraction circle cut-outs

Centimeter square grid paper
Fraction strips
Fraction number lines
Fraction manipulatives
Fraction Bingo

Online Resources
HMH Ed: Your Friend in Learning

https://www.ixl.com/math/grade-3 Grade 3 Concepts by Topic
http://www.abcya.com/fraction_fling.htm Fraction Fling
http://www.abcya.com/equivalent_fractions_bingo.htm Equivalent Fraction Bingo
https://www.splashmath.com/fraction-games-for-3rd-graders Fraction Games
https://jr.brainpop.com/math/fractions/equivalentfractions/ Equivalent Fractions Video
https://jr.brainpop.com/math/fractions/morefractions/ Fractions Video

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 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.

*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 book, 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 4

Measurement & Data

Summary and Rationale

Mass
Students learn that mass is a concept of measure to describe how heavy an object is. They estimate and measure the mass of objects using the standard metric units of kilograms (kg) and grams (g). Students also read the masses of objects from measuring scales and use a balance to determine, compare, add and subtract the masses of objects.

Volume
Students learn that volume is the amount of liquid in a container., as well as the distinction between capacity of a container (amount of space in a container) and volume of liquid (amount of liquid in a container). This distinction is not made in this unit because the emphasis here is on the amount of volume of liquids, and not containers. Students compare volumes of liquids in identical and non-identical containers and learn that the metric unit of measure for volume is liters (L). They measure the volume of liquid in a container by using one or more measurement cups. The liquid is poured into the measuring cup(s) to determine its volume, regardless of the capacity of the original container. The volume of liquid in different containers is compared by comparing the number of measuring cups needed to contain all the liquid.

Metric Measurement
Students use metric units of measurement to measure mass and volume. They read tools measuring mass and volume in metric units and also convert between metric units of measurement.
Students use pictorial representations to solve one and two-step real-world problems involving the addition, subtraction, multiplication, and division of metric measurements.

Time
Students learn about reading and telling time to the minute. They convert time units in hours and minutes, add and subtract time, and use time to find when activities start and end, or how long an activity will last.

Graphs and Line Plots
Students use picture graphs, bar graphs and line plots to organize data. Bar graphs are used to compare data. Line plots show how data is spread out. Students begin to work with picture and bar graphs that contain scales of two or greater and read and interpret these graphs to solve real-world problems. Students use line plots to organize data and show frequency of an event. Students measure lengths of fractional units in order to create horizontal scales for line plots that include whole numbers. halves, and quarters.

Recommended Pacing

Math in Focus Chapter 8: Measurement
Math in Focus Chapter 10: Time
Math in Focus Chapter 11: Graphs and Line Plots

Standards

Measurement & Data	
3.MD.1	Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
3.MD.2	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (L). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same unit, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.
3.MD.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*
3.MD.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units- whole numbers, halves, and quarters.
Numbers & Operations- Base Ten	
3.NBT.2	Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
Operations & Algebraic Thinking	
3.OA.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g. by using drawings and equations with a symbol for the unknown number to represent the problem.
3.OA.4	Determine the unknown number in a division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 x ? = 48, 5 = ? ÷ 3, 6 x 6 = ?*
3.OA.5	Apply properties of operations as strategies to multiply and divide. *Examples: If 6 x 4 = 24 is known, then 4 x 6 = 24 is also known. (Commutative property of multiplication.) 3 x 5 x 2 can be found by 3 x 5 = 15, then 15 x 2 = 30, or by 5 x 2 = 10, then 3 x 10 = 30. (Associative property of multiplication.) Knowing that 8 x 5 = 40 and 8 x 2 = 16, one can find 8 x 7 as 8 x (5 + 2) = (8 x 5) + (8 x 2) = 40 + 16 = 56. (Distributive property.)*
3.OA.6	Understand division as an unknown- factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*
3.OA.7	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

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.
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.
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:**
Mass is a concept of measure to describe how heavy an object is. A scale can be used to measure and compare masses in kilograms and grams. Volume is the amount of liquid in a container. Liters can be used to measure volume. Standard and non-standard units of measure are used to find measurements. Units of measurement used often depend on the size of an object.	What are some of the tools that can be used to estimate and measure mass? What are some of the tools that can be used to estimate and measure volume? When and how do we measure mass? Weight? When and how do we measure volume? Why is it important to tell time? When is it appropriate to estimate telling time? Why do we put data in bar graphs and line plots?

Mass and volume can be measured using metric units of measurement. Bar models can be used to solve one and two-step problems on measurements. Time is a measurement concept that can be used to tell when activities start and end, or how long an activity will last. Picture graphs, bar graphs and line plots help to organize and compare data. More exact lengths can be measured using fractions of a unit such as quarter-inch, half-inch, or three quarter-inch. Line plots can be used to show data and show how the data is spread out. The horizontal axis of a line plot can be created to include fractions of a unit.	How do bar graphs and line plots help us better understand information? What kinds of questions can be answered using line plots and bar graphs? When and how do we measure length? What are some of the tools that can be used to estimate and measure the length of an object?

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 8: Measurement
Math in Focus Cumulative Review 3 (Chapters 7 through 9)
Math in Focus Assessment Guide Chapter 10: Time
Math in Focus Assessment Guide Chapter 11: Graphs and Line Plots

Objectives (SLO)

Students will know or learn: ● Meter (m), centimeter (cm), kilometer (km) ● Distance ● Mass ● Measuring scale ● Gram (g), kilogram (kg) ● Volume ● Capacity ● Liter (L), milliliter (mL) ● Vertical, horizontal ● Axis, scale ● Line plot ● Survey ● Hours (h), minutes (min) ● Hour past, minute to	Student will be able to: ● Use meters, centimeters, and kilometers as units of measurement of length. ● Estimate and measure length. ● Convert units of measurement. ● Use a measuring scale to measure mass in kilograms and grams. ● Read scales in kilograms and grams. ● Compare and order masses. ● Estimate and find actual masses of objects using different scales. ● Estimate and find volume of liquid in liters and milliliters. ● Find the volume and capacity of a container.

- Inch (in.)
- Half-inch
- Quarter-inch
- Three-quarter inch
- Foot (ft.)
- Yard (yd.)
- Mile (mi.)
- Line plot
- Vertical, horizontal
- Axis, scale

- Use bar models, addition, and subtraction to solve real-world problems about volume.
- Draw bar models to solve one and two-step measurement problems.
- Choose the operation to solve one and two-step problems.
- Tell time to the minute.
- Read time on a digital clock.
- Change minutes to hours or hours to minutes.
- Add and subtract time with and without regrouping.
- Solve up to two-step word problems involving time.
- Make bar graphs with scales using data in picture graphs and tally charts.
- Read and interpret data from bar graphs.
  Solve problems using bar graphs.
- Make a line plot to represent and interpret data.
- Ues inch, foot, yard, and mile as units of measurement for lengths.
- Estimate and measure given lengths.
- Use references to measure lengths.
- Estimate and measure lengths in halves and fourths of an inch.
- Make a line plot to represent and interpret data.
- Estimate and show measurements in a line plot with a scale of whole numbers and fractions.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 8: Measurement
Math in Focus Resources Chapter 10: Time
Math in Focus Resources Chapter 11: Graphs and Line Plots

<u>Resources and Manipulatives</u>
Measuring tape or meter stick
Centimeter square grid
Measuring scale
Balancing scale
Weighing scale
Metric measuring cups
Picture charts and graphs
Bar charts and graphs
Tally charts
Number lines

<u>Online Resources</u>
HMH Ed: Your Friend in Learning

https://www.ixl.com/math/grade-3 Grade 3 Concepts by Topic
http://www.abcya.com/telling_time.htm Telling Time Game
https://www.splashmath.com/time-games-for-3rd-graders Time Games
https://www.splashmath.com/measurement-games-for-3rd-graders Measurement Games
https://jr.brainpop.com/math/measurement/centimetersmeterskilometers/ Metric Length Video
https://jr.brainpop.com/math/measurement/gramsandkilograms/ Grams and Kilograms Video
https://jr.brainpop.com/math/time/timetotheminute/ Time to the Minute Video
https://jr.brainpop.com/math/time/elapsedtime/ Elapsed Time Video

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 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.

*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 book, 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	
Geometric Measurement	
Summary and Rationale	
Students combine geometry and measurement by learning the concepts of area and perimeter. In finding area and perimeter, students use appropriate units for figures of different sizes and explore the relationship between them.	
Recommended Pacing	
Math in Focus Chapter 9: Area and Perimeter	
Standards	
Geometry	
3.G.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
3.G.2	Partition shapes into equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as ¼ of the area of the shape.*
Measurement & Data	
3.MD.5	Recognize area as an attribute of plane figures and understand concepts of area measurement.
3.MD.5a	Recognize that a square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.
3.MD.5b	Recognize that a plane figure which can be covered without gaps or overlaps by *n* unit square is said to have an area of *n* square units.
3.MD.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units.
3.MD.7	Relate area to the operations of multiplication and addition.

3.MD.7a	Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
3.MD.7b	Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
3.MD.7c	Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths *a* and *b* + *c* is the sum of *a* x *b* and *a* x *c*. Use area models to represent the distributive property in mathematical reasoning.
3.MD.7d	Recognize that area is additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
3.MD.8	Solve real world and mathematical problems involving perimeters of polygons, including finding perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
Numbers & Operations in Base Ten	
3.NBT.2	Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
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.5	Use appropriate tools strategically.
K-12.MP.6	Attend to precision.
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.
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:**
The area is the amount of space which a polygon takes up. The perimeter is the distance around a polygon or the sum of the lengths of its sides.	How are area and perimeter different? Are they related?

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 9: Area and Perimeter
Math in Focus Cumulative Review (Chapters 7 through 9)
Math in Focus End of Year Assessment (Chapters 1 through 12)

Objectives (SLO)

Students will know or learn:	Student will be able to:
● Area ● Square units: square centimeter (cm^2), square inch (in^2), square meter (m^2), square foot (ft^2) ● Perimeter	● Use square units to find the area of plane figures made of squares and half squares. ● Compare areas of plane figures and make plane figures of the same area. ● Use square centimeter and square inch to find and compare the area of figures. ● Use square meters and square feet to find and compare the area of plane figures. ● Estimate the area of small and large surfaces. ● Find the perimeter of figures formed using small squares. ● Compare the area and perimeter of two figures. ● Multiply the side-lengths to find the area to solve real-world problems. ● Represent whole-number products as rectangular areas. ● Make rectangles with a given area. ● Find the area of figures by separating them into two rectangles and adding their areas.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 9: Area and Perimeter

<u>Resources and Manipulatives</u>
Centimeter square grid paper
Paper strips
Square grid paper
Geoboards
Square tiles
Half-square tiles

Online Resources
HMH Ed: Your Friend in Learning

https://www.ixl.com/math/grade-3 Grade 3 Concepts by Topic
https://www.splashmath.com/geometry-games-for-3rd-graders Geometry Games
https://jr.brainpop.com/math/geometry/quadrilaterals/ Quadrilaterals Video
https://jr.brainpop.com/math/measurement/area/ Area Video
https://jr.brainpop.com/math/measurement/perimeter/ Perimeter Video

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 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.

*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 book, 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 6

Spatial Geometry

Summary and Rationale

In this unit, an angle is defined as two line segments that share the same endpoint. This is done for simplicity, as the term *ray* is not introduced until Grade 4. 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 identify open and closed figures, classify polygons by the number of sides, vertices, and angles, and learn the names of special polygons and quadrilaterals. Quadrilaterals are classified by parallel sides, length of sides, and angles .

Recommended Pacing

Math in Focus Chapter 12: Angles, Lines and Two-Dimensional Figures

Standards

Geometry	
3.G.1	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
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.5	Use appropriate tools strategically.
K-12.MP.6	Attend to precision.
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.
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 and lines can be found all around us and can be described with special names. An angle is defined as two line segments that share the same endpoint. Polygons can be classified by the number of sides, corners, and angles. Figures can be congruent, or symmetrical, or both.	How is an angle formed? How can angles be compared? What are congruent figures?

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 12: Angles, Lines and Two-Dimensional Figures
Math in Focus End of Year Assessment (Chapters 1 through 12)

Objectives (SLO)

Students will know or learn:	Student will be able to:
● Point ● Angle ● Line, line segment ● Endpoint ● Plane figure, open figure, closed figure ● Polygon ● Vertex ● Quadrilateral ● Parallel ● Rhombus ● Parallelogram ● Pentagon ● Octagon ● Tangram	● Find angles in plane shapes and real-world objects. ● Compare the number of sides and angles of plane shapes. ● Identify open and closed figures. ● Identify special polygons and quadrilaterals. ● Classify polygons by the number of sides, vertices, and angles. ● Classify quadrilaterals by parallel sides, length of sides, and angles. ● Combine and separate polygons to make other polygons.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 12: Angles, Lines and Two-Dimensional Figures

Resources and Manipulatives
Centimeter square grid paper
Square grid paper
Geoboards
Tangram cut-outs
Square tiles
Half-square tiles

Online Resources
HMH Ed: Your Friend in Learning

https://www.ixl.com/math/grade-3 Grade 3 Concepts by Topic
https://www.splashmath.com/geometry-games-for-3rd-graders Geometry Games
https://jr.brainpop.com/math/geometry/quadrilaterals/ Quadrilaterals Video
https://jr.brainpop.com/math/measurement/area/ Area Video
https://jr.brainpop.com/math/measurement/perimeter/ Perimeter Video

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 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

*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 book, 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/