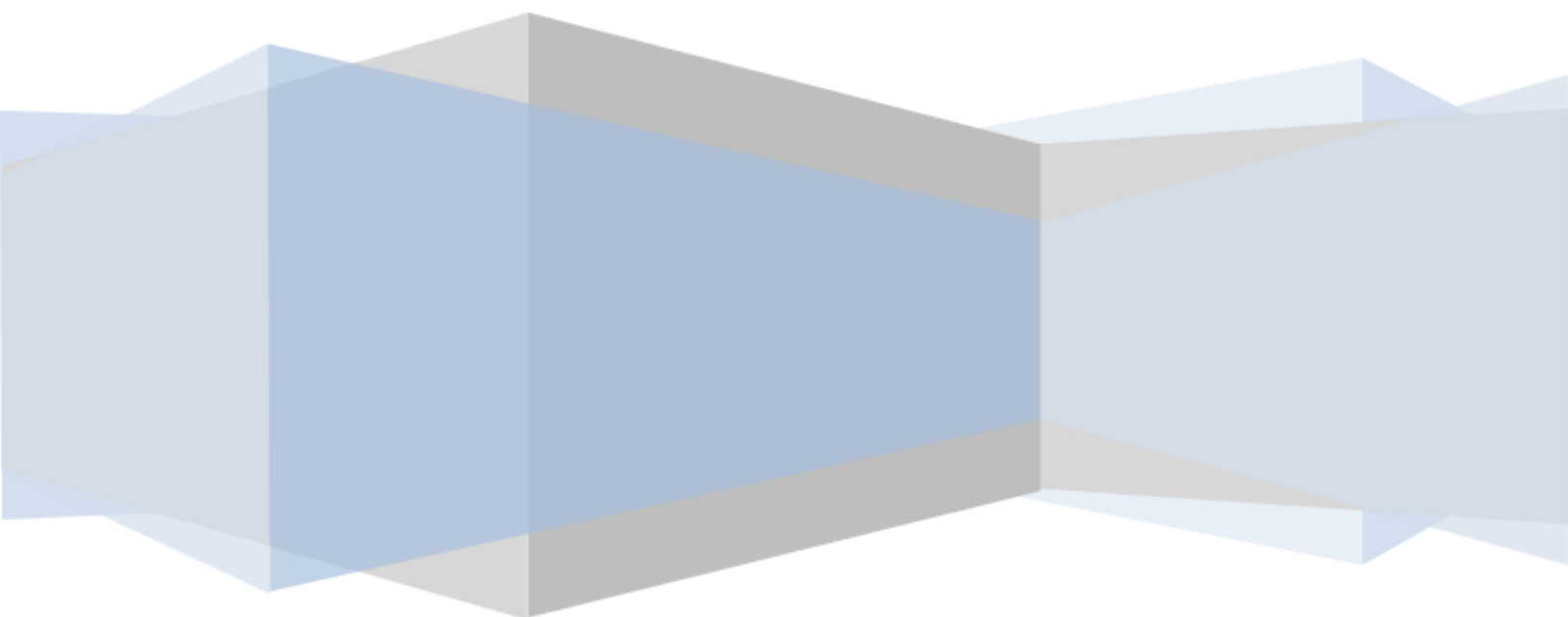Lebanon Borough Public School

Mathematics

Curriculum Guide

Fourth Grade

Approved by the Lebanon Borough Board of Education

December 10, 2020/Revised:

Introduction

The Lebanon Borough School believes in celebrating the rich history of community partnerships created through sharing of services with neighboring school systems in Hunterdon County. This ensures a consistent, high quality instruction for all learners. The math curriculum is built upon this belief by incorporating the NJSLS Math Grade Level Standards within the components of a balanced literacy framework. This approach provides all students with equitable access to the same learning goals while allowing teachers the flexibility to adapt to the needs of their learners.

The standards below are overarching. While these standards may not appear specifically in any unit, they are the collective goals of all units.

In addition to the content standards for each grade level, the guides connect these to the critical mathematical practice standards as listed below:

- *Make sense of problems and persevere in solving them. (MP1))*
- *Reason abstractly and quantitatively. (MP2)*
- *Construct viable arguments and critique the reasoning of others. (MP3)*
- *Model with mathematics. (MP4)*
- *Use appropriate tools strategically. (MP5)*
- *Attend to precision. (MP6)*
- *Look for and make use of structure. (MP7)*
- *Look for and express regularity in repeated reasoning. (MP8)*

Fourth Grade Math At A Glance

TRIMESTER 1	TRIMESTER 2	TRIMESTER 3
MATH	**MATH**	**MATH**
Focus: **Multiplication & Division: Meanings & Facts**	Focus: **Factors & Multiples, Prime & Composite Numbers**	Focus: **Measurement & Problem Solving**
Focus: **Place Value**	Focus: **Equivalent Fractions**	Focus: **Geometry: Classifying and Comparing Polygons**
Focus: **Addition & Subtraction of Whole Numbers**	Focus: **Comparing & Ordering Fractions & Decimal Numbers**	Focus: **Repeating Patterns**
Focus: **Multiplying by 1-Digit Numbers**	Focus: **Adding, Subtracting, & Multiplying Fractions**	Focus: **Symmetry**

Trimester Priority Standards

	TRIMESTER 1		TRIMESTER 2		TRIM
NJSLS	**By the end of Trimester 1, students can:**	**NJSLS**	**By the end of Trimester 2, students can:**	**NJSLS**	**By the end 3, students**
4.0A.1	Write multiplication equations.	**4.0A.4**	Factor numbers from 1 to 100, understand that numbers are multiples of their factors, figure out if a number is a multiple of another number and whether it is prime or composite.	**4.MD.1**	Understand system of m equivalent r
4.0A.2	Multiply or divide to solve word problems.	**4.NF.1**	Recognize and form equivalent fractions.	**4.MD.2**	Solve measu

4.0A.3	Use mathematical operations and variables to solve word problems with and without remainders, use mental math and estimation to decide if my answer makes sense.	4.NF.2	Compare two fractions with different numerators and denominators.	4.MD.3	Use find the area rectangles.
4.NBT.1	Understand that each place value is ten times larger than the one to its right.	4.NF.3.	Understand the relationship between numerators and denominators and that a fraction is made up of equal units, understand how to add and subtract fractions that are part of the same whole, break apart a fraction into the sum of smaller fractions with like denominators, write number sentences to show that fractions can be separated in more than one way, use various strategies to add and subtract mixed numbers with like denominators, solve word problems by adding and subtracting fractions with like denominators.	4.MD.4	Solve proble

Mathematics

4.NBT.2	Read, write, and compare numbers up to one million.	**4.NF.4**	Multiply a fraction by a whole number. (a.) I understand that fractions with like denominators are multiples of the fraction with the same denominator and a numerator of 1. (b.) I can use my knowledge of fraction multiples to multiply a fraction by a whole number. (c.) I can solve word problems by multiplying a fraction by a whole number.	**4.MD.6**	Measure an a protractor
4.NBT.3	Round numbers up to one million.	**4.NF.5**	Add fractions with denominators of 10 and 100 by converting them into equivalent fractions	**4.MD.7**	Understand parts is equa solve additio problems w
4.NBT.5	Multiply large numbers using various strategies and I can illustrate and explain my work.	**4.NF.6**	Change a fraction with a denominator of 10 or 100 into an equivalent decimal.	**4.G.3**	Understand a shape into symmetrica symmetry.
		4.NF.7	Compare two decimals to the hundredths place.	**4.0A.5**	Generate a r follows a giv features of t explicit in th

Lebanon Borough School Instructional Unit

Content:	Mathematics			Grade:	4
Trimester:	1	Chapters	1-5	Pacing:	12 Weeks

CRITICAL AREAS OF FOCUS FOR 4th Grade

In grade 4, instructional time should focus on one critical area:

1. Develop understanding and fluency with multi-digit multiplication and develop understanding of dividing to find quotients involving

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

Essential Questions

1. How can I use place value understanding and properties of operations to add, subtract, multiply, and divide whole numb
2. What kinds of experiences help develop number sense?
3. How can I relate problem-solving skills to everyday life?

Mathematics

Mathematics

		TARGET STANDARDS		
Math NJSLS	**I Can …**	**Mathematical Practice Standard**	**Benchma or N/A)**	
4.0A.1	Write multiplication equations.	*Make sense of problems and persevere in solving them.* Interpret multiplication equations as a comparison and identify which quantity is being multiplied and which number tells how many. Explain verbal descriptions of multiplicative comparisons by writing an equation of the verbal multiplicative comparison.	X	
4.0A.2	Multiply or divide to solve word problems.	*Make sense of problems and persevere in solving them.* Distinguish between an additive comparison and a multiplicative comparison. Explain correspondences between written equations and word problems derived from the same information. *Reason abstractly and quantitatively.* Understand and make sense of quantities involved in multiplicative comparisons. *Model with mathematics.* Use and apply previously learned concepts to identify arithmetic operations in word problems.	X	
4.0A.3	Use mathematical operations and variables to solve word problems with and without remainders. I can use mental math and estimation to decide if my answer makes sense.	*Make sense of problems and persevere in solving them.* Explain correspondences among equations involving all four operations in word problems. *Reason abstractly and quantitatively.* Use quantitative reasoning that involves creating a coherent representation of equations from word problems. *Construct viable arguments and critique the reasoning of others.* Apply concepts to multi-step word problems and whole numbers and having whole number answers using the four operations.	X	
4.NBT.1	Understand that each place value is ten times larger than the one to its right.	*Reason abstractly and quantitatively.* Understand and make sense of quantities as		

		they relate to place value moving left to right. *Construct viable arguments and critique the reasoning of others.* Understand and use the stated assumptions about place value of multi-digit whole numbers. Justify conclusions and be able to explain the quantitative relationship between place values of multi-digit whole numbers. *Attend to precision.* Be able to communicate precisely the quantitative relationship between place values moving right to left.	
4.NBT.2	Read, write, and compare numbers up to one million.	*Reason abstractly and quantitatively.* Understand and make sense of the quantities of two multi-digit numbers up to one million in order to compare them. *Model with mathematics.* Use numeral, name, and expanded form to model multi-digit whole numbers. *Attend to precision.* State and understand the meaning of the <, >, and = symbols when comparing two multi-digit numbers up to one million.	X
4.NBT.3	Round numbers up to one million.	*Reason abstractly and quantitatively.* Understand and make sense of numeric quantities in order to round to any place. *Construct viable arguments and critique the reasoning of others.* Justify conclusions and be able to explain the rationale of rounding multi-digit whole numbers to any place.	X
4.NBT.5	Multiply large numbers using various strategies and I can illustrate and explain my work.	*Reason abstractly and quantitatively.* Consider and use available tools, such as rectangular arrays and area models, when multiplying multi-digit numbers. *Attend to Precision.* Calculate the multiplication of multi-digit numbers accurately and efficiently and be able to explain the solution.	X

Mathematics

Mathematics

	INSTRUCTIONAL PROGRESSION			
Weekly Plan	**Concept**	**Go Math Connection**	**Vocabulary**	
During Week 1	Place Value, Read and Write Numbers, Compare & Order Numbers, Round Numbers, Rename Numbers	Topics 1.1, 1.2, 1.3, 1.4, 1.5	estimate, expanded form, period, round, standard form, word form, compare, order, place value	Problem Show V Proble Mid Ch
During Week 2	Add Whole Numbers, Subtract Whole Numbers, Problem Solving using Comparison Problems with Addition and Subtraction	Topics 1.6, 1.7, 1.8, Review and Assessment		Probler Probler Perforn Summa
During Week 3	Multiplication Comparisons, Comparison Problems, Multiply Tens, Hundreds & Thousands, Estimate Products, Multiply Using the Distributive Property	Topics 2.1, 2.2, 2.3, 2.4, 2.5	Distributive Property Partial product	Show V the Day Own Pe
During Week 4	Multiply Using Expanded Form, Multiply Using Partial Products, Multiply Using Mental Math, Multistep Multiplication Problems	Topics 2.6, 2.7, 2.8, 2.9	Associative Property of Multiplication	Probler On Your Mid Cha Probler
During Week 5	Multiply 2-Digit Numbers with Regrouping, Multiply 3-digit and 4-Digit Numbers with Regrouping, Solve Multi Step Problems Using Equations	Topic 2.10, 2.11, 2.12, Review and Assessment	regroup	Probler Solving Perforn Summa
During Week 6	Multiply by 10s, Estimate Products, Investigate Area Models/Partial Products, Multiply Using Partial Products	Topics 3.1, 3.2, 3.3, 3.4	compatible numbers estimate round	Show V Probler Solving
During Week 7	Multiply with Regrouping, Choose a Multiplication Method, Problem Solving by Multiplying 2-Digit Numbers	Topics 3.5, 3.6, 3.7 review & assessment	Commutative Property of Multiplication	Probler Review Perforn
During Week 8	Estimate Quotients Using Multiples, Remainders, Interpret the Remainder, Divide Tens, Hundreds, and Thousands	Topics 4.1, 4.2, 4.3, 4.4	multiple remainder	Show V Own Probler Probler
During Week 9	Estimate Quotients Using Compatible Numbers, Division & the Distributive Property, Divide Using Repeated Subtraction, Divide Using Partial Quotients, Division with Regrouping	Topic 4.5, 4.6, 4.7, 4.8, 4.9	compatible numbers partial quotient	Mid Cha Probler Probler Perforn Summa
During Week 10	Place the First Digit, Divide by 1-Digit Numbers, Problem Solving with Multistep Division Problems	Topics 4.10, 4.11, 4.12, review & assessment		Probler Probler Perforn Summa

Mathematics

Mathematics

During Week 11	Model Factors, Factors and Divisibility, Problem Solving With Common Factors, Factors and Multiples	Topics 5.1, 5.2, 5.3, 5.4	factor divisible common factor common multiple	Proble On You Proble Mid Ch
During Week 12	Prime and Composite Numbers, Number Patterns	Topics 5.5, 5.6 review and assessment	composite number prime number pattern term	Proble Proble On You Perfor Summa

Additional Resources

- Go Math App
- Xtra Math
- Soar to Success Math
- Real World Videos
- HMH Mega Math
- Carmen Sandiego
- Otter Creek

Special Notes:

Throughout Trimester 1, Multiplication Facts will be drilled and time-quized to support skills taught.

Mathematics

DIFFERENTIATION			
Special Education	**ELL**	**I&RS**	
- Provide modifications & accommodations as listed in the student's IEP - Position student near helping peer or have quick access to teacher - Modify or reduce assignments/tests - Reduce length of assignment for different mode of delivery - Increase one-to-one time - Utilize working contract between you and student at risk - Prioritize tasks - Provide manipulatives - Use graphic organizers - Use interactive math journals - Use online resources for skill building - Provide teacher notes - Use collaborative grouping strategies such small groups - Use Go Math online resources - NJDOE resources	- Use Go Math Spanish Resources - Provide text to speech for math problems - Use of translation dictionary or software - Implement strategy groups - Confer frequently - Provide graphic organizers - Modification plan - NJDOE resources - Adapt a Strategy-Adjusting strategies for ESL students: http://www.teachersfirst.com/con tent/esl/adaptstrat.cfm	- Tiered Interventions following I&RS framework - I&RS Go Math Supplemental Activities - Reteach Supplements - RtI Intervention Bank - NJDOE resources - Math Apps - Utilize online resources - K-6 intervention supports	- Process order th thinking - Utilize p greater - Utilize e to highe - Content abstract organiza - Products world pr deadline transfor - Learning modified independ complex - Use of w - Go Math supplem - NJDOE r

CROSS CURRICULUR RESOURCES
Literacy in Mathematics: http://www.readwritethink.org/search/?resource_type=6&q=math&sort_order=relevance
Grade 3-5 STEM resource: http://www.kineticcity.com/
K-12 STEM Educator and Career Resource: http://www.egfi-k12.org/

ALIGNMENT TO 21st CENTURY SKILLS AND TECHNOLOGY	
21st Century/ Interdisciplinary Themes: Bold all that apply	**21st Century Skills: Bold all that apply**
Global Awareness **Financial, Economic, Business and Entrepreneurial Literacy** Civic Literacy Health Literacy Environmental Literacy	Creativity & Innovation **Critical Thinking & Problem** **Solving** Communication & Collaboration Media Literacy Information Literacy **Information, Communication & Technology**

Mathematics

	Life & Career Skills

Technology Infusion

National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/vlibrary.html
Math Resources for Technology
https://drive.google.com/file/d/0B4Zh_BcwMUEMOFRfSXZpdW9Yams/view?usp=sharing Smart Board Applications
Go Math applications and online resources

Evidence of Student Learning

- Common benchmark
- Observation
- Evaluation rubrics
- Self-reflections
- Teacher-student conferences
- Performance Tasks

- Mid Chapter Check Quiz
- Performance Assessments
- Chapter Summative Assessments

CRP Standards

CRP1. Act as a responsible and contributing citizen and employee.
CRP2. Apply appropriate academic and technical skills.
CRP3. Attend to personal health and financial well-being.
CRP4. Communicate clearly and effectively and with reason.
CRP5. Consider the environmental, social and economic impacts of decisions.
CRP6. Demonstrate creativity and innovation.
CRP7. Employ valid and reliable research strategies.
CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
CRP9. Model integrity, ethical leadership and effective management.
CRP10. Plan education and career paths aligned to personal goals.
CRP11. Use technology to enhance productivity.
CRP12. Work productively in teams while using cultural global competence.

Lebanon Borough School Instructional Unit

Content:	Mathematics			Grade:	4
Trimester:	2	Unit Title:	Multiplication, Division, & Fractions	Pacing:	12 Wee

CRITICAL AREAS OF FOCUS FOR 4th Grade

In grade 4, instructional time should focus on two critical areas:

1. Develop understanding and fluency with multi-digit multiplication and develop understanding of dividing to find quotients involving m

2. Develop an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fr

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

2. Students **develop understanding** of fraction equivalence and operations with fractions. They recognize that two different fractions can be equ they **develop methods for generating and recognizing equivalent fractions**. Students extend previous understandings about how fractions fractions, **composing fractions** from unit fractions, **decomposing fractions** into unit fractions, and using the meaning of fractions and the me to multiply a fraction by a whole number.

Essential Questions

1. How can I represent and compare fractions and decimals?

2. How can I add, subtract, and multiply fractions?

3. How can I relate fractions and decimals to everyday life?

Mathematics

Mathematics

TARGET STANDARDS		
Math NJSLS	**I Can …**	**Mathematical Practice Standard**
4.NBT.1	Understand that each place value is 10 times larger than the one to its right.	*Construct viable arguments and critique the r… of others.* Understand and use the stated assu… about place value of multi-digit whole numbe… *to precision.* Be able to communicate precisel… quantitative relationship between place valu… right to left.
4.NBT.5	Multiply large numbers using various strategies. I can illustrate and explain my work.	*Make sense of problems and persevere in solvi…* Explain correspondences between written e… and word problems derived from the same information. *Reason abstractly and quantitati…* Understand and make sense of numeric quan… order to round to any place. Understand and … sense of quantities involved in multiplicative… comparisons. *Construct viable arguments and… the reasoning of others.* Justify conclusions an… to explain the rationale of rounding multi-dig… numbers to any place. *Model with mathematics.* Use and apply previ… learned concepts to identify arithmetic opera… word problems. *Use appropriate tools strateg…* Consider and use available tools, such as rect… arrays and area models, when using equation… division. *Attend to precision.* Calculate divisio… multi- digit dividends by one-digit divisors ac… and efficiently and be able to explain the solu…
4.NBT.6	Divide large numbers using a variety of strategies. I can illustrate and explain my work.	*Make sense of problems and persevere in solvi…* Explain correspondences between written e… and word problems derived from the same information. *Reason abstractly and quantitati…* Understand and make sense of quantities inv… multiplicative comparisons. *Model with math…* Use and apply previously learned concepts to… arithmetic operations in word problems.

Mathematics

Mathematics

4.0A.2	Multiply or divide to solve word problems.	*Make sense of problems and persevere in solvi[...]* Distinguish between an additive comparison [...] multiplicative comparison. Explain correspon[...] between written equations and word probler[...] derived from the same information. *Model wi[...] Mathematics.* Use and apply previously learned concepts to[...] identify arithmetic operations in words prob[...] *Reason abstractly and quantitatively.* Underst[...] make sense of quantities involved in multipli[...] comparisons.
4.0A.3	Use mathematical operations and variables to solve word problems with and without remainders. I can use mental math and estimation to decide if my answer makes sense.	*Construct viable arguments and critique the r[...] of others.* Apply concepts to multi-step word [...] with whole numbers and having whole numb[...] answers using the four operations.
4.0A.4	Factor numbers from 1 to 100. I understand that numbers are multiples of their factors. I can figure out if a number is a multiple of another number and whether it is prime or composite.	*Make sense of problems and persevere in solvi[...]* Use concrete models to help conceptualize, g[...] and identify number patterns using predeter[...] rules. *Look for and make use of structure.* Loo[...] discern patterns to determine factor pairs an[...] multiples of whole numbers up to 100. Look [...] discern patterns to determine prime number[...] 1 and 100. *Look for and express regularity in r[...] reasoning.* Look for and express regularity in [...] reasoning when determining factor pairs and[...] multiples of whole numbers. Look for and ex[...] regularity in repeated reasoning when deter[...] prime numbers between 1 and 100.
4.NF.1	Recognize and form equivalent fractions.	*Reason abstractly and quantitatively.* Underst[...] make sense of equivalent fractions' quantitie[...] their relationships. *Construct viable argumen[...] critique the reasoning of others.* Understand a[...] stated assumptions and definitions about fra[...] order to recognize and generate equivalent fr[...] Be able to communicate and justify solutions [...] about equivalent fractions. *Use appropriate to[...] strategically.* Consider and use available tools[...] visual fraction

Mathematics

		models, when working with equivalent fract... *Attend to precision.* Be able to precisely com... why fractions are equivalent.
4.NF.2	Compare two fractions with different numerators and denominators.	*Reason abstractly and quantitatively.* Unders... make sense of fraction quantities with differ... denominators in order to compare them. *Mo... mathematics.* Map the relationship between... with different numerators and denominator... tools. *Use appropriate tools strategically.* Co... use available tools, such as rectangular arra... area models, when using equations in divisi... *to precision.* State the meaning of the symbo... when comparing two fractions with differer... numerators and denominators.
4.NF.3.	Understand the relationship between numerators and denominators. I understand that a fraction is made up of equal units. (a.) I understand how to add and subtract fractions that are part of the same whole. (b.) I can break apart a fraction into the sum of smaller fractions with like denominators. I can write number sentences to show that fractions can be separated in more than one way. (c.) I can use various strategies to add and subtract mixed numbers with like denominators. (d.) I can solve word problems by adding and subtracting fractions with like denominators.	*Reason abstractly and quantitatively.* Unders... and make sense of decomposed fraction qua... and understand the relationship to its parts... Understand and make sense of addition and... subtraction of mixed number quantities and... relationship to an equivalent fraction. Unde... and make sense of fraction quantities in the... of addition and subtraction word problems.... *with mathematics.* Map the relationship betw... decomposed fraction units using tools that i... visual fraction model. Map the relationship l... fraction sums and differences using tools. A... use previously learned concepts about fract... order to solve addition and subtraction wor... problems utilizing fractions.

4.NF.4	Multiply a fraction by a whole number. (a.) I understand that fractions with like denominators are multiples of the fractions with the same denominator and a numerator of 1. (b.) I can use my knowledge of fraction multiples to multiply a fraction by a whole number. (c.) I can solve word problems by multiplying a fraction by a whole number.	*Make sense of problems and* in solving them. Explain the meaning and the finding a solution to a word problem that inv multiplication of a fraction by a whole numbe *abstractly and quantitatively.* Understand and sense of multiplied fraction quantities. Use q reasoning to create a coherent representation fraction multiplication and understand the fr quantities involved. Understand and make se whole number and fraction quantities in the multiplication. *Model with mathematics.* Appl previously learned concepts regarding rectar solve area and perimeter problems involving rectangles. *Use appropriate tools strategically* multiplying fractions, consider and use availa that include equations and visual fraction mo *for and make use of structure.* Look for and di patterns in the multiplication of fraction by a number.
4.NF.5	Add fractions with denominators of 10 and 100 by converting them into equivalent fractions.	*Reason abstractly and quantitatively.* Underst make sense of fraction quantities with denom 10 and 100. *Look for and make use of structur* for and discern patterns when adding two fra with denominators of 10 or 100.
4.NF.6	Change a fraction with a denominator of 10 or 100 into an equivalent decimal.	*Reason abstractly and quantitatively.* Underst make sense of quantities expressed in decima and as fractions. *Attend to precision.* Use clea reasoning and definitions to describe writing in decimal notation. *Look for and make use of* Look for and discern a pattern when using de notation to express a fraction quantity.

Mathematics

4.NF.7	Compare two decimals to the hundredths place.	*Reason abstractly and quantitatively*. Unders make sense of decimal quantities in order to them. Use quantitative reasoning to create a representation of decimal numbers in order compare their size. *Model with mathematics* relationship of two decimal numbers using tools. *Attend to precision*. State the meaning or = symbols when comparing two decimal
4.MD.2	Solve measurement word problems and represent amounts using scale drawings.	*Make sense of problems and persevere in solv* Be able to explain the meaning of fractions o decimals that incorporate measurement, an the process to solve word problems that inc both. *Reason abstractly and quantitatively.* U and make sense of both decimal and fractio quantities and understand their relationshi other. Use quantitative reasoning to create representation of word problems involving and decimals.

Mathematics

	INSTRUCTIONAL PROGRESSION			
Weekly Plan	**Concept**	**Go Math Connection**	**Vocabulary**	
During Week 1	Investigate Equivalent Fractions, Generate Equivalent Fractions, Simplest Form, Common Denominators,	Topics 6.1, 6.2, 6.3, 6.4	equivalent fractions simplest form common denominator	S P P C M
During Week 2	Problem Solving to Find Equivalent Fractions, Compare Fractions Using Benchmarks, Compare Fractions,	Topics: 6.5, 6.6, 6.7	benchmark	P P C
During Week 3	Compare and Order Fractions	review Topics 6.1-6.7, Assess		F F F S
During Week 4	Add and Subtract Parts of a Whole, Write Fractions as Sums, Add Fractions Using Models, Subtract Fractions Using Models	Topics 7.1, 7.2, 7.3, 7.4	unit fraction	S F F F C
During Week 5	Add and Subtract Fractions, Rename Fractions and Mixed Numbers, Add and Subtract Mixed Numbers, Subtraction with Renaming	Topics 7.5, 7.6, 7.7, 7.8	mixed number	M F F
During Week 6	Fractions and Properties of Addition, Problem Solving with Multistep Fraction Problems	Topics 7.9, 7.10, review and assess		F F F S
During Week 7	Multiples of Unit Fractions, Multiples of Fractions, Multiplying a Fraction by a Whole Number Using Models	Topics 8.1, 8.2, 8.3		S P C P M
During Week 8	Multiply a Fraction or Mixed Number by a Whole Number, Problem Solving with Comparison Problems with Fractions	Topics 8.4, 8.5, review and assess		F C F S
During Week 9	Relate Tenths and Decimals, Relate Hundredths and Decimals, Equivalent Fractions and Decimals, Relate Fractions/Decimals/Money	Topics 9.1, 9.2, 9.3, 9.4	decimal, decimal point, tenth, hundredth, equivalent decimals	S F C F
During Week 10	Problem Solving With Money, Add Fractional Parts of 10 and 100, Compare Decimals	Topics 9.5, 9.6, 9.7 review and assess		F C F A

Mathematics

During Week 11	Review	Review	
During Week 12	Review for Unit 2/Mid year Assessment	Topics 1-9	

Additional Resources

- Go Math App
- Xtra Math
- Soar to Success Math
- Real World Videos
- HMH Mega Math
- Carmen Sandiego
- Otter Creek

- **Special Notes:**

DIFFERENTIATION			
Special Education	**ELL**	**I&RS**	**En**

Mathematics

● Provide modifications & accommodations as listed in the student's IEP ● Position student near helping peer or have quick access to teacher ● Modify or reduce assignments/tests ● Reduce length of assignment for different mode of delivery ● Increase one-to-one time ● Utilize working contract between you and student at risk ● Prioritize tasks ● Provide manipulatives ● Use graphic organizers ● Use interactive math journals ● Use online resources for skill building ● Provide teacher notes ● Use collaborative grouping strategies such small groups ● Use Go Math online resources ● NJDOE resources	● Use Go Math Spanish Resources ● Provide text to speech for math problems ● Use of translation dictionary or software ● Implement strategy groups ● Confer frequently ● Provide graphic organizers ● Modification plan ● NJDOE resources ● Adapt a Strategy-Adjusting strategies for ESL students: http://www.teachersfirst.com/con tent/esl/adaptstrat.cfm	● Tiered Interventions following I&RS framework ● I&RS Intervention Bank ● NJDOE resources ● Math Lab ● Utilize online resources such as www.tenmarks.com ● Go Math k-5 intervention supports	should b thinking thinking ● Utilize p greater ● Utilize e to highe ● Content abstract organiza ● Product: world pr deadline transfor ● Learning modified learning openness varied ● Use of w as www ● Go Math and ext ● NJDOE r

CROSS CURRICULUR RESOURCES

Literacy in Mathematics: http://www.readwritethink.org/search/?resource_type=6&q=math&sort_order=relevance

Grade 3-5 STEM resource: http://www.kineticcity.com/

K-12 STEM Educator and Career Resource: http://www.egfi-k12.org/

ALIGNMENT TO 21st CENTURY SKILLS AND TECHNOLOGY

21st Century/ Interdisciplinary Themes: Bold all that apply	21st Century Skills: Bold all that apply
Global Awareness **Financial, Economic, Business and Entrepreneurial Literacy** Civic Literacy Health Literacy Environmental Literacy	Creativity & Innovation **Critical Thinking & Problem Solving** Communication & Collaboration Media Literacy Information Literacy **Information, Communication & Technology** **Life & Career Skills**

Mathematics

Technology Infusion
National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/vlibrary.html   Math Resources for Technology   https://drive.google.com/file/d/0B4Zh_BcwMUEMOFRfSXZpdW9Yams/view?usp=sharing Smart Board Applications   Go Math applications and online resources

Evidence of Student Learning
- Common benchmark   - Observation   - Evaluation rubrics   - Self-reflections   - Teacher-student conferences   - Running records   - Performance Tasks   - Mid Chapter Quiz   - Chapter Summative Assessment

CRP Standards
CRP1. Act as a responsible and contributing citizen and employee.   **CRP2. Apply appropriate academic and technical skills.**   CRP3. Attend to personal health and financial well-being.   CRP4. Communicate clearly and effectively and with reason.   CRP5. Consider the environmental, social and economic impacts of decisions.   CRP6. Demonstrate creativity and innovation.   CRP7. Employ valid and reliable research strategies.   **CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.**   CRP9. Model integrity, ethical leadership and effective management.   CRP10. Plan education and career paths aligned to personal goals.   **CRP11. Use technology to enhance productivity.**   CRP12. Work productively in teams while using cultural global competence.

Lebanon Borough Public School Instructional Unit

Content:	Mathematics			**Grade:**	4
Trimester:	3	Chapters 10-13	Measurement, Geometry, & Patterns	**Pacing:**	12 Wee

CRITICAL AREAS OF FOCUS FOR 4th Grade

In grade 4, instructional time should focus on three critical areas:

1. Develop understanding and fluency with multi-digit multiplication and develop understanding of dividing to find quotients involving m

2. Develop an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fr numbers;

3. Understand that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular angle measures, and symmetry. Students work toward fluency in addition and subtraction within 1,000,000 using the standard algorith

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

2. Students **develop understanding** of fraction equivalence and operations with fractions. They recognize that two different fractions can be eq they **develop methods for generating and recognizing equivalent fractions**. Students extend previous understandings about how fractions fractions, **composing fractions** from unit fractions, **decomposing fractions** into unit fractions, and using the meaning of fractions and the me multiply a fraction by a whole number.

3. Students **describe, analyze, compare, and classify** two-dimensional shapes. Through **building, drawing, and analyzing** two-dimensional sl their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry (NJSLS I 2010, Grade

Essential Questions

1. How can I solve measurement problems?
2. How can I recognize and continue patterns?
3. How can I relate these skills to everyday life?

Mathematics

	TARGET STANDARDS	
Math NJSLS	**I Can …**	**Mathematical Practice Standard**
4.MD.1	Understand the different sizes within a system of measurement; Find equivalent measurements.	*Attend to precision.* Specify units of measure to clarify the correspondence with the given quantities. *Model with mathematics.* Use specific and appropriate units of measurement when com two objects within a single system.
4.MD.2	Solve measurement word problems and represent amounts using scale drawings.	*Make sense of problems and persevere in solving* Be able to explain the meaning of fractions or decimals that incorporate measurement, and the process to solve word problems that inco both. *Reason abstractly and quantitatively.* Ur and make sense of both decimal and fraction quantities and understand their relationship other. Use quantitative reasoning to create a representation of word problems involving fi and decimals.
4.MD.3	Use formulas to find the area and perimeter of rectangles.	*Make sense of problems and persevere in solving* Analyze the relationship between area and p in order to solve real world problems involvi rectangles.
4.MD.4	Solve problems involving line plots.	*Make sense of problems and persevere in solving* Draw diagrams and construct graphs of impo features contained in a dataset. *Reason abstra and quantitatively.* Use and apply two abilitie (making a line plot, solving addition and subt problems with fractions) to solve problems. *l with mathematics.* Draw diagrams and constr graphs of important features contained in a d
4.G.1	Draw and identify points, lines, line segments, rays, angles, and perpendicular and parallel lines.	*Use appropriate tools strategically.* Consider a available tools, such as graphing paper, a rule concrete models, when drawing points, lines, segments, rays, angles, perpendicular and pa lines.

Mathematics

4.G.2	Can classify polygons, such as right triangles, by the types of angles and lines used to form the polygons.	*Make sense of problems and persevere in solvi... them.* Analyze the relationship between two-dimensional figures based on the presen... absence of parallel lines, perpendicular lines,... angles.
4.G.3	Understand that lines of symmetry divide a shape into matching parts; Identify symmetrical shapes and draw lines of symmetry.	*Make sense of problems and persevere in solvi...* Analyze the constraints and relationships bet... of symmetry and line-symmetric figures. *Loo... make use of structure.* Look for and discern p... lines of symmetry and line-symmetric figures...
4.MD.5a	Understand that an angle's measure is related to the fraction of a circle it represents, and that the unit is degrees.	*Make sense of problems and persevere in solvi...* Consider and use available tools when determ... the measure of angles in degrees. *Look for an... use of structure.* Look for and discern pattern... measurement of angles.
4.MD.5b	Understand that an angle is measured in degrees of a circle.	*Make sense of problems and persevere in solvi...* Consider and use available tools when determ... the measure of angles in degrees. *Look for an... use of structure.* Look for and discern pattern... measurement of angles.
4.MD.6	Can measure and draw angles using a protractor.	*Use appropriate tools strategically.* Consider a... available and appropriate tools, such as a pro... ruler, and graphing paper, to measure angles... sense of problems and persevere in solving the... Analyze the givens and constraints when mea... angles.
4.MD.7	Understand that the sum of an angle's parts is equal to the whole angle; Can solve addition and subtraction problems with unknown angles.	*Construct viable arguments and critique the re... of others.* Understand and use stated assumpt... definitions of angles to solve addition and su... problems utilizing angles.
4.0A.5	Generate a number or shape pattern that follows a given rule; Identify apparent features of the pattern that were not explicit in the rule itself.	*Make sense of problems and persevere in solvi...* Use concrete models to help conceptualize, g... and identify number and shape patterns usin... predetermined rules. *Construct viable argume... critique the reasoning of others.* Make conject... build a logical progression of statements in o... generate and identify number and shape patt... when using predetermined rules. *Model with... mathematics.*

Mathematics

Mathematics

		Map the relationships of numbers and shapes tools that include models, words, and graphs Analyze the relationships and patterns betwe numbers and shapes that have been generate a similar rule. *Use appropriate tools strategic* Consider and use available tools, such as mo graphs, when solving problems that relate to and shape patterns.

INSTRUCTIONAL PROGRESSION			
Weekly Plan	**Concept**	**GoMath Connection**	**Vocabulary**
During Week 1	Lines, ray, and angles; Classifying Triangles, Parallel Line/Perpendicular Lines, classify quadrilaterals	Topics 10.1, 10.2, 10.3, 10.4	line segment, line, ray, point, acute obtuse, right parallel lines perpendicular lines quadrilaterals, trapezoids, parallelogram
During Week 2	Line Symmetry, Find and Draw Lines of Symmetry, Problem Solving with Shape Patterns	Topics 10.5, 10.6, 10.7, review and assess	symmetry
During Week 3	Investigate Angles and Fractional Parts of a Circle, Degrees, Measure and Draw Angles	Topics 11.1, 11.2, 11.3	clockwise, counterclockwise, degree, protractor
During Week 4	Join and Separate Angles, Problem Solving With Unknown Angle Measures	Topic 11.4, 1.5 Review & Assess	

Mathematics

Mathematics

During Week 5	Measurement Benchmarks, Customary Units of Length, Customary Units of Weight, Customary Units of Volume	Topics 12.1, 12.2, 12.3, 12.4	kilometer, mile, ounce, pound, ton, cup, fluid ounce, gallon, half gallon, liquid volume, pint, quart
During Week 6	Line Plots, Metric Units of Length, Metric Units of Mass and Liquid Volume, Units of Time	Topics 12.5, 12.6, 12.7, 12.8	line plot decimeter millimeter millileter second
During Week 7		NJSLA Review	
Flexible NJSLA Week		NJSLA	
During Week 8	Elapsed Time, Mixed Measures, Patterns in Measurement Units	Topics 12.9, 12.10, 12.11 review and assess	elapsed time
During Week 9	Perimeter, Area, Area of Combined Rectangles	Topics 13.1, 13.2, 13.3	formula, perimeter area, base, height, square unit
During Week 10	Find Unknown Measures, Problem Solving with find the Area	Topics 13.4, 13.5 review and assess	
During Week 11	Review & Unit 3 Assessment/End of the Year Assessment; Review Project	Topics 1-13	
During Week 12	Select topics as desired from Getting Ready for Grade 5	Step-Up Lessons	
During Week 13	Select topics as desired from Step-Up to Grade 5	Step-Up Lessons	

Mathematics

Additional Resources
● Go Math App ● Xtra Math ● Soar to Success Math ● Real World Videos ● HMH Mega Math ● Carmen Sandiego ● Otter Creek

Special Notes:

Multiplication and Division facts continued to be practiced and drilled

DIFFERENTIATION			
Special Education	**ELL**	**I&RS**	**En**
● Provide modifications & accommodations as listed in the student's IEP ● Position student near helping peer or have quick access to teacher ● Modify or reduce assignments/tests ● Reduce length of assignment for different mode of delivery ● Increase one-to-one time ● Utilize working contract between you and student at risk ● Prioritize tasks ● Provide manipulatives ● Use graphic organizers ● Use interactive math journals ● Use online resources for skill building ● Provide teacher notes ● Use collaborative grouping strategies such small groups ● Use Go Math online resources ● NJDOE resources	● Use Go Math Spanish Resources ● Provide text to speech for math problems ● Use of translation dictionary or software ● Implement strategy groups ● Confer frequently ● Provide graphic organizers ● Modification plan ● NJDOE resources ● Adapt a Strategy-Adjusting strategies for ESL students: http://www.teachersfirst.com/con tent/esl/adaptstrat.cfm	● Tiered Interventions following I&RS framework ● I&RS Intervention Bank ● NJDOE resources ● Math Lab ● Utilize online resources such as www.tenmarks.com ● Go Math k-6 intervention supports	● Process sho order thinki thinking, dis ● Utilize proje greater dep ● Utilize explo higher grade ● Contents sh abstraction, organizatio ● Products sh world probl deadlines, e transformat ● Learning en modified: st independen groups varie ● Use of web www.tenma ● Go Math En extension a ● NJDOE reso

Mathematics

Mathematics

CROSS CURRICULUR RESOURCES
Literacy in Mathematics: http://www.readwritethink.org/search/?resource_type=6&q=math&sort_order=relevance
Grade 3-5 STEM resource: http://www.kineticcity.com/
K-12 STEM Educator and Career Resource: http://www.egfi-k12.org/

ALIGNMENT TO 21ˢᵗ CENTURY SKILLS AND TECHNOLOGY	
21ˢᵗ Century/ Interdisciplinary Themes: Bold all that apply	**21ˢᵗ Century Skills:** Bold all that apply
Global Awareness **Financial, Economic, Business and Entrepreneurial Literacy** Civic Literacy Health Literacy Environmental Literacy	Creativity & Innovation **Critical Thinking & Problem Solving** Communication & Collaboration Media Literacy Information Literacy **Information, Communication & Technology Life & Career Skills**

Technology Infusion

National Library of Virtual Manipulatives http://nlvm.usu.edu/en/nav/vlibrary.html
Math Resources for Technology
https://drive.google.com/file/d/0B4Zh_BcwMUEMOFRfSXZpdW9Yams/view?usp=sharing Smart Board Applications
GoMath applications and online resources

Evidence of Student Learning

- Common benchmark
- Observation
- Evaluation rubrics
- Self-reflections
- Teacher-student conferences
- Running records
- Mid Chapter Quiz
- Chapter Summative Assessments

CRP Standards

Mathematics

CRP1. Act as a responsible and contributing citizen and employee.

CRP2. Apply appropriate academic and technical skills.

CRP3. Attend to personal health and financial well-being.

CRP4. Communicate clearly and effectively and with reason.

CRP5. Consider the environmental, social and economic impacts of decisions.

CRP6. Demonstrate creativity and innovation.

CRP7. Employ valid and reliable research strategies.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

CRP9. Model integrity, ethical leadership and effective management.

CRP10. Plan education and career paths aligned to personal goals.

CRP11. Use technology to enhance productivity.

CRP12. Work productively in teams while using cultural global competence.