Mathematics Department

Grade 5

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Supported by: Dana Neri
Effective Date: September 2024

Scope and Sequence

Month	Grade 5	
September	**Grade 5 Math Baseline Assessment** **Chapter 1: Whole Numbers and the Four Operations**	**Strategies Interventions: Bridges Volume 5 (Multiplication Facts), Volumes 6 and 7 (Word Problems)**
October	**Chapter 2: Fractions and Mixed Numbers**	**Strategies Interventions: Bridges Volume 8**
November	**Chapter 3: Multiplying and Dividing Fractions and Mixed Numbers**	
December	**Finish Chapter 3** **Grade 5 Benchmark Assessment 1 (by November 30) (Chapters 1 through 3)** **Chapter 4: Decimals**	**Strategies Interventions: Bridges Volume 9**
January	**Finish Chapter 4** **Chapter 5: Four Operations of Decimals-** When estimate decimal x decimal, show process for exact answer; OR- change to fraction and multiply For division- encourage students to change to fraction and divide (5.NBT..7)	
February	**Grade 5 Benchmark Assessment 2- Fractions and Decimals** **Book B: Chapter 6: Volume**	

March	**Grade 5 Math Spring Summative Assessment** **Chapter 7: Line Plots and the Coordinate Plane**	
April	**Chapter 8: Polygons** Speak to Grade 4 - ask about completion of Chapter 8 (Polygons and Symmetry) Pull from Grade 4 Chapter 8 as needed. **Grade 5 Benchmark Assessment 3 New: Chapters 6 through 8**	
May	**Chapter 9: Ratio (in preparation for Grade 6)**	
June	**Chapter 10: Percent (In preparation for grade 6)**	

Unit 1

Whole Numbers

Summary and Rationale

In this unit, students represent six-digit and seven-digit numbers in word, standard, and expanded forms. They extend place-value to larger numbers as they compare and order.

Students extend what they have learned about multiplication to larger numbers. They multiply and divide using patterns within multiples of 10 and conventional algorithms.

Students simplify numerical expressions using order of operations, and solve real-world problems involving multiplication and division using pictorial representations and other strategies.

Recommended Pacing

Math in Focus Chapter 1: Whole Numbers and the Four Operations

Standards

Numbers & Operations in Base Ten	
5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
5.NBT.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
5.NBT.5	With accuracy and efficiency, multiply multi-digit whole numbers using the standard algorithm.
5.NBT.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-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 & Algebraic Thinking	
5.OA.1	Use parentheses, brackets, or braces in numerical expressions and evaluate expressions with these symbols.

5.OA.2	Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*
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 written in different ways. Numbers can be compared and rounded, according to their place value.	Where do we use large numbers in real-world situations? Why are the four operations of whole numbers important in everyday life?

Patterns can be used to help you multiply and divide numbers. Numerical expressions can be simplified using the order of operations. Multiplication and division can be used to solve real-world problems.	What is the order of operations and why is it necessary? What kind of number patterns can help when multiplying and dividing by multiples of 10?

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 1: Whole Numbers and the Four Operations
Math in Focus Cumulative Review 1 (Chapters 1 through 3)
Benchmark Assessments

Objectives (SLO)

Students will know: ● Hundred, thousand ● Million ● Place-value ● Greater than (>), less than (<) ● Product, factor ● Quotient, dividend, divisor, remainder ● Numerical expression ● Order of operations	Students will be able to: ● Count by ten thousands and hundred thousands to 10,000,000. ● Read and write numbers to 10,000,000 in standard form, in word form, and in expanded form. ● Identify the place value of any digit in numbers to 10,000,000. ● Multiply and divide numbers by 10, 100, or 1,000 using patterns. ● Multiply and divide numbers up to 4 digits by multiples of 10, 100, or 1,000. ● Multiply whole numbers by 10 squared or 10 cubed. ● Multiply and divide a 2, 3, or 4-digit number by a 2-digit number. ● Multiply by a 2-digit fluently ● Divide by a 2-digit fluently. ● Use order of operations to simplify a numerical expression. ● Evaluate numerical expressions with parentheses, brackets, and braces. ● Use efficient strategies to solve multi-step problems involving multiplications and division. ● Express and interpret the product or quotient appropriately.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 1: Whole Numbers and the Four Operations

Resources and Manipulatives
Place-value chips
Place-value charts
Number lines
Calculators
Multiplication tables
Division tables
Number cards
Symbol cards
Numerical expressions table

Online Resources
HMH Ed: Your Friend in Learning

www.funbrain.com/tens/index.html (Place value)
www.gamequarium.com/estimation.html (Estimation)
www.mathplayground.com/division02.html (Division with remainders)
www.kidsnumbers.com/long-division.php (Division practice games)
www.mathplayground.com/WordProblemsWithKatie2.html (Multiplication and division number stories)
www.math-play.com/Order-of-Operations-Millionaire/order-of-operations-millionaire.html (Order of operations)

Literacy Connections
Counting on Frank by Rod Clement
How Much is a Million? by David M. Schwartz
Math Talk by Theoni Pappas
Speed Mathematics by Bill Handley
A Remainder of One by Elinor J. Pinczes
One Hundred Hungry Ants by Elinor J. Pinczes

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 & Mixed Numbers

Summary and Rationale

In this unit, students learn to add and subtract unlike fractions and mixed numbers by rewriting the fractions as like fractions using the concept of least common denominator and equivalent fractions. Fraction circles and bar models are used to illustrate the concepts. Students apply their knowledge of finding common factors and multiples to add and subtract unlike but related fractions. They are encouraged to recognize the relationships between fractions, mixed numbers, division expressions, and decimals. Learning to represent the same number in different ways is a necessary skill for the study of algebra.

Students learn how to multiply and divide whole numbers, proper fractions, improper fractions, and mixed numbers in any combinations. Using manipulatives such as fraction bars and circles or using the pictorial approach by drawing bar models are ideal ways of demonstrating the concepts.

Recommended Pacing

Math in Focus Chapter 2: Fractions and Mixed Numbers
Math in Focus Chapter 3: Multiplying and Dividing Fractions and Mixed Numbers

Standards

Numbers & Operations- Fractions	
5.NF.1	Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)*
5.NF.2	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*
5.NF.3	Interpret a fraction as division of the numerator by the denominator (i.e., $a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to*

	share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?
5.NF.4	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
5.NF.4a	Interpret the product $(a/b) \times q$ as a part of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)*
5.NF.4b	Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5.NF.5	Interpret multiplication as scaling (resizing), by:
5.NF.5a	Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
5.NF.5b	Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
5.NF.6	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
5.NF.7	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.[1]
5.NF.7a	Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for $(1/3) \div 4$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.*
5.NF.7b	Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for $4 \div (1/5)$, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.*
5.NF.7c	Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*
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	
5-PS1-1	Develop a model to describe that matter is made of particles too small to be seen.
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:**
To add or subtract unlike fractions, find a common multiple of both denominators and use that as the denominator of both fractions. Unlike fractions and mixed numbers can be added and subtracted by first rewriting them with the same denominators. Whole numbers, fractions, and mixed numbers can be multiplied or divided in any combination. Dividing a fraction by a whole number is equivalent to multiplying it by the reciprocal of the whole number.	What is the first step in adding or subtracting unlike fractions or mixed numbers? How do you add or subtract unlike fractions and mixed numbers? How do you multiply fractions, mixed numbers and whole numbers? How do the factors affect the product if one of the factors is a fraction? Does the order in which you multiply matter?

	How do you divide fractions, mixed numbers and whole numbers?

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 2: Fractions and Mixed Numbers
Math in Focus Assessment Guide Chapter 3: Multiplying and Dividing Fractions and Mixed Numbers
Math in Focus Cumulative Review 1 (Chapters 1 through 3)
Benchmark Assessments

Objectives (SLO)

Students will know:	Students will be able to:
● Numerator, denominator ● Equivalent fraction ● Unlike Fraction ● Multiple, least common multiple (LCM) ● Least common denominator ● Simplest form ● Benchmarks ● Fraction bar ● Division expression ● Mixed number ● Product, common factor ● Proper fraction, improper fraction ● Reciprocal	● Understand and apply the relationships among fractions, mixed numbers and division expressions ● Find equivalent fractions.. ● Add and subtract two unlike fractions where one denominator is not a multiple of the other. ● Estimate sums of fractions and differences between fractions. ● Add and subtract mixed numbers with or without renaming. ● Estimate sums and differences of mixed numbers ● Express fractions, division expressions, and mixed numbers as decimals. ● Solve real-world problems involving addition and subtraction of fractions and mixed numbers.. ● Multiply proper fractions by whole numbers ● Multiply improper fractions by whole numbers. ● Multiply proper fractions. ● Multiply improper fractions by proper and improper fractions. ● Multiply a mixed number by a whole number. ● Multiple a mixed number by a mixed number ● Compare the size of a product to the size of its factors. ● Divide a fraction by a whole number. ● Divide a whole number by a unit fraction. ● Solve real-world problems involving multiplication and division of whole numbers, proper fractions, improper fractions, and mixed numbers.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 2: Fractions and Mixed Numbers
Math in Focus Resources Chapter 3: Multiplying and Dividing Fractions and Mixed Numbers

Resources and Manipulatives
Fraction circles
Fraction Tiles
Grid paper

Online Resources
HMH Ed: Your Friend in Learning

www.aaamath.com/fra43ax2.htm (Comparing fractions with like denominators)
www.aaamath.com/fra43bx2.htm (Comparing fractions with unlike denominators)
www.funbrain.com/fract/index.html (Equivalent fraction game)
www.math-play.com/adding-and-subtracting-fractions-game.html (Adding and subtracting fraction game)
www.everydaymathonline.com
www.aaamath.com/fra66dx2.htm (Adding mixed numbers)
www.aaamath.com/fra66ex2.htm (Subtracting mixed numbers)
www.mathplayground.com/fractions_mult.html (Multiplying fractions)

Literacy Connections
Gator Pie by Louise Matthews
Eating Fractions by Bruce McMillian
Fourscore and 7: Investigating in American History by Betsy Franco
Tiger Math by Ann Whitehead Nagda
Jim and the Beanstalk by Jean Cushman
Fraction Action by Loreen Leedy

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 3

Decimals

Summary and Rationale

In this unit, students are introduced to the place value of decimals through thousandths. In the process, they learn how to read and write decimals through thousandths, identify the relationship between fractions and decimals, compare and order decimals, and round decimals to the nearest hundredth.

Students use patterns to help them multiply and divide decimals by one-digit whole numbers. They also learn conventional algorithms for adding, subtracting, multiplying, and dividing decimals and solve problems involving decimals, including multi-step problems..

Recommended Pacing

Math in Focus Resources Chapter 4: Decimals
Math in Focus Resources Chapter 5: Four Operations of Decimals

Standards

Numbers & Operations in Base Ten	
5.NBT.3	Read, write, and compare decimals to thousandths.
5.NBT.3a	Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$.
5.NBT.3b	Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
5.NBT.4	Use place value understanding to round decimals to any place.
5.NBT.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
Mathematical Practices	
K-12.MP.1	Make sense of problems and persevere in solving them.

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.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:**
Decimals are another way of writing fractions or mixed numbers. Thousandths can be represented with three decimal places or as fractions. Decimals can be multiplied and divided in the same way as whole numbers.	How are fractions and decimals related? How is multiplying and dividing different when working with decimals compared to when working with whole numbers?

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 4: Decimals
Math in Focus Assessment Guide Chapter 5: Four Operations of Decimals
Math in Focus Cumulative Review 2 (Chapters 4 and 5)
Benchmark Assessments

Objectives (SLO)	
Students will know: ● Thousandth ● Equivalent ● Estimate ● Divisor	Students will be able to: ● Read and write thousandths in decimal and fraction forms. ● Represent and interpret thousandths in models or in place-value charts. ● Write a fraction with denominator 1,000 as a decimal. ● Compare and order decimals to 3 decimal places. ● Round decimals to the nearest hundredth. ● Rewrite decimals as fractions and mixed numbers in simplest form.

	● Multiply and divide tenths and hundredths by a one-digit whole number. ● Multiply and divide tenths and hundredths by 10, 100, and 1,000. ● Multiply and divide tenths and hundredths by multiples of 10, 100, and 1,000. ● Multiply decimals by 10 squared or 10 cubed. ● Round quotients to the nearest tenth or hundredth. ● Estimate decimal sums, differences, products, and quotients. ● Solve real-world problems involving decimals.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 4: Decimals
Math in Focus Resources Chapter 5: Four Operations of Decimals

Resources and Manipulatives
Base-ten blocks
Place-value chips
Place-value charts
Number lines
Connecting cubes
Multiplication tables
Division tables
Tables of Measures
Measuring tape
Rulers
Bill and coin cut-outs

Online Resources
HMH Ed: Your Friend in Learning

www.funbrain.com/football/ (Decimal division game)
www.mrnussbaum.com/deathdeciamials.htm (Converting fractions to decimals game)
www.mathplayground.com/fractions_mult.html (Multiplying fractions)

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 4

Measurement & Data

Summary and Rationale

In this unit, students are introduced to three-dimensional solid shapes such as prisms, pyramids, cylinders, spheres, and cones, and learn to recognize and identify the difference between these solid figures. Students learn the fundamental concepts and vocabulary of solid shapes, such as vertex/vertices, edges, faces, and bases. Models play an important role in the study of solids. Students see, touch, and manipulate models of solids to consolidate their understanding.

Students build solids using unit cubes, draw cubes and rectangular prisms on dot paper, and find the volumes of cubes, rectangular prisms, and liquids in rectangular containers. Students are expected to recognize area as an attribute of two-dimensional shapes and volume as an attribute of three-dimensional shapes.

There are two different contexts to understand volume- the capacity of containers, and the amount of space taken up by objects. Both of these contexts are explored in this unit. Volume is also measured using both solid and liquid measures.

Students learn to make and interpret line plots to organize and represent data.

Recommended Pacing

Math in Focus Chapter 6: Volume
Math in Focus Chapter 7 Part 1: Line Plots

Standards

Measurement	
5.M.1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
5.M.2	Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
5.M.2a	A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.

5.M.2b	A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.
5.M.3	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
5.M.4	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
5.M.4a	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
5.M.4b	Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.
5.M.4c	Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.
Data Literacy	
5.DL.1	Understand how different visualizations can highlight different aspects of data. Ask questions and interpret data visualizations to describe and analyze patterns.
5.DL.2	Develop strategies to organize and represent data of various types and from various sources. Communicate results digitally through data visual *e.g. Chart, storyboard, video presentation).
5.DL.3	Collect and clean data to be analyzable (e.g. make sure each entry is formatted correctly, deal with missing or incomplete data)..
5.DL.4	Using appropriate visualizations (i.e. double line plot, double bar graph), analyze data across samples.
5.DL.5	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*
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.
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	
5-PS1-1	Develop a model to describe that matter is made of particles too small to be seen.
5-PS1-2	Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
5-LS1-1	Support an argument that plants get the materials they need for growth chiefly from air and water.
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:**
Solid figures can be identified and classified by the number of faces, edges, and vertices. The volume of cubes and rectangular prisms can be expressed and the number of cubic units they contain. Area is as an attribute of two-dimensional shapes and volume is as an attribute of three-dimensional shapes. Volume is the capacity of containers, and is also the amount of space taken up by objects.	How is the volume of any prism calculated? How is volume different from surface area? When is volume calculated in daily life? How can we represent data in line plots?

Volume is also measured using both solid and liquid measures. Displaying data in a graph or line plot highlights some features of the data. The horizontal axis of a line plot can contain fractional intervals.	

Evidence of Learning (Assessments)

Math in Focus Assessment Guide Chapter 6: Volume
Math in Focus Assessment Guide Chapter 7: Line Plots
Math in Focus Cumulative Review 3 (Chapters 6 through 8)
Benchmark Assessments

Objectives (SLO)

Students will know:	Students will be able to:
● Face, base, edge, vertex ● Rectangular Prism ● Triangular prism ● Pyramid ● Square pyramid, triangular pyramid ● Net ● Cylinder ● Sphere ● Cone ● Right triangle ● Cube ● Unit cube ● Volume ● Capacity ● Volume formula ● Key ● Line plot	● Identify and classify prisms and pyramids. ● Identify the solid figure that can be formed from a net. ● Identify and classify cylinders, spheres, and cones. ● Identify rectangular prisms. ● Build solids using unit cubes. ● Determine the number of unit cubes in an irregular solid. ● Draw a cube and a rectangular prism on dot paper. ● Complete a partially drawn cube and rectangular prism on dot paper. ● Find the volumes of cubes and rectangular prisms. ● Find the volume of a solid constructed by unit cubes. ● Compare volumes of cubes, rectangular prisms, and other objects. ● Use a formula to find the volume of a rectangular prism. ● Find the capacity of a rectangular container. ● Find the volume of a figure composed of two rectangular prisms. ● Solve word problems involving volumes of rectangular prisms, liquids, and of figures composed of two rectangular prisms. ● Make a line plot to represent data given in fractions of a unit. ● Use operations on fractions to solve problems on the information presented.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 6: Volume
Math in Focus Resources Chapter 7 Part 1: Line Plots

Resources and Manipulatives
Solid shapes
Number cubes
Net of solid shapes
Connecting cubes
Dot paper
Containers

Online Resources
HMH Ed: Your Friend in Learning

www.mathsisfun.com/geometry/prisms.html (Volume of right prisms –Notes and practice)
www.mrnussbaum.com/coolgraphing.htm (Several graphs to practice organizing data)

Literacy Connections
Room for Ripley by Stuart J. Murphy
G is for Googoi by David M. Schwartz

Tier 1 Modifications and Accommodations

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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 5

Geometry

Summary and Rationale

In this unit, students learn how to plot and identify points on a coordinate plane. They learn to read and plot points on a coordinate plane, and then look for patterns that may represent a relationship between two number sets.

Students learn the properties of polygons, particularly triangles and quadrilaterals. They learn to identify special triangles such as right, isosceles, and equilateral triangles, categorized by angle measures and/or side lengths. Students also learn to classify polygons based on a hierarchy according to their attributes.

Recommended Pacing

Math in Focus Chapter 7 Part 2: The Coordinate Plane
Math in Focus Chapter 8: Polygons

Standards

Geometry	
5.G.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).
5.G.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
5.G.3	Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.
5.G.4	Classify two-dimensional figures in a hierarchy based on properties.
Operations & Algebraic Thinking	
5.OA.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and

	graph the ordered pairs on a coordinate plane.
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.
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.
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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:**
A coordinate plane is the intersection of two number lines. The horizontal number line is called the x-axis. The vertical number line is called the y-axis. The point where they intersect is called the origin. Points on a coordinate plane are identified using an ordered pair. The x-coordinate of the ordered pair gives the horizontal location of the point while the y-coordinate gives the vertical location of the point.	How can you describe a point on a coordinate plane? How can you use the coordinate plane to show number patterns? What properties can you use to identify a type of triangle? In what ways can triangles be classified? How can you classify polygons using a hierarchy?

Plotted points on a coordinate plane often show a relationship between two sets of numbers. Polygons can be classified according to their properties (number of sides, angle types, etc.) Triangles and four-sided figures have their own special properties. Triangles can be classified by their side lengths and by their angle measures and by their sides. A scalene triangle is a triangle with no equal angles or sides. An isosceles triangle is a triangle with two equal sides (legs) and two equal angles (base angles). An equilateral triangle is a triangle with three equal sides and three equal angles. A parallelogram is a four-sided figure (a quadrilateral) with two pairs of opposite sides that are parallel and equal. Opposite angles of a parallelogram are equal. A rectangle is a parallelogram with four right angles. A rhombus is a parallelogram with four equal sides. A square is a parallelogram with four right angles and four equal sides. A trapezoid is a four-sided figure (a quadrilateral) with one pair of opposite sides. (Therefore, a trapezoid is not a parallelogram. The graph of an equation on a coordinate grid often represents a functional relationship between two quantities.	In what ways can quadrilaterals be classified? Why isn't a trapezoid classified as a parallelogram?
Evidence of Learning (Assessments)	
Math in Focus Assessment Guide Chapter 7 Part 2: The Coordinate Plane *Math in Focus* Assessment Guide Chapter 8: Polygons *Math in Focus* Cumulative Review 3 (Chapters 6 through 8) Benchmark Assessments	

Objectives (SLO)

Students will know:	Students will be able to:
● Coordinate grid, coordinate plane ● X-axis, y-axis ● Ordered pair ● x-coordinate, y-coordinate ● Origin ● Equilateral triangle ● Isosceles triangle ● Scalene triangle ● Right triangle ● Acute triangle ● Obtuse triangle ● Polygon ● Regular polygon ● Kite ● Heptagon ● Octagon ● Nonagon ● Decagon ● Quadr ● Parallelogram ● Rhombus ● Trapezoid ● Rectangle ● Square	● Read and plot points on a coordinate plane. ● Use ordered pairs to draw line graphs. ● Look for and extend number patterns. ● Identify The relationship between two sets of numbers. ● Identify isosceles, equilateral, and scalene triangles ● Classify triangles by the lengths of their side lengths and angle measures. ● Understand and apply the properties of right, isosceles, and equilateral triangles ● Classify polygons using a hierarchy. ● Understand and apply the properties of parallelograms, rhombuses, and trapezoids.

Suggested Resources/Technology Tools

Math in Focus Resources Chapter 7 Part 2: The Coordinate Plane
Math In Focus Resources Chapter 8: Polygons

<u>Resources and Manipulatives</u>

Graphs
Rulers
Coordinate grids
Grid paper
Protractors
Inch and centimeter rulers
Tracing paper
Drawing triangles
Shape cut-outs

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

www.mathplayground.com/locate_aliens.html (Coordinates)
www.mrnussbaum.com/stockshelves.htm (Coordinates)
www.gamequarium.com/data.html (Rules, tables, and graphs)

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Career Readiness, Life Literacies, and Key Skills NJSLS

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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/clicksf