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Grade 4 Scope and Sequence for Math

Date Range and Number of Instructional Days	Chapters and Units	Number of Instructional Days
September 14th - October 13th *(16 Instructional Days)*	**Chapter 1: Working with Whole Numbers** **Unit 1: Working with Whole Numbers**	**16**
October 14- October 28th *(11 Instructional Days)*	**FROM GRADE 3 Textbook - Chapter 5: Multiplication** **Unit 1: Working with Whole Numbers**	**11**
October 31st - December 2nd *(21 Instructional Days)*	**Chapter 2: Multiplication and Division** **Unit 1: Working with Whole Numbers**	**21**
December 5th - January 31st *(33 Instructional Days)*	**Chapter 3 Fractions and Mixed Numbers** **Unit 2: Fractions and Decimals**	**33**
February 1st - February 22nd *(15 Instructional Days)*	**Chapter 4: Decimals** **Unit 2: Fractions and Decimals**	**15**
February 23rd - March 16th *(15 Instructional Days)*	**Chapter 5: Conversion of Measurements** **Unit 3: Measurement and Data**	**15**
March 17th- March 31st *(9 Instructional Days)*	**Chapter 6: Area and Perimeter** **Unit 3: Measurement and Data**	**9**
April 3rd -April 25th *(11 Instructional Days)*	**Chapter 7: Angles and Line Segments** **Unit 4: Measurement and Data (7.1 - 74)** **Unit 4: Geometry (7.5 (and 12.2 from Grade 3)**	**11**
April 26th - May 5th *(8 Instructional Days)*	**Chapter 8: Polygons and Symmetry** **Unit 4: Geometry**	**8**
May 8th - May12th *(5 Instructional Days)*	**NJSLA TEST PREP - Types of questions, word problems per unit and skill**	**5**
May 18th - June 6th *(11 Instructional Days)*	**Chapter 3: Review of Fractions; then apply this to: Multiplying Fractions, Dividing Fractions using models (5th grade)**	**11**

	Unit 2: Fractions and Decimals **Unit 2: Numbers and Operations - Fractions**- 5th grade	
June 7th - June 23rd *(13 Instructional Days)*	**Review of 4th grade Decimals, then: Decimals: Comparing, Rounding, Estimating 5th Grade - Ch 4** **Unit 2: Fractions and Decimals** **Unit 1: Numbers and Operations in Base Ten** - 5th grade	**13**

Math	**Grade: 4th**
Unit 1: Working with Whole Numbers Students generalize their understanding of place value to 1,000,000, understanding the relative sizes of numbers in each place. They apply their understanding of models for multiplication (equal-sized groups, arrays, area models), place value, and properties of operations, in particular the distributive property, as they develop, discuss, and use efficient, accurate, and generalizable methods to compute products of multi-digit whole numbers. Depending on the numbers and the context, they select and accurately apply appropriate methods to estimate or mentally calculate products. They develop fluency with efficient procedures for multiplying whole numbers; understand and explain why the procedures work based on place value and properties of operations; and use them to solve problems. Students apply their understanding of models for division, place value, properties of operations, and the relationship of division to multiplication as they develop, discuss, and use efficient, accurate, and generalizable procedures to find quotients involving multi-digit dividends. They select and accurately apply appropriate methods to estimate and mentally calculate quotients, and interpret remainders based upon the context. To understand place value is to understand the structure and sequence of our base-ten number system. As students count, interpret the values of written and spoken numbers, decide which number is larger or smaller, and explore relationships among numbers, they are developing a picture of our number system. (Kliman, 2000) Because operations with numbers such as tens and hundreds make for simple calculations, place value plays a critical role throughout the grades in the development of computation strategies. (Kliman, 2000) A firm grounding in the big picture of how operations with numbers interrelate and how they are vital tools in life can help students build the positive attitudes that will help them become confident, efficient, and effective problem-solvers (McConnell, 2011) Algebraic thinking develops problem-solving skills. Students must analyze what they know and don't know about a problem, determine a method for finding solutions, and check results for accuracy. Algebra provides students with resources for dealing with real-world situations in a "systematic, analytic manner." (McConnell, 2011) Kliman/TERC, Marlene. "How Do Students Build an Understanding of Place Value in Investigations?" Welcome to Investigations. TERC, Jan. 2000. Web. 20 June 2012. <http://investigations.terc.edu/library/curric-math/qa-1ed/place_value.cfm>.	
NJ Student Learning Standards	
4.NBT.A.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*	

4.NBT.A.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
4.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place.
4.NBT.A.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.
4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
4.NBT.B.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
4.OA.A.1 Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
4.OA.A.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
4.OA.B.4 Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.
4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

Enduring Understandings/Goals	**Essential Questions**
• The use and manipulation of symbols and expressions provide a variety of representations for solving problems and expressing mathematical concepts, relationships, and reasoning. (Hess, 2010) • Understandings of number – "how many" or "how much" – and number types extend applications of arithmetic properties, operations, and number systems and guide the use of computational strategies and algorithms (Hess, 2010) • Patterns, relations, and functions are used to represent and analyze change in various contexts, make predictions and generalizations, and provide models and explanations for real-world phenomena. (Hess, 2010) Hess, Karin K., (Ed.) December 2010. *Learning Progressions Frameworks Designed for Use with the Common Core State Standards in Mathematics K-12.* National Alternate Assessment Center at the University of Kentucky and the National Center for the Improvement of Educational Assessment, Dover, N.H. (updated – v.3)	• How can numbers be manipulated? • How can mathematics help us make sense of the world around us? • How can we show how numbers are related to each other? • How can change be represented mathematically? • How can patterns help in making predictions and solve problems? • When do people estimate in real life? • What is the difference between guessing and estimating? • How do we know where to begin solving a problem? • What tools or skills are needed to effectively compute with numbers? • How can we use algebra to solve real-world problems? McConnell, Carolyn. *The Essential Questions Handbook*. New York: Scholastic, 2011. Print.

Chapters	**Lessons**

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Chapter 1: Working with Whole Numbers	Recall Prior Knowledge 1.1 Numbers to 100,000 1.2 Numbers to 1,000,000 1.3 Comparing and Ordering Numbers 1.4 Adding and Subtracting Multi-Digit Numbers Fluently 1.5 Rounding and Estimating 1.6 Real World Problems: Addition and Subtraction Chapter Wrap Up, Chapter Review, Performance Task Chapter Assessment
***FROM GRADE 3 - Chapter 5: Multiplication**	Recall Prior Knowledge 5.1 Multiplying Using Models 5.2 Multop;lying Without Regrouping 5.3 Multiplying With Regrouping Chapter Wrap Up, Chapter Review, Performance Task Chapter Assessment
Chapter 2: Multiplication and Division	Recall Prior Knowledge 2.1 Multiplying by a One Digit Number or a Two Digit Number 2.2 Quotient and Remainder 2.3 Dividing by a One-Digit Number 2.4 Real World Problems - Multiplication and Division 2.5 Factors 2.6 Multiples 2.7 Real World Problems: The Four Operations Chapter Wrap Up, Chapter Review, Performance Task Chapter Assessment
Skills (Students will be able to…)	
• Read and write numbers to 100,000 in expanded form, standard form, and word form. • State the place and value of each digit in a 5-digit number. • Read and write numbers to 1,000,000 in standard form, word form, and expanded form. • State the place and value of each digit in a 6-digit number. • Compare and order numbers to 1,000,000. • Identify how much more or less one number is than another. • Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. • Find the rule in a number pattern.	

- Create number patterns.
- Add and subtract multi-digit whole numbers fluently.
- Round numbers to the nearest thousand.
- Estimate sums and differences.
- Decide whether an estimate or an exact answer is needed.
- Use bar models to solve real-world addition and subtraction problems.
- Multiply using array models
- Multiply using area models
- Multiply 3-digit numbers without regrouping
- Multiply 3-digit numbers with regrouping
- Multiply a 4-digit number by a 1-digit number.
- Multiply a 2-digit or 3-digit number by a 2-digit number.
- Estimate products.
- Find the quotient and remainder in a division problem.
- Divide a 2-digit, 3-digit, or 4-digit number by a 1-digit number with or without regrouping and use strategies based on the relationship between multiplication and division.
- Estimate quotients.
- Use bar models to solve real-world multiplication problems
- Use bar models to solve real-world division problems.
- Find the factors pairs of a whole number in the range 1-100
- Find the common factors of two whole numbers.
- Identify prime and composite numbers.
- Find multiples of a whole number
- Recognize that a whole number is a multiple of each of its factors.
- Make multiplication comparisons.
- Find common multiples of two whole numbers
- Use bar models to solve real-world problems involving the four operations.
- Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.
- Represent these problems using equations with a letter standing for the unknown quantity.
- Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

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Evidence of Learning (Assessments)

Formative Assessments:

*The following are administered and done daily for each standard/skill for each section of each chapter:

- Quick Check - online*
- Try*
- Independent Practice - online *
- Exit tickets*
- Untimed skill drills*
- Open-ended questions/Math Journal*
- Communicators- Whiteboard Work*
- Math Station activities (Workshop model work)*
- Small groups/conferencing*
- Practice/homework workbook - Extra Practice and homework*
- Chapter Review - online
- Performance Tasks per chapter
- Chapter Tests
- Fact Fluency Practice/Fact Builder/Writing About Math*

Summative Assessments:

- 4th Grade Math in Focus Chapter Assessments
- 4th Grade Math in Focus Cumulative Reviews
- 4th Grade Math in Focus Mid-Year and End-of-Year Reviews

Benchmark Assessments:

- Initial LinkIt Benchmark: September
- Mid-year LinkIt Benchmark: December
- End of year LinkIt Benchmark: Last week in April
- Math in Focus Beginning of the Year, Mid-Year and End-of-Year Math Assessments

Alternative Assessments:

- G & T Assessments:Sages-2 Screening Assessment for Gifted Elementary: Mathematics/Science Language Arts/Social Studies
- Reasoning

Accommodations and Modifications

Special Education

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- *Subgroup Accommodations and Modifications*
- *Curricular Modifications and Guidance for Students Educated in Special Class Settings*

Differentiation:

- *Preview content and concepts*
- *Behavior management plan*
- *Highlight text*
- *Small group setting*

High-Prep Differentiation:

- *Alternative formative and summative assessments*
- *Guided Reading*
- *Personal agendas*
- *Project-based learning*
- *Problem-based learning*
- *Stations/centers*
- *Tiered activities/assignments*
- *Varying organizers for instructions*

Low-Prep Differentiation:

- *Clubbing activities*
- *Exploration by interest*
- *Flexible groupings*

English Language Learners

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- Unit 1: Curriculum for ELL
- ***Subgroup Accommodations and Modifications***
- Multi-language glossary
- Pupil edition in Spanish
- Vocabulary flash cards

Students at Risk for Failure

- Dyslexia Screener
- PRIM checklist
- Computational Skills Grade Placement Test

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- ***Subgroup Accommodations and Modifications***

Gifted and Talented

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- ***Subgroup Accommodations and Modifications***
- *Math in Focus or Big Ideas G & T Activities*

Students with 504 Plans

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- *Subgroup Accommodations and Modifications*

Core Instructional and Supplemental Materials Professional Resources:

Core Professional Resources:

- Math in Focus Teacher's Edition
- Fourth Grade Math in Focus Manipulatives
- Math in Focus Reteach 4A/4B
- Math in Focus Extra Practice and Homework 4A/4B
- Math in Focus Enrichment 4A/4B - Put on Your Thinking Cap!
- Math in Focus Assessments
- Math in Focus Performance Tasks
- Math in Focus Virtual Manipulatives and paper copies
- Math in Focus Fact Fluency Practice

Supplemental Professional Resources:

- *Math in Focus Curriculum*
- *Denis Sheeran Training Resources*

Core Instructional, Supplemental, Instructional, and Intervention Resources

Core Instructional Resources:

- Math in Focus Teacher's Edition
- Math in Focus Student Textbook 4A/4B - working text
- Math in Focus Extra Practice and Homework 4A/4B
- Math in Focus Enrichment 4A/4B - Put on Your Thinking Cap!
- Math in Focus Reteach 4A/4B
- Math in Focus Performance Tasks
- Math in Focus Virtual Manipulatives and paper copies
- Math in Focus Fact Fluency Practice
- Math in Focus Assessments

Supplemental Resources:

- Math in Focus Student Edition - working text - problem solving questions per skill
- Math in Focus Extra Practice and Homework 4A/4B

• http://www.corestandards.org/Math/Practice/
• https://www.state.nj.us/education/standards/math/Docs/2016NJSLS-M_Grade4.pdf
• *Link to Specific standards questions for NJSLA examples*
• *Link to NJDOE Digital Item Library*
	• Math in Focus Enrichment 4A/4B - Put on Your Thinking Cap!
	• Math in Focus Reteach 4A/4B
	• Math in Focus Performance Tasks
	• **3A - Student Edition,Extra Practice, Enrichment, Reteach, Assessment**
	• Fact Fluency Practice
	• Reflex Math
	• Set of place-value chips per pair
	• 1 set of Place-Value Strips (TR Place-Value Strips) per pair
	• 1 set of base-ten blocks per pair
	• 1 copy of Place-Value Chart (TR01) per student, if required
	• 1 set of counters per pair
	• 1 copy of Array Paper (TR22) per pai
	• 1 copy of Grid Paper (TR11) per pair
	• 1 set of color pencils or crayons per group
	• 1 set of base-ten blocks per pair
	• 1 copy of Place-Value Charts (Thousands,
	• Hundreds, Tens, and Ones) (TR02) per pair
	• 1 copy of Activity Sheets A, B, C with Multiplier
	• Cards 2, 3, and 4 (TR23) per group
	• 1 set of base-ten blocks per pair, per group, or set up as a
	• station or center
	• 1 copy of Place-Value Chart (Thousands, Hundreds, Tens,
	• and Ones) (TR02) per pai
	• 1 10-sided die per group
	• 1 copy of Spinner with Numbers (TR24) per group
	• 1 copy of Game Cards 1 – 4 (TR25)
	• Virtual Manipulatives:
	  ○ Find the Value of the Digits in 6-Digit Numbers
	  ○ Round Numbers Within 10,000 to the Nearest Ten, Hundred, or Thousand
	  ○ Multiply a 3-Digit Number by a 1-Digit Number Using Base-Ten Blocks
	• 3 Act Lessons
	• Robert Kaplinsky Lessons
	• Open Middle - 4th Grade: Numbers & Operations in Base Ten
	• Open Middle - 4th Grade: Operations & Algebraic Thinking
	• Which One Doesn't Belong?
	• Solve Me Puzzles
	• Estimation 180
	• Same or Different
	• Visual Patterns
	• Esti-Mysteries

- 51 Esti-Mysteries
- Splat Math

- ***4th Grade Math Practice Resources/ Links***

Intervention Resources:

- Math in Focus Extra Practice 4A/4B
- Math in Focus Enrichment 4A/4B
- Math in Focus Reteach 4A/4B
- Math in Focus Performance Task
- Chapter Wrap-up and Review
- Fact Fluency Practice
- Reflex Math
- iReady
- Linkit!
- IXL
- Classroom Manipulatives
- Online Manipulatives
- Content from previous grade levels
- Touch Math

Interdisciplinary Connections

- Correlates to the Government/Citizenship/Holocaust/American Values unit in Social Studies.
- Correlates to the Structures & Functions unit in Science.

8.1 Educational Technology
8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
8.1.5.A.4 Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data.
8.1.5.C.1 Engage in online discussions with learners of other cultures to investigate a worldwide issue from multiple perspectives and sources, evaluate findings and present possible solutions, using digital tools and online resources for all steps.
8.1.5.D.1 Understand the need for and use of copyrights.

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming
8.2.5.A.5 Identify how improvement in understanding of materials science impacts technologies.

Integration of Technology through NJSLS

- Listen to books on CDs, tapes, videos or podcasts if available.
- Listen to books on websites (pbskids.org/lions/index.html, storylineonline.net, storyit.com, Elementary Connections Page)
- Use document camera or overhead projector for shared reading of texts.
- Use virtual manipulatives
- Use Think Central
- Use IXL.com

8.2.5.C.1 Collaborate with peers to illustrate components of a designed system. 8.2.5.D.1 Identify and collect information about a problem that can be solved by technology, generate ideas to solve the problem, and identify constraints and trade-offs to be considered.	
Integration of 21st Century Themes	**Media Literacy Integration**
Learning and Innovation Skills: **Critical Thinking & Problem Solving** ● Reason Effectively ● Use Systems Thinking ● Making Judgements and Decisions ● Solve Problems **Communication and Collaboration** ● Communicate Clearly **Life and Career Skills** **Initiative and Self Direction** ● Manage Goals and Time ● Work Independently ● Be Self-directed Learners	● Have students practice skills using IXL ● Students create problems on the tablets and share them with classmates ● Kahn Academy ● Brain Pop
Career Education	**Global Perspectives**
9.1 Personal Finance Literacy 9.1.4.A.1 Explain the difference between a career and a job and identify various jobs in the community and the related earnings. 9.1.4.B.2 Identify age-appropriate financial goals. 9.1.4.B.3 Explain what a budget is and why it is important. 9.1.4.C.1 Explain why people borrow money and the relationship between credit and debit. 9.1.4.E.1 Determine factors that influence consumer decisions related to money. 9.1.4.G.1 Describe how valuable items might be damaged or lost and ways to protect them. **9.2 Career Awareness, Exploration, and Preparation** 9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.	● National Hispanic-Latino Month ● National Disability Employment Awareness Month ● International Dot Day (September 16) ● Week of Respect ● Red Ribbon Week ● National Italian American Heritage Month

Math	**Grade: 4th**
Unit 2: Fractions and Decimals Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., 15/9 = 5/3), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a	

fraction by a whole number. Students develop understandings about the relationship between fractions and their decimal representations.

A firm grounding in the big picture of how operations with numbers interrelate and how they are vital tools in life can help students build the positive attitudes that will help them become confident, efficient, and effective problem-solvers (McConnell, 2011)

Algebraic thinking develops problem-solving skills. Students must analyze what they know and don't know about a problem, determine a method for finding solutions, and check results for accuracy. Algebra provides students with resources for dealing with real-world situations in a "systematic, analytic manner." (McConnell, 2011)

Although students come to the topic of fractions with an understanding of what it means to share, fractions present difficulties for many students. Using their own experiences, students build conceptual knowledge of how numbers relate, how to divide a whole, how to manipulate fractions and how to "express and picture the same quantities in a variety of ways." (McConnell, 2011)

McConnell, Carolyn. *The Essential Questions Handbook*. New York: Scholastic, 2011. Print.

NJ Student Learning Standards

4.NF.A.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
4.NF.A.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.
4.NF.B.3 Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
4.NF.B.3a Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
4.NF.B.3b Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*
4.NF.B.3c Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
4.NF.B.3d Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem
4.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number
4.NF.B.4a Understand a fraction a/b as a multiple of $1/b$. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).*
4.NF.B.4b Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.*
4.NF.B.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*
4.NF.C.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.2 *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*
4.NF.C.6 Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.*
4.NF.C.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.
4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm, mm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*
4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*

4.OA.A.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

Enduring Understandings/Goals	**Essential Questions**
• Students will understand that... • The use and manipulation of symbols and expressions provide a variety of representations for solving problems and expressing mathematical concepts, relationships, and reasoning. (Hess, 2010) • Understandings of number – "how many" or "how much" – and number types extend applications of arithmetic properties, operations, and number systems and guide the use of computational strategies and algorithms. (Hess, 2010) • Measurement attributes, processes, and tools help us quantify, compare, and solve problems involving objects, situations, and events. (Hess, 2010) • Patterns, relations and functions are used to represent and analyze change in various contexts, make predictions and generalizations, and provide models and explanations for real-world phenomena. (Hess, 2010) • Different numbers can have the same value (McConnell, 2011) • Questions are posed and investigated by collecting data or retrieving existing data, and representing, analyzing, and interpreting data. Investigations, inferences, and predictions are used to make critical and informed decisions. (Hess, 2010) McConnell, Carolyn. *The Essential Questions Handbook*. New York: Scholastic, 2011. Print. Hess, Karin K., (Ed.) December 2010. *Learning Progressions Frameworks Designed for Use with the Common Core State Standards in Mathematics K-12.* National Alternate Assessment Center at the University of Kentucky and the National Center for the Improvement of Educational Assessment, Dover, N.H. (updated – v.3)	• How can numbers be manipulated? • How can mathematics help us make sense of the world around us? • How can we show how numbers are related to each other? • How can change be represented mathematically? • How do we know where to begin solving a problem? • What tools or skills are needed to effectively compute with numbers? • How can we use algebra to solve real-world problems? • How can we prove that numbers are both the same and different? • How can pictures help us see how numbers are related? • When is it helpful to break things into parts? • How are fractions and decimals alike and different? • How are fractions and decimals parts of a whole? • How are fractions and decimals used in real-world situations? • How can understanding fractions and decimals make life easier? McConnell, Carolyn. *The Essential Questions Handbook*. New York: Scholastic, 2011. Print.

Chapters	**Lessons**

Chapter 3 Fractions and Mixed Numbers	Recall Prior Knowledge 3.1 Equivalent Fraction 3.2 Comparing and Ordering Fractions 3.3 Adding and Subtracting Like Fractions 3.4 Mixed Numbers 3.5 Improper Fractions 3.6 Renaming Improper Fractions and Mixed Numbers 3.7 Adding and Subtracting Mixed Numbers 3.8 Multiplying Fractions and Whole Numbers 3.9 Real World Problems: Fractions Chapter Wrap Up, Chapter Review, Performance Task Chapter Assessment
Chapter 4: Decimals	Recall Prior Knowledge 4.1 Understanding Tenths 4.2 Understanding Hundredths 4.3 Comparing and Ordering Decimals 4.4 Rounding Decimals 4.5 Fractions and Decimals Chapter Wrap Up, Chapter Review, Performance Task Chapter Assessment

Skills (Students will be able to…)

- Use multiplication and division to find equivalent fractions and use visual fraction models
- Write a fraction in simplest form
- Use equivalent fractions to compare unlike fractions.
- Use benchmark fractions to compare unlike fractions.
- Compare and order fractions.
- Add like fractions.
- Subtract like fractions
- Express the sum of a whole number and a proper fraction as a mixed number.
- Interpret pictorial representations of mixed numbers.
- Write the fractional part of a mixed number in simplest form.
- Use a number line to identify mixed numbers.
- Interpret pictorial representations of improper fractions.
- Write an improper fraction in simplest form.

- Use a number line to identify improper fractions.
- Write an improper fraction as a mixed number
- Write a mixed number as an improper fraction.
- Add mixed numbers with like denominators.
- Subtract mixed numbers with like denominators.
- Represent a fraction as a multiple of a unit fraction.
- Multiply a whole number and a fraction, and relate the product to a multiple of a unit fraction.
- Solve real-world problems involving adding and subtracting like fractions.
- Solve real-world problems by adding and subtracting like fractions using data in a line plot.
- Solve real-world problems involving multiplying whole numbers and fractions.
- Read and write tenths in decimal form.
- Read and write hundredths in decimal form.
- Compare and order decimals.
- Complete number patterns.
- Round decimals to the nearest whole number or tenths place.
- Express a fraction as a decimal and a decimal as a fraction
- Add tenths and hundredths.

Evidence of Learning (Assessments)	Accommodations and Modifications

Formative Assessments:

*The following are administered and done daily for each standard/skill for each section of each chapter:

- Quick Check - online*
- Try*
- Independent Practice - online *
- Exit tickets*
- Untimed skill drills*
- Open-ended questions/Math Journal*
- Communicators- Whiteboard Work*
- Math Station activities (Workshop model work)*
- Small groups/conferencing*

Special Education

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- *Subgroup Accommodations and Modifications*
- *Curricular Modifications and Guidance for Students Educated in Special Class Settings*

Differentiation:

- *Preview content and concepts*
- *Behavior management plan*
- *Highlight text*
- *Small group setting*

High-Prep Differentiation:

- *Alternative formative and summative assessments*
- *Guided Reading*

- Practice/homework workbook - Extra Practice and homework*
- Chapter Review - online
- Performance Tasks per chapter
- Chapter Tests
- Fact Fluency Practice/Fact Builder/Writing About Math*

Summative Assessments:

- 4th Grade Math in Focus Chapter Assessments
- 4th Grade Math in Focus Cumulative Reviews
- 4th Grade Math in Focus Mid-Year and End-of-Year Reviews

Benchmark Assessments:

- Initial LinkIt Benchmark: September
- Mid-year LinkIt Benchmark: December
- End of year LinkIt Benchmark: Last week in April
- Math in Focus Beginning of the Year, Mid-Year and End-of-Year Math Assessments

Alternative Assessments:

- G & T Assessments:Sages-2 Screening Assessment for Gifted Elementary: Mathematics/Science Language Arts/Social Studies
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- Dyslexia Screener
- PRIM checklist
- Computational Skills Grade Placement Test

- *Personal agendas*
- *Project-based learning*
- *Problem-based learning*
- *Stations/centers*
- *Tiered activities/assignments*
- *Varying organizers for instructions*

Low-Prep Differentiation:

- *Clubbing activities*
- *Exploration by interest*
- *Flexible groupings*

English Language Learners

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- Unit 1: Curriculum for ELL
- ***Subgroup Accommodations and Modifications***
- Multi-language glossary
- Pupil edition in Spanish
- Vocabulary flash cards

Students at Risk for Failure

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- ***Subgroup Accommodations and Modifications***

Gifted and Talented

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- ***Subgroup Accommodations and Modifications***
- *Math in Focus or Big Ideas G & T Activities*

Students with 504 Plans

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- *Subgroup Accommodations and Modifications*

Table of Contents

Core Instructional and Supplemental Materials Professional Resources:	Core Instructional, Supplemental, Instructional, and Intervention Resources

Core Professional Resources:

- Math in Focus Teacher's Edition
- Fourth Grade Math in Focus Manipulatives
- Math in Focus Reteach 4A/4B
- Math in Focus Extra Practice and Homework 4A/4B
- Math in Focus Enrichment 4A/4B - Put on Your Thinking Cap!
- Math in Focus Assessments
- Math in Focus Performance Tasks
- Math in Focus Virtual Manipulatives and paper copies
- Math in Focus Fact Fluency Practice

Supplemental Professional Resources:

- *Math in Focus Curriculum*
- *Denis Sheeran Training Resources*
- http://www.corestandards.org/Math/Practice/
- https://www.state.nj.us/education/standards/math/Docs/2016NJSLS-M_Grade4.pdf
- *Link to Specific standards questions for NJSLA examples*
- *Link to NJDOE Digital Item Library*

Core Instructional Resources:

- Math in Focus Teacher's Edition
- Math in Focus Student Textbook 4A/4B - working text
- Math in Focus Extra Practice and Homework 4A/4B
- Math in Focus Enrichment 4A/4B - Put on Your Thinking Cap!
- Math in Focus Reteach 4A/4B
- Math in Focus Performance Tasks
- Math in Focus Virtual Manipulatives and paper copies
- Math in Focus Fact Fluency Practice
- Math in Focus Assessments

Supplemental Resources:

- Math in Focus Student Edition - working text - problem solving questions per skill
- Math in Focus Extra Practice and Homework 4A/4B
- Math in Focus Enrichment 4A/4B - Put on Your Thinking Cap!
- Math in Focus Reteach 4A/4B
- Math in Focus Performance Tasks
- Fact Fluency Practice
- Reflex Math
- 1 set of fraction tiles per pair
- 1 set of fraction circles per pair
- 1 set of Equivalent Fraction Game Cards (TR06) per group
- Strips of paper for each student
- 1 copy of number lines on SE p. 245 per student
- 1 number cube (6-sided die) per group
- 1 copy of Fraction Game Cards (TR07) per group of 4 students
- 1 copy of Decimal Place-Value Chart (TR09) per student
- 1 set of place-value chips per pair
- 2 copies of Bar Models of 10 and Hundred Square Grids (TR08) per studen
- 1 copy of Blank Number Lines (Tenths) (TR11) when required
- 1 set of 20 counters per student, when required
- 1 copy of Bar Models of 10 and Hundred Square Grid (TR08) per pair
- 1 copy of decimal cards (TR13)
- 1 copy of fraction cards (TR14)

- **Virtual Manipulatives:**
  - Compare Proper Fractions Using Bar Models
  - Represent and Compare Fractions and Mixed Numbers on a Number Line
  - Represent Mixed Numbers or Improper Fractions Using Fraction Models
  - Find the Value of the Digits in 1-Place Decimals
  - Represent a 2-Place Decimal Less Than or Equal to One Whole Using a Square Grid
  - Represent a 2-Place Decimal Greater Than One Whole Using a Square Grid
  - Find the Value of the Digits in 2-Place Decimals
- **Mini Games - Math In Focus:**
  - Chapter 3: Pete the Plumber: Fractions and Mixed Numbers (G4)
  - Chapter 4: Maze: Decimals (G4)
- 3 Act Lessons
- Robert Kaplinsky Lessons
- Open Middle - 4th Grade: Numbers & Operations - Fractions
- Which One Doesn't Belong?
- Solve Me Puzzles
- Estimation 180
- Same or Different
- Visual Patterns
- Esti-Mysteries
- 51 Esti-Mysteries
- Splat Math
- ***4th Grade Math Practice Resources/ Links***

Intervention Resources:

- Math in Focus Extra Practice 4A/4B
- Math in Focus Enrichment 4A/4B
- Math in Focus Reteach 4A/4B
- Math in Focus Performance Task
- Chapter Wrap-up and Review
- Fact Fluency Practice
- Reflex Math
- iReady
- Linkit!
- IXL
- Classroom Manipulatives
- Online Manipulatives
- Content from previous grade levels

	• Touch Math
Interdisciplinary Connections	**Integration of Technology through NJSLS**
• Correlates to the New Jersey History unit in Social Studies. • Correlates to the Transfer of Energy unit in Science. **8.1 Educational Technology** 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. 8.1.5.C.3 Research how design modifications have led to new products. 8.1.5.D.2 Evaluate and test alternative solutions to a problem using the constraints and trade-offs identified in the design process to evaluate potential solutions. **8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming** 8.2.5.A.1 Compare and contrast how products made in nature differ from products that are human made in how they are produced and used. 8.2.5.D.3 Follow step by step directions to assemble a product or solve a problem. 8.2.5.E.1 Identify how computer programming impacts our everyday lives.	• Listen to books on CDs, tapes, videos or podcasts if available. • Listen to books on websites (pbskids.org/lions/index.html, storylineonline.net, storyit.com, Elementary Connections Page) • Use document camera or overhead projector for shared reading of texts. • Use virtual manipulatives • Use Think Central • Use IXL.com
Integration of 21st Century Themes	**Media Literacy Integration**
Learning and Innovation Skills: **Critical Thinking & Problem Solving** • Reason Effectively • Use Systems Thinking • Making Judgements and Decisions • Solve Problems **Communication and Collaboration** • Communicate Clearly **Life and Career Skills** **Initiative and Self Direction** • Manage Goals and Time • Work Independently • Be Self-directed Learners	• Have students practice skills using IXL • Students create problems on the tablets and share them with classmates • Kahn Academy • Brain Pop
Career Education	**Global Perspectives**
9.1 Personal Finance Literacy 9.1.4.B.5 Identify ways to earn and save.	• Red Ribbon Week • National Italian American Heritage Month • National American Indian Heritage Month

9.1.4.C.3 Compare and contrast credit cards and debit cards and the advantages and disadvantages of using each. 9.1.4.C.4 Determine the relationships among income, expenses, and interest. 9.1.4.C.5 Determine personal responsibility related to borrowing and lending. 9.1.4.D.3 Distinguish between saving and investing. 9.1.4.E.1 Determine factors that influence consumer decisions related to money. **9.2 Career Awareness, Exploration, and Preparation** 9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.	

Math	**Grade: 4th**

Unit 3: Measurement and Data

In unit 3 students convert units of measurement from larger units to smaller units, then calculate areas and perimeters of squares, rectangles, and composite figures.

Algebraic thinking develops problem-solving skills. Students must analyze what they know and don't know about a problem, determine a method for finding solutions, and check results for accuracy. Algebra provides students with resources for dealing with real-world situations in a "systematic, analytic manner." (McConnell, 2011)

Estimation is important in many real-world applications of math, as well as an important strategy for judging the reasonableness of answers and catching errors in computation. (McConnell, 2011)

An accurate and consistent system of measurement is a foundation of our economy and necessary for interaction with others around the globe. Systems of measurement facilitate communication in all aspects of life. (McConnell, 2011)

Manipulating and displaying data requires students to apply their knowledge of "reasoning, modeling, working with patterns, precise calculating, problem solving, and communicating." Data and the resulting statistics help to explain and predict real-world events. (McConnell, 2011)

McConnell, Carolyn. *The Essential Questions Handbook*. New York: Scholastic, 2011. Print.

NJ Student Learning Standards

4.NF.B.3c Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
4.NF.B.4b Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 x (2/5) as 6 x (1/5), recognizing this product as 6/5. (In general, n x (a/b) = (n x a)/b).*

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

Enduring Understandings/Goals	**Essential Questions**
Students will understand that... • The use and manipulation of symbols and expressions provide a variety of representations for solving problems and expressing mathematical concepts, relationships, and reasoning. (Hess, 2010) • Understandings of number – "how many" or "how much" – and number types extend applications of arithmetic properties, operations, and number systems and guide the use of computational strategies and algorithms (Hess, 2010) • Patterns, relations, and functions are used to represent and analyze change in various contexts, make predictions and generalizations, and provide models and explanations for real-world phenomena (Hess, 2010) • Measurement attributes, processes, and tools help us quantify, compare, and solve problems involving objects, situations, and events. (Hess, 2010) • Questions are posed and investigated by collecting data or retrieving existing data, and representing, analyzing, and interpreting data. Investigations, inferences, and predictions are used to make critical and informed decisions. (Hess, 2010) Hess, Karin K., (Ed.) December 2010. *Learning Progressions Frameworks Designed for Use with the Common Core State Standards in Mathematics K-12.* National Alternate Assessment Center at the University of Kentucky and the National Center	• **How can numbers be manipulated?** • **How can mathematics help us make sense of the world around us?** • **How can we show how numbers are related to each other?** • **How can change be represented mathematically?** • **How do we know where to begin solving a problem?** • **What tools or skills are needed to effectively compute with numbers?** • **How can we use algebra to solve real-world problems?** • **How are fractions used in real-world situations?** • **How do mathematical operations relate to fractions?** • **Why should answers in mathematics make sense?** • **Why is measurement important?** • **Why do we need standard units of measurement?** • **Why do we convert units of measurement?** • **How do measurements help us compare objects?** • **What types of problems are solved with measurements?** • **How do we choose the best unit of measurement to use?** • **How precise must measurement be?** • **Why and how do we sort information?** • **What are some ways to organize data?**

for the Improvement of Educational Assessment, Dover, N.H. (updated – v.3)	• **When is it necessary to communicate and justify information?** • **What kinds of problems can be solved with data analysis?** McConnell, Carolyn. *The Essential Questions Handbook*. New York: Scholastic, 2011. Print.

Chapters	**Lessons**
Chapter 5: Conversion of Measurements	Recall Prior Knowledge 5.1 Length in Customary Units 5.2 Weight and Volume in Customary Units 5.3 Real-World Problems: Customary Units of Measure 5.4 Length in Metric Units 5.5 Mass and Volume in Metric Units 5.6 Real-World Problems: Metric Units of Measure *** 10.2: From Grade 3: Converting Hours and Minutes** 5.7 Time Chapter Wrap Up, Chapter Review, Performance Task Chapter Assessment
Chapter 6: Area and Perimeter	Recall Prior Knowledge 6.1 Area and Unknown Sides 6.2 Composite Figures 6.3 Real World Problems: Area and Perimeter Chapter Wrap Up, Chapter Review, Performance Task Chapter Assessment
Chapter 7: Angles and Line Segments	Recall Prior Knowledge ***From Grade 3: 12.1: Introducing Angles** 7.1 Understanding and Measuring Angles 7.2 Drawing Angles to 180° 7.3 Turns and Angle Measures 7.4 Find Unknown Angles Chapter Wrap Up, Chapter Review, Performance Task Chapter Assessment
Skills (Students will be able to…)	
• Measure and estimate length in customary units.	

- Convert between different units of measurement of length.
- Estimate and measure weight and volume in customary units.
- Read scales in customary units.
- Convert between different units of measurement of weight and volume.
- Draw bar models to solve real-world problems involving customary units of measure.
- Measure and estimate lengths in metric units.
- Convert between different units of measurement of length in metric units.
- Convert between different units of measurement of mass and volume in metric units.
- Draw bar models to solve real-world problems involving metric units of measure.
- Measure time in seconds.
- Convert units of time.
- Convert hours and minutes to minutes and vice versa.
- Read and tell time using the 24-hour clock.
- Solve real-world problems involving time.
- Find the perimeter and area of a rectangle or square using a formula.
- Find the unknown side of a rectangle or square given its perimeter and one known side.
- Find the unknown side of a rectangle or square given its area and one known side.
- Find the perimeter of a composite figure.
- Find the area of a composite figure.
- Solve real-world problems involving area and perimeter of composite figures.
- Find angles in plane figures and real-world objects.
- Compare angles to a right angle.
- Identify and name angles.
- Estimate and measure angles.
- Use a protractor to draw angles to 180°.
- Relate ¼ ,½, ,¾ full turns to the number of right angles (90°)
- Understand what an angle measure of 1° represents.
- Use addition or subtraction to find unknown angle measures.
- Solve real-world problems by finding unknown angle measures.

Evidence of Learning (Assessments)	Accommodations and Modifications

Table of Contents

Formative Assessments:

*The following are administered and done for each standard/skill for each section of each chapter:

- Quick Check - online*
- Try*
- Independent Practice - online *
- Exit tickets*
- Untimed skill drills*
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- Math Station activities (Workshop model work)*
- Small groups/conferencing*
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- Chapter Review - online
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- Chapter Tests
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- 4th Grade Math in Focus Cumulative Reviews
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- Mid-year LinkIt Benchmark: December
- End of year LinkIt Benchmark: Last week in April
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- Dyslexia Screener
- PRIM checklist
- Computational Skills Grade Placement Test

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- *Curricular Modifications and Guidance for Students Educated in Special Class Settings*

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- *Clubbing activities*
- *Exploration by interest*
- *Flexible groupings*

English Language Learners

Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
Unit 1: Curriculum for ELL
Subgroup Accommodations and Modifications
Multi-language glossary
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Vocabulary flash cards

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	• Math in Focus Performance Tasks
	• Fact Fluency Practice
	• Reflex Math
	• 1 meter ruler
	• 1 centimeter ruler per student
	• 1 inch ruler per student
	• measuring tape with inches and feet for teacher-led instruction
	• 1 yardstick
	• 1 kilogram scale per table group
	• 1 set of balance scales and weights or common classroom items, such as paper clips, per pair
	• 1 marble per pair
	• 1 customary platform scale for demonstration
	• 1 set of square counters per pair
	• 3 copies of Centimeter Square Grid Paper (TR15)
	• 1 copy of Dot Paper Geoboards (TR16)
	• 1 geoboard with rubber bands
	• 1 copy of Composite Figure Cut-Outs (TR17)
	• 1 protractor per student
	• Paper Strips for Angles (TR18) per pair
	• 1 large teaching protractor, for teacher-led instructions
	• 1 copy of Measuring Angles (TR19) per student
	• 1 copy of Centimeter Square Grid Paper (TR15) per pair
	• 1 copy of Paper Strips for Angles (TR18) per pair
	• 1 copy of Angle Circles (TR20) per student
	• 1 student clock per pair
	• 1 copy of Time Cards (TR44) per group
	• 1 copy of Bingo Board (TR45) per group
	• Virtual Manipulative:
	  ○ AM/PM Clock
	  ○ Measure Angles Using a Protractor
	• Mini Game:
	  ○ Chapter 5: Maze: Conversion of Measurements (G4)
	
	• 3 Act Lessons
	• Robert Kaplinsky Lessons
	• Open Middle - 4th Grade: Numbers & Operations - Fractions
	• Which One Doesn't Belong?
	• Solve Me Puzzles
	• Estimation 180
	• Same or Different
	• Visual Patterns

- Esti-Mysteries
- 51 Esti-Mysteries
- Splat Math
- ***4th Grade Math Practice Resources/ Links***

Intervention Resources:

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- Math in Focus Enrichment 4A/4B
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- Reflex Math
- iReady
- Linkit!
- IXL
- Classroom Manipulatives
- Online Manipulatives
- Content from previous grade levels
- Touch Math

Interdisciplinary Connections

- Correlates to the Geography and Immigration & Diversity units in Social Studies.
- Correlates to the Weathering & Erosion unit in Science.

8.1 Educational Technology

8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.
8.1.5.A.6 Export data from a database into a spreadsheet; analyze a produce a report that explains the analysis of the data.
8.1.5.C.1 Engage in online discussions with learners of other cultures to investigate a worldwide issue from multiple perspectives and sources, evaluate findings and present possible solutions, using digital tools and online resources for all steps.
8.1.5.D.3 Demonstrate an understanding of the need to practice cyber safety, cyber security, and cyber ethics when using technologies and social media.

8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming

8.2.5.A.3 Investigate and present factors that influence the development and function of products and systems, e.g., resources, criteria and constraints.

Integration of Technology through NJSLS

- Listen to books on CDs, tapes, videos or podcasts if available.
- Listen to books on websites (pbskids.org/lions/index.html, storylineonline.net, storyit.com, Elementary Connections Page)
- Use document camera or overhead projector for shared reading of texts.
- Use virtual manipulatives
- Use Think Central
- Use IXL.com

8.2.5.B.6 Compare and discuss how technologies have influenced history in the past century. 8.2.5.C.5 Explain the functions of a system and subsystems. 8.2.5.C.7 Work with peers to redesign an existing product for a different purpose.	
Integration of 21st Century Themes	**Media Literacy Integration**
<u>Learning and Innovation Skills:</u> **Critical Thinking & Problem Solving** ● Reason Effectively ● Use Systems Thinking ● Making Judgements and Decisions ● Solve Problems **Communication and Collaboration** ● Communicate Clearly **<u>Life and Career Skills</u>** **Initiative and Self Direction** ● Manage Goals and Time ● Work Independently ● Be Self-directed Learners	● Have students practice skills using IXL ● Students create problems on the tablets and share them with classmates ● Kahn Academy ● Brain Pop
Career Education	**Global Perspectives**
	●

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Math	Grade: 4th

Unit 4: Geometry -

Students draw and identify lines and angles, and classify shapes by properties of their lines and angles.

Students will identify and draw lines of symmetry, and create symmetric shapes and patterns.

Geometric shapes are essential to many facets of our lives, from art to architecture. Learning the mathematical principles that are the basis for "creating, describing, classifying, and manipulating shapes can open up a new world for students." (McConnell, 2011, pg 82).

McConnell, Carolyn. *The Essential Questions Handbook*. New York: Scholastic, 2011. Print.

NJ Student Learning Standards

4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
4.G.A.2 Classify two-dimensional figures based on presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.
4.OA.B.4 Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.
4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

Enduring Understandings/Goals	Essential Questions
• Visualizations, spatial reasoning, and properties of two- and three-dimensional figures can be used to analyze, represent, and model geometric concepts and relationships. (Hess, 2010) • Patterns, relations, and functions are used to represent and analyze change in various contexts, make predictions and generalizations, and provide models and explanations for real-world phenomena (Hess, 2010) Hess, Karin K., (Ed.) December 2010. *Learning Progressions Frameworks Designed for Use with the Common Core State Standards in Mathematics K-12.* National Alternate Assessment Center at the University of Kentucky and the National Center for the Improvement of Educational Assessment, Dover, N.H. (updated – v.3)	• **How do we know where to begin solving a problem?** • **How do we use geometry to make sense of the world?** • **What are the ways to describe shapes?** • **How can objects be compared using descriptors from geometry?** • **Why is it important to be able to describe and name geometric shapes?** • **How do geometric shapes help us solve problems and make sense of the world?** McConnell, Carolyn. *The Essential Questions Handbook*. New York: Scholastic, 2011. Print.

Chapters	Lessons

Chapter 7: Angles and Line Segments	Recall Prior Knowledge ***From Grade 3 – 12.2 Introducing Perpendicular and Parallel Lines** 7.5 Drawing Perpendicular and Parallel Line Segments Wrap Up, Review, Performance Task Assessment
Chapter 8: Polygons and Symmetry	Recall Prior Knowledge 8.1 Classifying Triangles 8.2 Classifying Polygons 8.3 Symmetric Shapes and Lines of Symmetry 8.4 Making Symmetric Shapes and Patterns Chapter Wrap Up, Chapter Review, Performance Task Chapter Assessment

Skills (Students will be able to…)

- Define and identify perpendicular lines.
- Define and identify parallel lines
- Draw perpendicular line segments.
- Draw parallel line segments.
- Classify triangles by their angle measures.
- Classify quadrilaterals by their properties.
- Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines and identify these in two-dimensional figures.
- Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size.
- Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.
- Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.
- Represent these problems using equations with a letter standing for the unknown quantity.
- Identify symmetric shapes.
- Identify a line of symmetry of a figure.
- Draw lines of symmetry of a figure.
- Complete a symmetric shape or pattern.
- Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts.

Table of Contents

Evidence of Learning (Assessments)	Accommodations and Modifications

Formative Assessments:

*The following are administered and done for each standard/skill for each section of each chapter:

- Quick Check - online*
- Try*
- Independent Practice - online *
- Exit tickets*
- Untimed skill drills*
- Open-ended questions/Math Journal*
- Communicators- Whiteboard Work*
- Math Station activities (Workshop model work)*
- Small groups/conferencing*
- Practice/homework workbook - Extra Practice and homework*
- Chapter Review - online
- Performance Tasks per chapter
- Chapter Tests
- Fact Fluency Practice/Fact Builder/Writing About Math

Summative Assessments:

- 4th Grade Math in Focus Chapter Assessments
- 4th Grade Math in Focus Cumulative Reviews
- 4th Grade Math in Focus Mid-Year and End-of-Year Reviews

Benchmark Assessments:

- Initial LinkIt Benchmark: September
- Mid-year LinkIt Benchmark: December
- End of year LinkIt Benchmark: Last week in April
- Math in Focus Beginning of the Year, Mid-Year and End-of-Year Math Assessments

Alternative Assessments:

- G & T Assessments:Sages-2 Screening Assessment for Gifted Elementary:

Special Education

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- *Subgroup Accommodations and Modifications*
- *Curricular Modifications and Guidance for Students Educated in Special Class Settings*

Differentiation:

- *Preview content and concepts*
- *Behavior management plan*
- *Highlight text*
- *Small group setting*

High-Prep Differentiation:

- *Alternative formative and summative assessments*
- *Guided Reading*
- *Personal agendas*
- *Project-based learning*
- *Problem-based learning*
- *Stations/centers*
- *Tiered activities/assignments*
- *Varying organizers for instructions*

Low-Prep Differentiation:

- *Clubbing activities*
- *Exploration by interest*
- *Flexible groupings*

English Language Learners

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- Unit 1: Curriculum for ELL
- ***Subgroup Accommodations and Modifications***
- Multi-language glossary
- Pupil edition in Spanish
- Vocabulary flash cards

Students at Risk for Failure

Mathematics/Science Language Arts/Social Studies
- Reasoning
- Dyslexia Screener
- PRIM checklist
- Computational Skills Grade Placement Test

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- ***Subgroup Accommodations and Modifications***

Gifted and Talented

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- ***Subgroup Accommodations and Modifications***
- *Math in Focus or Big Ideas G & T Activities*

Students with 504 Plans

- Differentiation for All Students (Special Needs, ESL, Gifted Learners, & Mainstream Learners)
- *Subgroup Accommodations and Modifications*

Core Instructional and Supplemental Materials Professional Resources:

Core Professional Resources:

- Math in Focus Teacher's Edition
- Fourth Grade Math in Focus Manipulatives
- Math in Focus Reteach 4A/4B
- Math in Focus Extra Practice and Homework 4A/4B
- Math in Focus Enrichment 4A/4B - Put on Your Thinking Cap!
- Math in Focus Assessments
- Math in Focus Performance Tasks
- Math in Focus Virtual Manipulatives and paper copies
- Math in Focus Fact Fluency Practice

Supplemental Professional Resources:

- *Math in Focus Curriculum*
- *Denis Sheeran Training Resources*
- http://www.corestandards.org/Math/Practice/

Core Instructional, Supplemental, Instructional, and Intervention Resources

Core Instructional Resources:

- Math in Focus Teacher's Edition
- Math in Focus Student Textbook 4A/4B - working text
- Math in Focus Extra Practice and Homework 4A/4B
- Math in Focus Enrichment 4A/4B - Put on Your Thinking Cap!
- Math in Focus Reteach 4A/4B
- Math in Focus Performance Tasks
- Math in Focus Virtual Manipulatives and paper copies
- Math in Focus Fact Fluency Practice
- Math in Focus Assessments

Supplemental Resources:

- Math in Focus Student Edition - working text - problem solving questions per skill
- Math in Focus Extra Practice and Homework 4A/4B

- https://www.state.nj.us/education/standards/math/Docs/2016NJSLS-M_Grade4.pdf
- *Link to Specific standards questions for NJSLA examples*
- *Link to NJDOE Digital Item Library*

- Math in Focus Enrichment 4A/4B - Put on Your Thinking Cap!
- Math in Focus Reteach 4A/4B
- Math in Focus Performance Tasks
- Fact Fluency Practice
- Reflex Math
- 1 copy of Polygon Cut-Outs (TR21) per pair
- 1 copy of Quadrilateral Cut-Outs (TR22) per pair
- 1 ruler per student
- 1 copy of Figure Cut-Outs (TR23) per pair
- 2 pieces of paper for tracing shapes per student
- 1 copy of Determining Symmetry (TR24) per pair
- 1 copy of Hexagon Cut-Outs (TR25) per student
- 1 copy of Dot Paper (TR26) per student
- 1 copy of Square and Rectangle Cut-Outs (TR027) per pair
- 1 copy of Alphabet Cards (TR28) per group of 3 students
- 1 mirror for checking symmetry per pair
- 4 colored paper squares per student
- 2 copies of Centimeter Square Grid Paper (TR15)
- 3 Act Lessons
- Robert Kaplinsky Lessons
- Open Middle - 4th Grade: Numbers & Operations - Fractions
- Which One Doesn't Belong?
- Solve Me Puzzles
- Estimation 180
- Same or Different
- Visual Patterns
- Esti-Mysteries
- 51 Esti-Mysteries
- Splat Math
- ***4th Grade Math Practice Resources/ Links***

Intervention Resources:

- Math in Focus Extra Practice 4A/4B
- Math in Focus Enrichment 4A/4B
- Math in Focus Reteach 4A/4B
- Math in Focus Performance Task
- Chapter Wrap-up and Review
- Fact Fluency Practice
- Reflex Math
- iReady
- Linkit!
- IXL

	• Classroom Manipulatives • Online Manipulatives • Content from previous grade levels • Touch Math
Interdisciplinary Connections	**Integration of Technology through NJSLS**
• Correlates to the Geography and Immigration & Diversity units in Social Studies. • Correlates to the Force & Motion and Waves & Information units in Science. **8.1 Educational Technology** 8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. 8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures. 8.1.5.A.5 Create and use a database to answer basic questions 8.1.5.F.1 Apply digital tools to collect, organize, and analyze data that support a scientific finding. **8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming** 8.2.5.A.5 Investigate and present factors that influence the development and function of a product and a system. 8.2.5.C.3 Research how design modifications have led to new products. 8.2.5.D.7 Explain the impact that resources such as energy and materials used in a process to produce products or system have on the environment.	• Listen to books on CDs, tapes, videos or podcasts if available. • Listen to books on websites (pbskids.org/lions/index.html, storylineonline.net, storyit.com, Elementary Connections Page) • Use document camera or overhead projector for shared reading of texts. • Use virtual manipulatives • Use Think Central • Use IXL.com
Integration of 21st Century Themes	**Media Literacy Integration**
Learning and Innovation Skills: **Critical Thinking & Problem Solving** • Reason Effectively • Use Systems Thinking • Making Judgements and Decisions • Solve Problems **Communication and Collaboration** • Communicate Clearly **Life and Career Skills** **Initiative and Self Direction** • Manage Goals and Time • Work Independently • Be Self-directed Learners	• Have students practice skills using IXL • Students create problems on the tablets and share them with classmates • Kahn Academy • Brain Pop

Career Education	Global Perspectives
9.1 Personal Finance Literacy 9.1.4.B.1 Differentiate between financial wants and needs 9.1.4.B.3 Explain what a budget is and why it is important. 9.1.4.D.2 Explain what it means to "invest". 9.1.4.G.1 Describe how valuable items might be damaged or lost and ways to protect them. **9.2 Career Awareness, Exploration, and Preparation** 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community. 9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.	• National Women's History Month • National Irish-American Heritage Month • Asian Pacific American Heritage Month • Older Americans' Month • Jewish American Heritage Month