MOUNT HOLLY TOWNSHIP SCHOOL DISTRICT
FOURTH GRADE MATHEMATICS CURRICULUM

2016 Mathematics Standards with companion June 2020 NJSLS
Board Approval: September 28, 2022

District Administration

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Mrs. Amie Dougherty	Director of Curriculum and Instruction
Mrs. Tifanie Pierce	Director of Special Services
Mrs. Carolyn McDonald	Director of Equity and Student Services
Mr. Daniel Finn	Principal 5-8
Mr. Thomas Braddock	Principal 2-4
Mrs. Nicole Peoples	Principal PreK-2
Mrs. Kinny Nahal	Assist Principal 5-8
Mrs. Evon DiGangi	School Business Administrator

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New Jersey Mathematics Standards:
2016 New Jersey Student Learning Standards - Mathematics

New Jersey Computer Science and Design Thinking Standards
2020 New Jersery Student Learning Standards: Computer Science and Design Thinking

New Jersey Career Readiness, Life Literacies, and Key Skills Standards
2020 New Jersey Student Learning Standards: Career Readiness, Life Literacies & Key Skills

Grade Four Pacing Guide

Mathematics Curriculum	**Grade 4**

Interdisciplinary Connections: The Mathematics Program, My Math/Glencoe Math, links mathematics instruction across multiple disciplines. These interdisciplinary standards are incorporated into each grade level, providing purposeful application and meaningful learning.

Math Discipline	*Connection to other Disciplines*
Domain 1: Numbers and Operations in Base Ten	NJSLSA.R3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text. NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words. NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

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	NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally. NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
Domain 2: Operational and Algebraic Thinking	NJSLSA.R3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text. NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words. NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively. NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally. NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations. 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
Domain 3: Fractions	NJSLSA.R3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text. NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words. NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

	NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally. NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.
Domain 4: Measurement and Data	NJSLSA.R3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text. NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words. NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively. NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally. NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations. 4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.
Domain 5: Geometry	NJSLSA.R3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text. NJSLSA.R7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words. NJSLSA.W1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. NJSLSA.SL1. Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

	NJSLSA.SL2. Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally. NJSLSA.SL5. Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

Computer Science and Design Thinking	
Core Ideas	**Performance Expectations**
Data can be organized, displayed, and presented to highlight relationships.	8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim.
Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.	• 8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data. • 8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim
Different algorithms can achieve the same result. Some algorithms are more appropriate for a specific use than others.	8.1.5.AP.1: Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
Career Readiness, Life Literacies, and Key Skills	
Financial Institutions/Psychology	
Core Ideas	**Performance Expectations**

People can choose to save money in many places such as home in a piggy bank, bank, or credit union.	9.1.5.FI.1: Identify various types of financial institutions and the services they offer including banks, credit unions, and credit card companies.
An individual's financial traits and habits affect his/her finances.	9.1.5.FP.1: Illustrate the impact of financial traits on financial decisions. 9.1.5.FP.2: Identify the elements of being a good steward of money
Spending choices and their intended and unintended consequences impact financial outcomes and personal wellbeing.	9.1.5.FP.3: Analyze how spending choices and decision-making can result in positive or negative consequences. 9.1.5.FP.4: Explain the role of spending money and how it affects wellbeing and happiness (e.g., "happy money," experiences over things, donating to causes, anticipation, etc.)
Planning and Budgeting	
There are specific steps associated with creating a budget.	9.1.5.PB.1: Develop a personal budget and explain how it reflects spending, saving, and charitable contributions.
Saving money can impact an individual's ability to address emergencies and accomplish their short-and long-term goals.	9.1.5.PB.2: Describe choices consumers have with money (e.g., save, spend, donate).
Career Awareness, Exploration, Preparation, and Training	
An individual's passions, aptitude and skills can affect his/her employment and earning potential	9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes. 9.2.5.CAP.2: Identify how you might like to earn an income. 9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations. 9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life

	guards, child care, medicine, education) and examples of these requirements
There are a variety of factors to consider before starting a business	9.2.5.CAP.6: Compare the characteristics of a successful entrepreneur with the traits of successful employees. • 9.2.5.CAP.7: Identify factors to consider before starting a business.
Diversity, Equity, and Inclusion:	
Culturally Responsive Practices in Mathematics Education: **8 Powerful Ways to Promote Equity in the Classroom** **Who Do You Call On? Rooting Out Implicit Bias'** **Why Representation Matters**	
Financial Habits and Traits: Students in Grades 3-4 will evaluate how advertising and marketing techniques influence perceptions and buying decisions. They will analyze what groups are stereotyped in advertisements.	Resources: Learning for Justice: Evaluation Advertising and Marketing Techniques for Racial Bias and Stereotypes The Power of Words Agree/Disagree Statements We Can Do It!

Domain 1: Number and Operations in Base Ten

Chapter 1 - Place Value
Chapter 2 - Add & Subtract Whole Numbers
Chapter 3 - Understand Multiplication & Division
Chapter 4 - Multiply with One-Digit Numbers
Chapter 5 - Multiply with Two-Digit Numbers
Chapter 6 - Divide by a One Digit Number

NJ 2016 Student Learning Standards: Mathematics Grade 4

Number & Operations in Base Ten

4.NBT.1. - Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.

4.NBT.2 - Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.

4.NBT.3 - Use place value understanding to round multi-digit whole numbers to any place

4.NBT.4 - Fluently add and subtract multi-digit whole numbers using the standard algorithm

4.NBT.5 - Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

NJDOE Mathematics Curricular Framework
Guide Document and Supports

Mathematics Curricular Framework

Mathematical Practices

MP. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

highlight appropriate indicators for unit/domain

MP.1. Make sense of problems and persevere in solving them.
MP.2. Reason abstractly and quantitatively.
MP.3. Construct viable arguments and critique the reasoning of others.
MP.4. Model with mathematics.
MP.5. Use appropriate tools strategically.
MP.6. Attend to precision.
MP.7. Look for and make use of structure.
MP.8. Look for and express regularity in repeated reasoning.

4.NBT.6 - Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. **Operations and Algebraic Thinking** 4.OA.1 - Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. 4.OA.2 - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.1 4.OA.3 - Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	• **Chapter 1 - Problem Solving -** Students will learn that the four-step plan can be used as a problem-solving model throughout their study of mathematics. • **Chapter 2 - Critical Thinking: Write 603-248 on the board. Have students use base-ten blocks to model the minuend 603. Tell students to work in pairs to make changes to the place values in the minuend without changing the value of the number that will allow them to find the difference.** • **Chapter 3 - Critical Thinking: Write 16 divided by 4. Students brainstorm different ways to demonstrate the repeated subtraction. Students draw or write about some of their ideas and share them with the class.** • **Chapter 4 - Creativity & Innovation: Students explore simple spreadsheets to create formulas needed to rewrite an expression to check their multiplication** • Chapter 5 - Students create a blog entry for the classroom. Student interact to help one another make their problems more realistic, more difficult, or just have fun with them

	• Chapter 6 - Communication - Students write journal entries on how what they learn in the lessons help them to divide greater numbers in future lessons
Career Readiness, Life Literacies, and Key Skills Integration **NJSLS - CRLLKS 2020** **highlight appropriate indicators for unit/domain** CRLLKS1. Act as a responsible and contributing community members and employee. CRLLKS2. Attend to financial well-being. CRLLKS3. Consider the environmental, social and economic impacts of decisions. CRLLKS4. Demonstrate creativity and innovation. CRLLKS5. Utilize critical thinking to make sense of problems and persevere in solving them CRLLKS6. Model integrity, ethical leadership and effective management. CRLLKS7. Plan education and career paths aligned to personal goals. CRLLKS8. Use technology to enhance productivity increase collaboration and communicate effectively.persevere in solving them. CRLLKS9. Work productively in teams while using cultural/global competence.	**21st Century Student Outcomes** http://www.battelleforkids.org/networks/p21 **Learning and Innovation Skills** **highlight appropriate indicators for unit/domain** Think Creatively Work Creatively with Others Implement Innovations Reason effectively Use Systems Thinking Make Judgments and Decisions Solve Problems Communicate Clearly Collaborate with Others **Life and Career Skills** **highlight appropriate indicators for unit/domain** Adapt to Change Be Flexible Manage Goals and Time Work Independently Be Self-directed Learners Interact Effectively with Others Work Effectively in Diverse Teams
Enduring Understandings	**Essential Questions**

Chapter 1 ● How to use a place-value chart ● How to use place value to write numbers in different ways ● How to use place value to compare numbers ● How to use place value to round numbers ● How to use place value and the four-step plan to solve problems Chapter 2 ● How o use place value to round numbers ● How to add and subtract multi-digit numbers ● How to solve word problems by writing an equation ● How to use addition or subtraction to generate a number pattern Chapter 3 ● How to use rectangular arrays to write multiplication and division sentences ● How to use subtraction to solve a division problem ● How to solve comparison problems ● How to use properties of multiplication to solve problems ● How to find factor pairs and multiples of whole numbers Chapter 4 ● How to multiply by multiples of 10, 100, and 1,000 ● How to use rounding to estimate products	Chapter 1 ● How does place value help represent the value of numbers? Chapter 2 ● What strategies can I use to add or subtract? Chapter 3 ● How are multiplication and division related? Chapter 4 ● How can I communicate multiplication?

● How to use models to multiply by one-digit numbers ● How to use the Distributive Property to find the product of two numbers ● How multiply a 1-digit number by a 3-or 4-digit number Chapter 5 ● How to multiply by multiples ● How to estimate products of two-digit numbers ● How to use the Distributive Property to find the product of two numbers ● How to multiply two two digit numbers ● How to write and solve equation that have more than one operation Chapter 6 ● How to make a model for division ● How to divide with and without remainders ● How to estimate quotients ● How to divide mentally ● How to solve division problems that result in 2-, 3-, and 4-digit quotients	Chapter 5 ● How can I multiply by a two-digit number? Chapter 6 ● How does division affect numbers?
Content Knowledge Chapter 1 ● Find the value of digits in a whole number using a place value chart ● Use place value to write whole numbers in different forms: standard form, expanded form, word form ● Use a number line or a place-value chart to compare	**Skills** Chapter 1 ● I can identify the place value of digits in multi-digit numbers. ● I can read and write multi-digit whole numbers. ● I can compare numbers using a number line and a pace-value chart.

two numbers ● Round a number to the nearest hundred thousand ● Use the four-step plan to solve problems that involve comparing and ordering whole numbers Chapter 2 ● Use rounding to estimate a sum ● Find a difference ● Write an equation to solve a problem ● Use place value to describe and extend number patterns Chapter 3 ● Write a fact family for arrays ● Solve division problems using subtraction ● Solve comparison problems by drawing a diagram and writing an equation ● Use properties to multiply three numbers. ● Find factors of a whole number Chapter 4 ● Find products ● Estimate products ● Solve a multiplication problem using models ● Use the Distributive Property to solve multiplication problems ● Multiply numbers Chapter 5 ● Use the Associative Property of Multiplication to	● I can order numbers by using a place-value chart and comparing the digit values. ● I can estimate numbers by rounding. ● I can use the four-step plan to solve problems. Chapter 2 ● I can use addition properties and subtraction rules to add and subtract . ● I can use patterns to solve addition and subtraction problems ● I can use mental math to add and subtract ● I can estimate sums and differences of multi-digit numbers ● I can add multi-digit whole numbers ● I can subtract multi-digit whole numbers ● I can subtract multi-digit numbers, when some digits are zeros ● I can solve problems by drawing a diagram ● I can solve multi-step word problems using addition and subtraction Chapter 3 ● I can understand how multiplication and division are related ● I can relate division and subtraction ● I can recognize the comparison of two groups as another strategy to use when multiplying. ● I can use comparisons to solve problems ● I can use multiplication properties and division rules

multiply numbers ● Use rounding to estimate a product ● Use the Distributive Property to solve multiplication problems ● Multiply two, double digit numbers ● Use multi-step equations to model and solve real-world problems Chapter 6 ● Use models to solve problems ● Solve division problems ● Estimate solutions of division problems ● Use basic facts and patterns to divide numbers	● I can use the associative property of multiplication to solve problems ● I can find factors and multiples of whole numbers ● I can check answers for reasonableness Chapter 4 ● I can multiply multiples of 10, 100, and 1,000 using basic facts and patterns. ● I can estimate products by rounding ● I can explore multiplication using models ● I can explore multiplication using area models and partial products ● I can multiply a two-digit number by a one-digit number ● I can explore multiplication with regrouping using models ● I can use distributive property to make multiplication easier ● I can multiply a two-digit number by a one-digit number ● I can multiply a multi-digit number by a one-digit number ● I can determine if a problem needs an estimate or exact answer ● I can multiply multi-digit numbers with zeros by a one-digit number Chapter 5 ● I can use properties and algorithm to multiply by tens ● I can estimate products by rounding

	• I can explore multiplying by two-digit numbers • I can multiply two, two-digit numbers • I can use multiplication to solve multi-step word problems • I can solve problems by making a table. Chapter 6 • I can use basic facts and patterns to divide mentally. • I can estimate quotients using compatible numbers, basic facts and place value • I can use place value models to explore dividing by one-digit numbers • I can solve problems by making a model • I can divide with remainders and check using multiplication and addition • I can interpret what the remainder means in the context of a division problem • I can determine where to place the first digit when dividing • I can use the distributive property and partial quotients to divide • I can solve division problems with greater numbers • I can solve division problems that result in quotients that have zeros • I can solve multi-step word problems using more than one operation
Primary and Supplementary Resources	

Grade 4 My Math Teacher Edition
Grade 4 My Math Student Edition
Grade 4 Pacing Calendar
Chapter Vocabulary Cards

My Math Resources

EdConnect Login

NJSLA Mathematics Operational Evidence Statements
https://docs.google.com/spreadsheets/d/18M5r1jk4P729fTpAlWAzrw1gE6tken233I-Yk0U712M/edit#gid=554025491

NJSLA Released Items
https://nj.digitalitemlibrary.com/home
https://resources.newmeridiancorp.org/

Illustrative Mathematics

iReady
i-Ready makes differentiated instruction a practical reality for teachers and students. *i-Ready*:

- integrates powerful assessments and rich insights with effective and engaging instruction in reading and mathematics to address students' individual needs.
- empowers teachers every day to make more informed instructional decisions.
- motivates students with access to their own personalized path to growth.

XtraMath

- This program helps students practice their math facts for addition, subtraction, multiplication, and addition.
- Can individualize the fluency skills for each student.
- Can run reports to determine progress.

Scholastic Study Jams

- Fun videos which explain common mathematics concepts.
- Questions at the end of the video reinforce the concepts.

Khan Academy

- ➢ a set of online tools that help educate students. The organization produces short lessons in the form of YouTube videos.
- ➢ Its website also includes supplementary practice exercises and materials for educators.

4th grade Flip Book:
https://drive.google.com/file/d/1OGbH2NpRp3-N7ZBTZtgb77BNznZ5X5tT/view?usp=sharing

101 Math Discourse Questions:
http://www.casamples.com/downloads/100MathDiscourseQuestions_Printable.pdf

Asking Effective Questions
http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_AskingEffectiveQuestions.pdf

Fluency Support for Grades 3-5
https://jenniferfindley.com/free-math-intervention-activities-grades-3-5/

Achieve the Core Coherence Map
https://achievethecore.org/coherence-map/4

Chapter 1 ● Chapter Opener ● Am I Ready?/Pre-Assessment ● Vocabulary Cards/Foldable ● Lesson 1 - Place Value ● Lesson 2 - Read & Write Multi-Digit Numbers ● Lesson 3 - Compare Numbers ● Lesson 4 - Order Numbers ● Lesson 5 - Use Place Value to Round ● Chapter Project - What is the Cost? ● Lesson 6 - Problem Solving Investigation - Use the Four Step Plan	Vocabulary Chapter 1 ● Digit ● Place-value ● Expanded Form ● Period ● Standard Form ● Word Form ● Is Equal To ● Is Greater Than ● Is Less Than

• Post-Assessment • Performance Task Chapter 2 • Chapter Opener • Am I Ready?/Pre-Assessment • Vocabulary Cards/Foldable • 2-1 Addition Properties and Subtraction Rules • 2-2 Addition and Subtraction Patterns • 2-3 Add and Subtract Mentally • 2-4 Estimate Sums and Differences • 2-5 Add Whole Numbers • 2-6 Subtract Whole Numbers • 2-7 Subtract Across Zeros • 2-8 Problem Solving Investigation: Draw a Diagram • 2-9 - Solve Multi-Step Word Problems Chapter 3 • Chapter Opener • Am I Ready?/Pre-Assessment • Vocabulary Cards/Foldable • 3-1 Relate Multiplication & Division • 3-2 Relate Division and Subtraction • 3-3 Multiplication as Comparison • 3-4 Compare to Solve Problems • 3-5 Multiplication Properties and Division Rules • 3-6 The Associative Property of Multiplication • 3-7 Factors and Multiples • Chapter 3 Project: Multiples Poster • 3-8 Problem Solving Investigation: Reasonable Answers • Post-Assessment • Performance Task	• Number Line Chapter 2 • Commutative property of addition • Associative property of addition • Identity property of addition • Unknown • Minuend • Subtrahend Chapter 3 • Dividend • Divisor • Fact family • Factor • Quotient • Product • Repeated Subtraction • Commutative Property of Multiplication • Identity Property of Multiplication • Zero Property of Multiplication • Associative Property of Multiplication • Decompose • Multiple

Chapter 4 ● Chapter Opener ● Am I Ready?/Pre-Assessment ● Vocabulary Cards/Foldable ● 4-1 Multiples of 10, 100, and 1,000 ● 4-2 Round to Estimate Products ● 4-3 Hands On: Use Place Value to Multiply ● 4-4 Hands On: Use Models to Multiple ● 4-5 Multiply a Two-Digit Number ● 4-6 Hands-On; Model Regrouping ● Chapter 4 Project: Healthful Foods Party ● 4-7 The Distributive Property ● 4-8 Multiply with Regrouping ● 4-9 Multiply by a Multi-Digit Number ● 4-10 Problem-Solving Investigation: Estimate or Exact Answer ● 4-11 Multiply Across Zero ● Post-Assessment ● Performance Task Chapter 5 ● Chapter Opener ● Am I Ready?/Pre-Assessment ● Vocabulary Cards/Foldable ● 5-1 Multiply by Tens ● 5-2 Estimate Products ● 5-3 Hands On: Use the Distributive Property to Multiply ● 5-4 Multiply by a Two-Digit Number ● Chapter 5 Project - Name that Digit ● 5-5 Solve Multi-Step Word Problems	Chapter 4 ● Partial products ● Regroup ● Distributive property

● 5-6 Problem-Solving Investigation: Make Table ● Post-Assessment ● Performance Task Chapter 6 ● Chapter Opener ● Am I Ready?/Pre-Assessment ● Vocabulary Cards/Foldable ● 6-1 Divide multiples of 10, 100, and 1,000 ● 6-2 Estimate Quotients ● 6-3 Hands On: Place Value to Divide ● 6-4 Problem-Solving Investigation: Make A Model ● 6-5 Divide with Remainders ● 6-6 Interpret Remainders ● 6-7 Place the First Digit ● Chapter 6 Project: Division Game Day ● 6-8 Hands On: Distributive Property and Partial Quotients ● 6-9 Divide Greater Numbers ● 6-10 Quotients with Zeros ● 6-11 Solve Multi-Step Word problems ● Post-Assessment ● Performance Task	Chapter 6 ● Compatible numbers ● Remainder ● Partial Quotients
Assessments: **Formative:** ❖ Exit Slip ❖ One-Sentence Summary	

- Quick Draw
- One-Minute Essay
- Error Analysis
- Check My Progress
- Application Cards
- Summarize
- Chapter Review
- Vocabulary Check
- Concept Check
- Problem Solving
- Test Practice
- Reflect
- Example/Non-example
- Think-Pair-Share
- Sequence
- Definitions
- Number Sort
- Analogy Prompt
- Turn to Your Partner
- Questioning

Summative Assessment

- Performance Task
- Diagnostic Assessment
- Chapter Pre-Test

Differentiation in the Mathematics Classroom

Differentiate the Test

- Use alternative leveled chapter assessments (approaching level, on level and beyond level) to differentiate assessment for specific needs of students
- Provide option of print vs. online assessment
- Reduce the number of problems given
- Provide multiplication charts/calculators
- Provide hints written on tests, such as mnemonic devices
- Give extra time
- Provide a checklist of the steps needed to complete the problem
- Provide place value charts and resources
- Provide lots of white-space to make it less busy
- If still struggling, reteach & retest

Differentiation - Best Practices

- ➢ Provide multiplication tables (or calculators) to students who struggle with fluency. This allows you to see if they've mastered the skill at hand (i.e., adding/subtracting fractions) without the barrier of fact fluency issues. Click here for a copy of a multiplication chart.
- ➢ Represent numbers in place value charts whenever possible. Give students their own laminated copies of place value charts so they can organize their thoughts while completing their work.
- ➢ Assign fewer complex problems and have students illustrate or explain the reasoning they use.
- ➢ Emphasize the role of diagramming in interpreting and solving problems in mathematics.
- ➢ Provide students with graph paper to help them organize their math in an effort to reduce errors being made due to handwriting.

- ➢ Use tasks that provide multiple entry points and provide scaffolds that support student participation.
- ➢ Have a vocabulary wall.
- ➢ Provide reduced amount of homework for struggling learners. Give them 2 relevant math problems rather than an entire worksheet.
- ➢ Conference with the students often to learn about how they think about math.
- ➢ Use base-ten models and other manipulatives to represent numbers through ten-thousands
- ➢ Draw pictures of base-ten models to represent and compare numbers.
- ➢ Compare numbers in various forms including standard, word, and expanded forms.
- ➢ Make flashcards for terms and examples, then mix and match.

Special Education Students

Chapter 1

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- 1-1 Write a 6-digit number on the board. Have students write the number on the place-value chart. Guide students to identify and write the value of each digit.
- 1-2 - Write a 5-digit number on the board. Guide students as they identify the place value of each digit and write the digits in the chart. Help students as they write the number in expanded form. Have students say the number and write the number in word form.
- 1-3 - Have students compare two 5-digit numbers by writing them one above the other in the place-value chart. Guide students to compare numbers using <, >, or =
- 1-4 - Have students write number in their place value charts. Students say what they are thinking as they order the numbers from least to greatest
- Check My Progress - Students can use approaching level or on level activities from Lesson 1 to review concepts; use manipulatives
- 1-5 - Give students a list of number beginning with a 2-digit number and moving up to a 6-digit number. Have students round each number to the greatest place value-position by circling the place they are rounding to and underlining the digit to its right
- 1-6 - Have student make index cards detailing the steps of the four-step plan. They can use cards to assist them as they complete assignments

Chapter 2

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- 2-1 Have students use index cards to make flashcards with the name of the property (or description of the rule) on one side and an example on the other. Have students add hints to the cards to help them remember the property.
- 2-2 Guide students to make the two helpful-tip cards, and then complete a pattern.
- 2-3 Write 32 + 33 on the board. Model with base ten blocks to guide students to make a ten to add mentally. Repeat the activity, only this time using a subtraction sequence.
- 2-4 Have students roll the 5-10 number cube three times. Have them write the first number rolled in the ones place, the second number in the tens place, and the third number in the hundreds place to make a 3-digit number. Roll the 0-5 number ce to make a second 3-digit number. Ask students to voice what they are thinking as they estimate the sum and then the difference of the two numbers.
- Check My Progress - Students can use approaching level or on level activities from Lesson 1 to review concepts; use manipulatives
- 2-5 Write several addition problems with ones, tens, and hundreds on the board. Have students use base-ten blocks to regroup by exchanging 1- ones for a ten and 1- tens for a hundred. Have them record each step.
- 2-6 Have students use base-ten blocks to show the number 999. Students roll two number cubes and subtract the two-digit number generated from the blocks. Have them record the subtraction on the paper. Roll again and subtract from the remaining blocks, and on paper. Have them roll and subtract until they have reached 0. Next time around, use only paper and pencil.
- 2-7 Have students use play money and give change from amounts that include zeros. Tell students to record exchanges they make.

Chapter 3

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- 3-1 Have students use counters to create an array for a number sentence on a piece of paper. Help them understand the relationship between multiplication and division facts by pointing out the fact family. Continue with other facts.
- 3-2 Guide students to use counters to model repeated subtraction for 12 divided by 4. Have students repeat the exercise, this time writing the repeated subtraction sentences or using a number line to solve.

- 3-3 Have students fold a piece of paper in half. On one half, students draw 2-9 objects. ON the other half, students draw 3 times as many objects. Ask students to write the repeated addition sentence and multiplication sentence they have modeled.
- 3-4 Students use counters to model problems using information from tables, then write and solve an equation for each.
- Check my Progress - Students can use the Approaching level or On Level RTI activities from Lessons 1-2 to review concepts. For reviewing concepts by using manipulatives, turn to the Build Conceptual Understanding section of Lessons 1-2 or use Virtual Manipulatives online
- 3-5 Have students write 0 on one card and 1 on the other card for the two Rules of Division. Use a whiteboard to write an equation that is an example of one of the properties or rules. Students will put the card on the table that identifies the property or rule. If students are unsure, help them use counters to model the equation
- 3-6 Guide students to use the Associative Property and draw a picture to model the problem
- 3-7 Write facts in a vertical column. Multiples of numbers follow a pattern. Repeat other multiples
- 3-8 Review the meaning of the word reasonable. Read the following statements. Each time ask students to respond “yes” or “no” to the reasonableness of the statement. Discuss their reasoning together.

Chapter 4

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- 4-1 Students create an index card using a basic fact and multiples of 10, 100 and 1000, written vertically. Have students use base-ten blocks and the place-value chart to model one expression at a time, finding each product. Discuss the relationship between the base-ten blocks and the patterns seen in the numbers Guide students to create more cards like this.
- 4-2 Make a set of 0-9 number cards. Shuffle and place face down. Student 1 chooses a card and places it in the “ones place”. Repeat until a three-digit number is made. The fourth card is a multiplier. Using a number line, round the three-digit factor, and find the product. Record the product. Student 2 reshuffles and takes a turn. Repeat. Students add their products.
- Check my Progress - Students can use the Approaching level or On Level RTI activities from Lessons 1-2 to review concepts. For reviewing concepts by using manipulatives, turn to the Build Conceptual Understanding section of Lessons 1-2 or use Virtual Manipulatives online
- 4-3 Show students how to model an array for 2 x 14 by laying the blocks side by side. Help students draw an area model to find the product. Have students solve other problems using area model

- 4-7 Review the steps of the Distributive Property. Practice one-digit by two digit multiplication by decomposing the numbers and drawing an area model on grid paper, finding each product mentally, and adding the products. Then, guide students to use the Distributive property without making an area model
- 4-8 Review the four steps of multiplying with regrouping as you model an example. Have students write each step on a separate index card as they follow the example. Then, have students use their index cards to solve a problem independently.
- 4-9 Use base-ten blocks and the Work Mat to model 4x1,325. Show students four groups of base-ten blocks that have 1 thousand sube, 3 hundreds flats, 2 tens rods, and 5 units in each group. Then show them how to find the product by counting the ones, tens, hundreds, and thousands regrouping when needed.
- 4-10 Ask students what about means. Have students take turns making statements about themselves with the word “about” in them. Students ask questions of each other that require an exact number answer. Talk about word clues and the difference between statements and questions.
- 4-11 Use some of the problems that students had difficulty with from independent practice page. Use base-ten blocks to model each one. Show them multiplication is repeated addition as they add all the groups together. Ask them to record the problem on grid paper to keep the digits align as they work.

Chapter 5

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- Check my Progress - Students can use the Approaching level or On Level RTI activities from Lessons 1-2 to review concepts. For reviewing concepts by using manipulatives, turn to the Build Conceptual Understanding section of Lessons 1-2 or use Virtual Manipulatives online
- 5-1 Have students create area models for each exercise on grid paper. The factor that is not a multiple of ten is written at the top. The digit that is in the tens place of the multiple of ten is on the left side. Next, find the partial products, and then add them together. Write a zero in the ones column of the sum since they are multiplying by a multiple of ten.
- 5-2 Discuss how they used basic fact and patterns of zeros to solve problems. Help them make the connection to today’s concepts using the lessons difficult exercises.
- Check my Progress - Students can use the Approaching level or On Level RTI activities from Lessons 1-2 to review concepts. For reviewing concepts by using manipulatives, turn to the Build Conceptual Understanding section of Lessons 1-2 or use Virtual Manipulatives online

- 5-4 Write 22 x 14 on the board. Help students draw an area model to find the product. Guide them to color in, and then find one partial product at a time.
- 5-5 Work with students on Exercise 4 using the manipulatives to model each step. Help them record the equation with the information they know and using a variable for what they need to find. Walk through each step together to solve the equation.
- 5-6 Select a problem from the student page. While discussing each step, have students use graphic organizer to work through the problem.

Chapter 6

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- Use the One Level RTI activities from Chapter 2 Lesson 6 & chapter 3 Lesson 2 to help students review concepts.
- Reassess using chater Diagnostic Test
- 6-1 Have students highlight basic fact in each number sentence and quotient with one color. Next, have students highlight the zeros in the dividend and quotient with another color. Point out that the number of zeros in the quotient and the dividend is the same.
- 6-2 Review dividing multiples of 10, 100, and 1,000. Use multiplication table. Guide students to focus on the divisor and a close fact they know when searching for a compatible number. Practice skill using problems.
- 6-3 Work with students to model dividing a three-digit number by a one-digit number. Then in pairs, ask one for the students to explain and model the same problem to their partner. Repeat with another problem, this time allowing the other student to explain the model.
- 6-4 Students practice using number line to divide. Give students problem that they can model on number lines when recording their computation on paper.
- 6-5 Model the problem, dividing and exchanging blocks as needed; draw the model; work the algorithm; record division equation; discuss within group to show how to interpret remainders.
- Check My Progress - Students can use approaching level or on level activities from Lesson 1, 2 and 5 to review concepts; use manipulatives
- 6-6 Students work with a partner. Each pair receives base-ten blocks and grid paper. Allow them to model the problem before using the algorithm to find the quotient. Allow students to use grid paper to align the digits.

- 6-7 Students use base-ten blocks to model a problem. Then they ask questions as they use the division algorithm to find the quotient. Are there enough hundreds/tens/ones to divide? How do you record the number in the quotient? Is there a remainder?
- 6-8 Students are given a place value chart and counters. Help students understand the thought process that goes into each step. Model division problem from lesson using the materials as you tell students what you are thinking as you go through each step. Allow them to practice modeling similarity with a partner.
- 6-9 Students draw a division bracket, 3 lines for the digit of the dividend within the bracket, and one line for the divisor outside the bracket. Student 11 spins for a digit after which each student writes on any line. It may not be moved after placement. Students take turns until all spaces have a digit. Each student solves the problem, and then trades with their partner who checks it.

English Language Learners

- ➢ All WIDA Can Do Descriptors can be found at this link: https://www.wida.us/standards/CAN_DOs/
  - ☐ Grades 4-5 WIDA Can Do Descriptors:
  - ☐ Listening
  - ☐ Speaking
  - ☐ Reading
  - ☐ Writing
  - ☐ Oral Language

Chapter 1

- ➢ Vocabulary Support - Utilize Resources - Spanish cognates
- ➢ Provide concrete examples to support understanding
- ➢ Have bilingual aid or peer review components of a place-value chart
- ➢ Math Talk - Pair emerging students with expanding/bridging level bilingual peers
- ➢ Provide sentence frame for students to report back
- ➢ Have student work in pairs
- ➢ Vocabulary Support - Signal Words Phrases

- ➢ Write synonyms for vocabulary
- ➢ Create communication guide with sentence frames

Chapter 2

- Vocabulary Support - Utilize Resources - Spanish cognates
- Provide pictures to support meaning
- Utilize lower tiered questions
- Find similarities and differences
- Share examples of patterns and connect to real world
- Assign partners for Talk Math
- Provide communication guide for them to use as they discuss each problem
- Have bilingual aid or peer to discuss and solve
- Encourage use of native language to clarify meaning
- Use cognate chart to support understanding
- Have students help create an anchor chart for sum and difference
- Write sentences and read aloud to peer to gain understanding
- Use mnemonic devices to help them remember how words are defined
- Have them use math journals as reference
- Sensory Support: Manipulatives using base-ten blocks

Chapter 3

- Spanish cognates
- Provide visual examples to support understanding
- Create chart
- Have students preview vocabulary cards
- KWL Chart
- Label parts of mathematical sentence
- Display sentences on frames chart
- Students practice applying

- Frontload Academic Vocabulary
- Activate Prior Knowledge
- Have students read aloud
- Mnemonic device
- Tiered Questions

Chapter 4

- Model using base ten blocks to help visualize
- Use photos to review English terms from Problem Solving Exercises
- Use Spanish cognates
- Provide a visual math example to support understanding
- Utilize translation tools
- Discuss both math and non-math meanings for words
- Present chant for rounding
- Have students repeat chant chorally several times
- Use gestures when discussing the value of the actual product
- Review terms before lessons
- Draw models & label
- Keep anchor charts posted in classroom for references
- Build background knowledge to demonstrate “distribution”
- Use sentence frames for students to use as they respond to Talk Math Question
- Collaborative Support: Round the Table - Have students work jointly on one problem by passing the paper from one student to the next for each member to provide input. Each member writes in a different color
    - Provide step-by-step list for groups to follow
- Sensory Support: Physical Activities
- Utilize online Spanish Student Edition

Chapter 5

- Use words in context

- Students share answers using sentence frame
- Review definitions from previous chapters
- Share pictures, gestures, or mnemonic devices to enhance meaning of terms
- Have students discuss Talk Math question with bilingual peer or aid
- Use area model with labels
- Provide illustrations and examples to support understanding
- Encourage students to draw their own pictures or models to help visualize
- Provide cognates
- Utilize translation tools for non-Spanish speaking ELLs
- Introduce words and provide examples
- Have students work in pairs to complete problem and another student coaches

Chapter 6

- Cognate chart
- Introduce each word and provide math examples
- Read aloud and point out terms
- Students create their own definitions for terms
- Students create illustrations, diagrams, or drawings to help them remember meanings of terms
- Provide communication guide for Talk Math Problem
- Display and fill in a KWL chart
- Label parts of division problem
- Use My Vocabulary Cards
- Repeat terms chorally
- Create a remainders word web that includes signal words or phrases
- Pair students and assign independent practice
- Have one student coach other in finding solutions to problems and switch roles
- Provide sentence frames
- Write Talk Math Problem on board and discuss using tiered questions

- Use communication guide to aid in discussion

At-Risk Students
- ➢ Reduce the number of problems given
- ➢ Provide calculators
- ➢ Give extra time

504 Students
- ➢ Provide a checklist of the steps needed to complete the problem
- ➢ Provide place value charts
- ➢ Provide lots of white-space to make it less busy
- ➢ If still struggling, reteach and retest

Gifted and Talented Students

☐ Modify activities/assignments/projects/assessments

☐ Provide an option for alternative activities/assignments/projects/assessments

☐ Modify Content

☐ Adjust Pacing of Content

☐ Small Group Enrichment

☐ Individual Enrichment

☐ Higher-Level Text

Chapter 1

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- 1-1 - Have students write a riddle that identifies the place value of digits in a 7 digit number.
- 1-2 - Have students work with a partner where they will take turns spinning and writing the number in any place value-position to create a 6-digit number that will have a greater value than their partner's number

- 1-3 - Have students write a real-world problem about saving money in which they use the concept of comparing three 6-digit numbers. Students should exchange their problems with a partner who will find the solution and write a number sentence using the symbols <, >, or =
- 1-4 - Have students use reference books or the internet to find four cities with a population between 200,000 and 900,000. Students create a 2-column chart listing the cities in the first column and their populations from least to greatest.
- Check My Progress - Use a game or activity from the My Learning Station
- 1-5 - Have each student roll the number cube 7 times to make a 7-digit number. Hae students round their number to the nearest ten, hundred, thousand and so on. Have students exchange their paper with a partner to check.
- 1-6 - Have students write a riddle about a 7-digit number that when rounded to the nearest thousand is 1,801,000. Have students exchange their riddles with a partner and use the four-step plan to solve.

Chapter 2

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- 2-1 Have students write three or four examples of the associative property of addition with one error each. Have students exchange their number sentences with a partner to see if they can identify and correct each error in order to solve.
- 2-2 Have students use a spinner to create a 5-digit number .Have students order the digits to create the greatest number possible. Then have students write the next 4 numbers o a pattern that is 100 less; a pattern that is 1,000 greater; a pattern that is 1 greater; and a patterns that is 10,000 less
- 2-3 Challenge students to write an addition sentence where the sum will round to 480,000. Have students exchange their addition sentences with a partner. Have each partner use mental math and explain how to write two addends to solve. Repeat the activity, only this time using a subtraction sentence where the difference rounds to 230,000
- 2-4 Have students work in pairs. One writes a word problem in which the answer is an exact sum. Be sure they use mathematical language that makes it clear an exact answer is needed. The other student writes a word problem in which the answer is an estimate sum. Be sure they use mathematical language that suggests only an estimate is needed. They will exchange problems and solve. Compare answers and correct, if needed. Switch roles and repeat.
- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.

- 2-5 Have students write a real-world problem where the answer is between 45,600 and 45,800. Challenge the students to choose addends that, when added together, the hundreds would need to be regrouped
- 2-6 Have students research the 1980 and the 2010 population of a city. Have students write a real-world problem using the two populations. Have students exchange their problems with a partner to solve.
- 2-7 Have students wrote $200.00 at the top of their paper. Tell them they have $200.00 to spend at the grocery store. Instruct students to look through the grocery store ads and choose quantities of an item to buy. List the total price below the $200.00 and then subtract. Continue to list and subtract the cost of groups of items until they have "spent" all of the $200.00

Chapter 3

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- Use a Math at Home: Game Time worksheet from previous chapter
- 3-1 Students draw an array to represent a marching band formation. Students draw all possible array formations for the band of 24 students. Students write the related multiplication and division sentences.
- 3-2 Students write a riddle about a number that is being subtracted repeatedly from 24. Students exchange their riddles with a partner. The partner will solve and write the number sentence
- 3-3 Students create a matching phrase game. Students exchange their games with a partner.
- 3-4 Students write a real world problem about a bicycle race that uses two multiplicative comparisons. Students exchange their problem with a partner to write equations and solve.
- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.
- 3-5 Students work with a partner to design a board game that focuses on each multiplication property and division rule.
- 3-6 Students use the Associative Property of Multiplication to find answers using mental math. Each student writes and solves a multiplication problem using 3 single-digit numbers on paper. Without letting their partner see the problem, one student recites the problem as the other mentally groups the numbers to solve the problem. Partners switch roles.
- 3-7 Students draw simple pictures that are examples of real-world occurrences of multiples.
- 3-8 Students use the Internet to find out the number of gallons of water contained in an average swimming pool. Students write a real-world problem about filling a swimming pool in which the solution may or may not be reasonable. Students include a statement that asks if the answer is reasonable. Partner solves the problem.

Chapter 4

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- Use a Math at Home: Game Time worksheet from previous chapter
- 4-1 Have students identify the pattern and generate additional number sentences using the same pattern and different basic facts
- 4-2 Each pair makes a set of 0-9 number cards. Shuffle and place them fact down. Student 1 chooses a card and places it in the "ones place". Repeat until a 6-digit number is made. The seventh card is a multiplier. The partner estimates and records the product. Roles are reserved. Reshuffle after each turn. After a few rounds, students add their products. Greatest sum wins.
- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.
- 4-3 Students write word problems that require multiplication without regrouping.
- 4-4 Students use Distributive Property to write one-digit by two-digit equation puzzles where 1 or more digits or factors are missing. Students exchange their puzzles with a partner to solve
- 4-5 Students write a poem or song to help classmates learn the steps to multiply with regrouping. Students exchange their work with a partner for a peer review. Students work will be posted in classroom
- 4-6 Students work in pairs to write 15 multiplication problems on index cards that involve multiplying a two-digit or three-digit number by a one-digit number without regrouping. Students place cards face down and take turns turning over a card. Both students use mental math to determine the product. The student who says the correct product first keeps the card. The student who collects more cards wins.
- 4-7 Students spins five times to create a 5-digit number. Spin one more time to get the multiplier. Students use number in a short multi-step word problem that requires either an exact answer or an estimate. Students switch partners to solve.
- 4-8 Students fill in boxes with digits to make multiplication sentence correct. Students discuss strategies and check answers. Students create their own and switch with a partner.

Chapter 5

- Have students complete the chapter pretest to determine what skills in the chapter they already know

- 5-1 Pairs of students spin to get three digits. Each student will make a two-digit number and the last digit will be used to make a multiple of 10. The goal is for students to write equations resulting in the greatest possible product using the given numbers. Students switch with a partner to check.
- 5-2 Students given three roles: recorder, spinner, and opponent. Spinner spins two numbers quickly, Recorder records it while the spinner and opponent quickly round the two-digit number mentally. Repeat with two more numbers, at which the two players quickly round the second number mentally and find the estimated product of the two estimates. Recorder check and winner is the first person to answer correctly. Students switch roles
- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.
- 5-3 Each student will spin four times to make two 2-digit facts. Each student records the factors on grid paper and solves showing all the steps of the algorithm. Color over any one digit in either factor to make an unknown. Exchange papers.
- 5-4 Students create their own number cube puzzles. Students make four write-in boxes and use a variety of operation signs and parentheses. Exchange with a partner and solve. Students work together to correct errors.
- 5-5 Student selects a recipe and makes a table for each ingredient will be needed to feed their class, grade or school. Students will need to refer to the number of servings a recipe makes. Then, students determine quantities they would use to buy the ingredients.

Chapter 6

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- 6-1 Challenge students to write division problems with multiples of 10,000 and 100,000. Exchange problems with a partner. Then check.
- 6-2 Have students look back at exercises 14 and 15. Students will use new information to write three new questions.
- 6-3 Have students spin to create a three-digit number. Spin one more time for the divisor. Students will make one error while modeling and solving the division problem. Partners will need to find the error and correct it.
- 6-4 Have students design a new foldable that will emphasize the steps of the division algorithm. Give students paper with which to experiment folding. Once complete, have students exchange them with a partner to see if their new foldable is easy to understand.

- 6-5 Have students write two division problems that have three-digit dividends and one-digit divisors. The quotient of both problems should be two-digit numbers. Once of the problems should have a remainder and the other should not. Students repeat the activity, this time to be sure the quotients are three-digit numbers. Students explain how they chose their dividends, divisors, and quotients for all the problems they wrote.
- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.
- 6-6 Two teams of two take turns writing division problems, leaving out one digit from the divisor, the dividend, or the quotient for the other team to guess. A wrong guess results in 1 point for the opposing team. Play until one team reaches a predetermined number.
- 6-7 Ask students to use the inverse operation of multiplication to find a one-digit divisor and four-digit quotient when the dividend is 25,626.
- 6-8 Students will spin 6 times to create a 5-digit dividend and a one-digit divisor. Each student will do one step of the division algorithm, and then pass it to the next student. Continue passing the problem, doing the next step, until it is completed. Next person checks by multiplying. If there is an error, continue passing the paper for each step until the error is discovered.
- 6-9 Students draw a division bracket, 5 lines for the digits of the dividend within the bracket, and 1 line for the divisor outside the bracket. Student 1 spins for a digit after which each student writes on any line. It may not be moved after placement. Students take turns until all spaces have a digit. Each student solves the problem, and then trades with their partner, who checks it.

Domain 2: Operations and Algebraic Thinking	
Chapter 7 - Patterns & Sequences	
NJ 2016 Student Learning Standards: Mathematics Grade 4	**NJDOE Mathematics Curricular Framework** Guide Document and Supports

Operations and Algebraic Thinking 4.OA.3 - Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. 4.OA.5 - Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way*.	Mathematics Curricular Framework **Mathematical Practices** **MP. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.** **highlight appropriate indicators for unit/domain** MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics. MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning.
Career Readiness, Life Literacies, and Key Skills Integration **NJSLS - CRLLKS 2020** **highlight appropriate indicators for unit/domain** CRLLKS1. Act as a responsible and contributing community members and employee. CRLLKS2. Attend to financial well-being. CRLLKS3. Consider the environmental, social and economic impacts of decisions. CRLLKS4. Demonstrate creativity and innovation.	**21st Century Student Outcomes** http://www.battelleforkids.org/networks/p21 **Learning and Innovation Skills** **highlight appropriate indicators for unit/domain** Think Creatively Work Creatively with Others Implement Innovations Reason effectively Use Systems Thinking Make Judgments and Decisions Solve Problems

CRLLKS5. Utilize critical thinking to make sense of problems and persevere in solving them CRLLKS6. Model integrity, ethical leadership and effective management. CRLLKS7. Plan education and career paths aligned to personal goals. CRLLKS8. Use technology to enhance productivity increase collaboration and communicate effectively.persevere in solving them. CRLLKS9. Work productively in teams while using cultural/global competence.	Communicate Clearly Collaborate with Others **Life and Career Skills** **highlight appropriate indicators for unit/domain** Adapt to Change Be Flexible Manage Goals and Time Work Independently Be Self-directed Learners Interact Effectively with Others Work Effectively in Diverse Teams
Enduring Understandings ● How to use addition and subtraction to describe and extend a number pattern ● How to write observations about sequences ● How to use equations to describe patterns ● How to use the order of operations to find the value of an expression ● How to use a table to show equations with more than one operation	**Essential Questions** Chapter 7 ● How are patterns used in mathematics?
Content Knowledge Chapter 7 ● I can describe nonnumeric growing and repeating patterns.	**Skills** ● Describe and extend number patterns ● Extend sequences and make observations

• I can identify, describe and extend numeric patterns • I can extend patterns and write observations about the pattern • I can look for a pattern to solve problems • I can find and use rules to write addition and subtraction equations • I can find and use rules to write multiplication and division equations • I can use order of operations to solve problems • I can explore equations with two operations • I can use tables to recognize and write equations with two or more operations	• Write equations to describe and extend number patterns • Use the order of operations to simplify expressions • Find the unknown quantity in equations with more than one operation

Primary and Supplementary Resources

Grade 4 My Math Teacher Edition
Grade 4 My Math Student Edition
Grade 4 Pacing Calendar
Chapter Vocabulary Cards

My Math Resources

EdConnect Login

NJSLA Mathematics Operational Evidence Statements
https://docs.google.com/spreadsheets/d/18M5r1jk4P729fTpAlWAzrw1gE6tken233I-Yk0U712M/edit#gid=554025491

NJSLA Released Items
https://nj.digitalitemlibrary.com/home
https://resources.newmeridiancorp.org/

Board Approved: September 28, 2022

Illustrative Mathematics

iReady
i-Ready makes differentiated instruction a practical reality for teachers and students. *i-Ready*:
- ➢ integrates powerful assessments and rich insights with effective and engaging instruction in reading and mathematics to address students' individual needs.
- ➢ empowers teachers every day to make more informed instructional decisions.
- ➢ motivates students with access to their own personalized path to growth.

XtraMath
- ➢ This program helps students practice their math facts for addition, subtraction, multiplication, and addition.
- ➢ Can individualize the fluency skills for each student.
- ➢ Can run reports to determine progress.

Scholastic Study Jams
- ➢ Fun videos which explain common mathematics concepts.
- ➢ Questions at the end of the video reinforce the concepts.

Khan Academy
- ➢ a set of online tools that help educate students. The organization produces short lessons in the form of YouTube videos.
- ➢ Its website also includes supplementary practice exercises and materials for educators.

4th grade Flip Book:
https://drive.google.com/file/d/1OGbH2NpRp3-N7ZBTZtgb77BNznZ5X5tT/view?usp=sharing

101 Math Discourse Questions:
http://www.casamples.com/downloads/100MathDiscourseQuestions_Printable.pdf

Asking Effective Questions
http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_AskingEffectiveQuestions.pdf

Fluency Support for Grades 3-5
https://jenniferfindley.com/free-math-intervention-activities-grades-3-5/

Achieve the Core Coherence Map
https://achievethecore.org/coherence-map/4

Chapter 7

- Chapter Opener
- Am I Ready?/Pre-Assessment
- Vocabulary Cards/Foldable
- 7-1 Nonnumeric Patterns
- 7-2 Numeric Patterns
- 7-3 Sequences
- 7-4 Problem-Solving Investigation: Look for a Pattern
- 7-5 Addition and Subtraction Rules 7-6 Multiplication and Division Rules
- 7-7 Order of Operations
- Chapter 7 Project - Make a Game
- 7-8 Hands On: Equations with Two Operations
- 7-9 Equations with Multiple Operations
- Post-Assessment
- Performance Task

Vocabulary

Chapter 7

- Pattern
- nonnumeric patterns
- numeric patterns
- rule
- Term
- sequence

Assessments:

Formative:

- ❖ Application Cards
- ❖ Quick Draw
- ❖ Think-Pair-Share
- ❖ Exit Slip
- ❖ One-Minute Essay

- ❖ Sequence
- ❖ Paraphrase
- ❖ Questioning
- ❖ Quick Write
- ❖ Definitions

Summative Assessment

- ❖ Performance Task
- ❖ Diagnostic Assessment
- ❖ Chapter Pre-Test

Differentiation in the Mathematics Classroom

Differentiate the Test

- Use alternative leveled chapter assessments (approaching level, on level and beyond level) to differentiate assessment for specific needs of students
- Provide option of print vs. online assessment
- Reduce the number of problems given
- Provide multiplication charts/calculators
- Provide a checklist of the steps needed to complete the problem
- Provide place value charts and resources
- Provide lots of white-space to make it less busy
- If still struggling, reteach & retest

- Provide hints written on tests, such as mnemonic devices
- Give extra time

Differentiation - Best Practices

- ➢ Provide multiplication tables (or calculators) to students who struggle with fluency. This allows you to see if they've mastered the skill at hand (i.e., adding/subtracting fractions) without the barrier of fact fluency issues. Click here for a copy of a multiplication chart.
- ➢ Represent numbers in place value charts whenever possible. Give students their own laminated copies of place value charts so they can organize their thoughts while completing their work.
- ➢ Assign fewer complex problems and have students illustrate or explain the reasoning they use.
- ➢ Emphasize the role of diagramming in interpreting and solving problems in mathematics.
- ➢ Provide students with graph paper to help them organize their math in an effort to reduce errors being made due to handwriting.
- ➢ Use tasks that provide multiple entry points and provide scaffolds that support student participation.
- ➢ Have a vocabulary wall.
- ➢ Provide reduced amount of homework for struggling learners. Give them 2 relevant math problems rather than an entire worksheet.
- ➢ Conference with the students often to learn about how they think about math.
- ➢ Use base-ten models and other manipulatives to represent numbers through ten-thousands
- ➢ Draw pictures of base-ten models to represent and compare numbers.
- ➢ Compare numbers in various forms including standard, word, and expanded forms.
- ➢ Make flashcards for terms and examples, then mix and match.

Special Education Students
Chapter 7

- Use Am I Ready? Worksheets to review concepts students missed on assessment

- 7-1 Display a repeating pattern using pattern blocks. Have students copy the pattern with their own pattern blocks. Next have students identify where the pattern repeats and place the section that repeats below the first section. If the students are correct, the top and bottom rows will match.
- 7-2 Use the Reteach activity. Have students use connecting cubes to model each pattern. Seeing the pattern the connecting cubes create, rather than looking at a list of numbers, may help them recognize that changes each time.
- 7-3 Help students look for a pattern in the multiplication table. Ask them to write a sequence of 4-5 terms, using the numbers in the pattern. Continue with other multiplication patterns.
- 7-4 Students work with a partner and choose one problem they had difficulty solving from the lesson. Students use graphic organizer to help them understand the problem and then solve it.
- Check My Progress - Students can use approaching level or on level activities from Lesson 1 to review concepts; use manipulatives
- 7-5 Have students fold a sheet of partner in half long ways to make an input/output machine. Label the left column input and the other output. Give students an input number and + or - rule. Tell them "the machine works on it" and the output number comes out across from it. Give more rules and input numbers, asking them what the output number will be. Use counters, if needed.
- 7-6 Have students use the input/output machine from the previous lesson. Give students an input number and a multiplication or division rule, the machine works on it, and the output number comes out across from it. Give more rules and input numbers, asking them what the output number will be. Use counters, if needed.
- 7-7 Show students how to use the counters to model an expression while recording the answer to each operation. Give them an expression. With a partner, have students find is value using counters, while verbalizing their thinking.
- 7-9 Have students reflect back on the exercises from the Problem Solving page. Tell them hen writing equations, to underline key phrases in each word problem, and then replace the phrase with mathematical symbols. Guide them by modeling a problem.

English Language Learners

- ➢ All WIDA Can Do Descriptors can be found at this link: https://www.wida.us/standards/CAN_DOs/
  - ○ ☐ Grades 4-5 WIDA Can Do Descriptors:
  - ○ ☐ Listening

    - ☐ Speaking
    - ☐ Reading
    - ☐ Writing
    - ☐ Oral Language

- Discuss terms
- Discuss antonyms Share words that begin with non-
- Write and discuss multiple=meaning words
- Discuss opposites
- Check answers with a partner
- Use sentence frames for discussion and exercises
- Write Spanish cognate
- Provide visual example to support understanding
- Divide students into groups of 4 and give each student a number from 1 to 4. Have students gather to discuss exercises.
- Make a table to help visualize facts known
- Look for patterns in word problems
- Have students model tables
- Use prefixes and suffixes
- Discuss how input and output table changes numbers
- Visualize table as machine
- Have students think about answers to talk math independently, then allow them to turn and talk to a neighbor about their ideas
- Allow students to compare answers
- Modeling
- Add terms to math journals with pictures, examples, and notes
- Pair multilingual students
- Have pairs echo read the problems
- Use visual supports as needed

At-Risk Students ➢ Reduce the number of problems given ➢ Provide calculators ➢ Give extra time	**504 Students** ➢ Provide a checklist of the steps needed to complete the problem ➢ Provide place value charts ➢ Provide lots of white-space to make it less busy ➢ If still struggling, reteach and retest

Gifted and Talented Students

☐ Modify activities/assignments/projects/assessments

☐ Provide an option for alternative activities/assignments/projects/assessments

☐ Modify Content

☐ Adjust Pacing of Content

☐ Small Group Enrichment

☐ Individual Enrichment

☐ Higher-Level Text

- Modify activities/assignments/projects/assessments
- Provide an option for alternative activities/assignments/projects/assessments
- Modify Content
- Adjust Pacing of Content
- Small Group Enrichment
- Individual Enrichment
- Higher-Level Text
- Have students complete the chapter pretest to determine what skills in the chapter they already know
- Use a Math at Home: Game Time worksheet from previous chapter

- 7-1 In pairs, have students create an auditory pattern. Students will first write the pattern on paper and then perform it for their pattern. The partner needs to identify and extend their partner's pattern.
- 7-2 Have students roll two number cubes to generate two numbers. The numbers will be the first two number sin the pattern. Extend the pattern to five numbers. Have students exchange patterns with a partner. Have partner identify the rule and the next number in the pattern.
- 7-3 Have students brainstorm with a partner all the mathematical concepts they have learned that involve number patterns, writing a five-term sequence as an example for each. Have them discuss the reasoning with their pattern that supports each idea. Students will then share their ideas with the whole group.
- 7-4 Students will use the graphic organizer and write a word problem that involves looking for a pattern. Then, they will exchange their problems. Students will complete the organizers and solve the problem.
- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.
- 7-5 Have students play “What’s My Rule?” with a partner. Student 1 writes an addition or subtraction equation on a piece of paper, using two-digit numbers. Student 1 must make sure Student 2 cannot see the equation. Student 2 says a random 2-digit number. Student 1 uses the number as an input value and replies with the resulting output value. Student 2 continues until he or she can identify the rule. Have students take turns writing equations and identifying rules.
- 7-6 Have students play “What’s My Rule?” with a partner. Student 1 writes a multiplication or division equation on a piece of paper, using two-digit numbers. Student 1 must make sure Student 2 cannot see the equation. Student 2 says a random 2-digit number. Student 1 uses the number as an input value and replies with the resulting output value. Student 2 continues until he or she can identify the rule. Have students take turns writing equations and identifying rules.
- 7-7 Pairs of students create a matching game. Each pair will write a total of 12 expressions with one or two sets of parentheses. The other cards will have the solutions. The cards are placed face up and scattered. The pairs of students will work quickly to see who can make more matches.
- 7-9 Students will write an equation with more than one operation. Then they will use a black marker to cover all but one or two numbers. Cards are exchanged and each student will make the expression true by finding the missing numbers.

Domain 3: Numbers and Operations - Fractions (NF)	
Chapter 8 - Fractions Chapter 9 - Operations with Fractions Chapter 10 - Fractions & Decimals	
NJ 2016 Student Learning Standards: Mathematics Grade 4 **Operations and Algebraic Thinking** 4.OA.4 **Find all factor pairs for a whole number in the range of 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.** **Numbers and Operations - Fractions** **A. Extend understanding of fraction equivalence and ordering.**	**NJDOE Mathematics Curricular Framework** Guide Document and Supports Mathematics Curricular Framework **Mathematical Practices** **MP. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.** **highlight appropriate indicators for unit/domain**

4.NF.1. Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. 4.NF.2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 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. **B. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.** 4.NF.3. Understand a fraction a/b with a > 1 as a sum of fractions 1/b. 4.NF.3a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. 4.NF.3b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.	MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics. MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning. ● Chapter 8 - Work Creatively with Others - Shade 50 out of 100 squares of hundredths grid and 5 out of 10 sections of a tenths model. There does not need to be a set way of doing this. Be creative in which squares you color. Now take another grade paper and create other equivalent fractions. Put them together to make a book of equivalent fractions ● Chapter 9 - Critical Thinking - The process of multiplying a fraction by a whole number may not seem to be logical to some students. Encourage them to think about the "rule" by really emphasizing the physical modeling of the product as repeated addition of the fraction. In this way, they can see that the denominator does not change, so when multiplying they only need to multiply the numerator by the whole number. ● Chapter 10 - Critical Thinking - Divide the class into groups of 3 or 4. The first student in each group should write a sentence that represents the first sentences of a real-world problem. That student gives their paper to the second student who writes a second sentence, providing

	more information about that real-world problem. Continue this pattern until the paper is handed to the last student. The last student writes a question about the real-world information that is given. The group then needs to decide if there is extra or missing information needed to solve the problem. If the problem can be solved, have the group solve it. If not, have them explain what information is missing.
Career Readiness, Life Literacies, and Key Skills Integration **NJSLS - CRLLKS 2020** **highlight appropriate indicators for unit/domain** CRLLKS1. Act as a responsible and contributing community members and employee. CRLLKS2. Attend to financial well-being. CRLLKS3. Consider the environmental, social and economic impacts of decisions. CRLLKS4. Demonstrate creativity and innovation. CRLLKS5. Utilize critical thinking to make sense of problems and persevere in solving them CRLLKS6. Model integrity, ethical leadership and effective management. CRLLKS7. Plan education and career paths aligned to personal goals. CRLLKS8. Use technology to enhance productivity increase collaboration and communicate effectively.persevere in solving them.	**21st Century Student Outcomes** http://www.battelleforkids.org/networks/p21 **Learning and Innovation Skills** **highlight appropriate indicators for unit/domain** Think Creatively Work Creatively with Others Implement Innovations Reason effectively Use Systems Thinking Make Judgments and Decisions Solve Problems Communicate Clearly Collaborate with Others **Life and Career Skills** **highlight appropriate indicators for unit/domain** Adapt to Change Be Flexible Manage Goals and Time Work Independently Be Self-directed Learners

CRLLKS9. Work productively in teams while using cultural/global competence.	Interact Effectively with Others Work Effectively in Diverse Teams
Enduring Understandings Chapter 8 ● How to find factor pairs of whole numbers ● How to model equivalent fractions ● How to find a fraction that is equivalent to another fraction ● How to compare fractions by using a benchmark fraction Chapter 9 ● How to use fraction tiles to model the sum of fractions ● How to add and subtract like fractions ● How to add and subtract mixed numbers ● Use an equation to write a fraction as a multiple of a unit fraction ● How to multiply a fraction by a whole number Chapter 10 ● How to use place value to write decimals ● How to use models to represent decimals ● How to compare decimals ● How to use decimal notation to represent fractions ● How to add two fractions with denominators of 10 and 100	**Essential Questions** Chapter 8 How can different fractions name the same amount? Chapter 9 How can I use operations to model real-world fractions? Chapter 10 How are fractions and decimals related ?
Content Knowledge	**Skills**

Overview ● Use place value understanding and properties of operations to perform multi-digit arithmetic ● Use the four operations with whole numbers to solve problems ● Solve problems involving measurement and conversion of measurements ● Extend understanding of fraction equivalence and ordering. ● Build fractions from unit fractions ● Build fractions from unit fractions ● Represent and interpret data ● Understand decimal notation for fractions and compare decimal fractions. ● Solve problems involving measurement and conversion of measurements ● Use place value understanding and properties of operations to add and subtract Chapter 8 ● I can find factors and multiples of whole numbers ● I can determine if a number is prime or composite ● I can explore equivalent fractions ● I can find equivalent fractions ● I can write a fraction in simplest form ● I can compare and order fractions ● I can use benchmark fractions to compare and order numbers ● I can use logical reasoning to solve problems ● I can represent mixed numbers by decomposing them	Chapter 8 ● Write two fractions that are equivalent to a fraction like 3/8 ● Compare two fractions like 2/5 and 5/8 using a benchmark fraction Chapter 9 ● Use models to show sums of like fractions ● Solve subtraction problems of like fractions ● Solve subtraction problems with mixed numbers ● Use an equation to write a fraction like ⅞ as a multiple of a unit fraction ● Find products of a whole number and a fraction Chapter 10 ● Use place-value charts to write decimals like thirty-seven hundredths ● Use models to represent decimals like five tenths ● Use a number line to compare decimals ● Write a fraction and a decimal for models ● Add fractions with denominators of 100 and 10

into a sum of whole numbers and unit fractions ● I can write mixed numbers improper fractions Chapter 9 ● I can use models to add like fractions ● I can add like fractions ● I can use models to subtract like fractions ● I can subtract like fractions ● I can work backward to solve problems ● I can add mixed numbers ● I can subtract mixed numbers ● I can use models to multiply fractions ● I can multiply fractions by whole numbers Chapter 10 ● I can explore using place-value charts and grids to model decimals ● I can model and describe tenths as part of a base-ten system ● I can model and describe hundredths as part of a base-ten system ● I can explore using grids and number lines to find the relationships between decimals ● I can identify, read and write tenths and hundreds as decimals and fractions ● I can use place value and equivalent fractions to add two fractions with denominators of 10 and 100 ● I can compare and order decimals to hundredths by reasoning about their size ● I can find extra information when solving problems	

Primary and Supplementary Resources

Grade 4 My Math Teacher Edition
Grade 4 My Math Student Edition
Grade 4 Pacing Calendar
Chapter Vocabulary Cards

My Math Resources

EdConnect Login

NJSLA Mathematics Operational Evidence Statements
https://docs.google.com/spreadsheets/d/18M5r1jk4P729fTpAlWAzrw1gE6tken233I-Yk0U712M/edit#gid=554025491

NJSLA Released Items
https://nj.digitalitemlibrary.com/home
https://resources.newmeridiancorp.org/

Illustrative Mathematics

iReady
i-Ready makes differentiated instruction a practical reality for teachers and students. *i-Ready*:

- integrates powerful assessments and rich insights with effective and engaging instruction in reading and mathematics to address students' individual needs.
- empowers teachers every day to make more informed instructional decisions.
- motivates students with access to their own personalized path to growth.

XtraMath

- This program helps students practice their math facts for addition, subtraction, multiplication, and addition.
- Can individualize the fluency skills for each student.
- Can run reports to determine progress.

Scholastic Study Jams

- Fun videos which explain common mathematics concepts.

➢ Questions at the end of the video reinforce the concepts.

Khan Academy

➢ a set of online tools that help educate students. The organization produces short lessons in the form of YouTube videos.
➢ Its website also includes supplementary practice exercises and materials for educators.

4th grade Flip Book:
https://drive.google.com/file/d/1OGbH2NpRp3-N7ZBTZtgb77BNznZ5X5tT/view?usp=sharing

101 Math Discourse Questions:
http://www.casamples.com/downloads/100MathDiscourseQuestions_Printable.pdf

Asking Effective Questions
http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_AskingEffectiveQuestions.pdf

Fluency Support for Grades 3-5
https://jenniferfindley.com/free-math-intervention-activities-grades-3-5/

Achieve the Core Coherence Map
https://achievethecore.org/coherence-map/4

Chapter 8 ● Chapter Opener ● Am I Ready?/Pre-Assessment ● Vocabulary Cards/Foldable ● 8-1 Factors and Multiples ● 8-2 Prime and Composite Numbers ● 8-3 Hands On: Model Equivalent Fractions ● 8-4 Equivalent Fractions ● 8-5 Simplest Form ● 8-6 Compare and Order Fractions ● Chapter 8 Project: Healthy Recipes	**Vocabulary** Chapter 8 ● factor pairs ● prime number ● composite number ● numerator ● denominator ● equivalent fractions ● simplest form ● greatest common factor

• 8-7 Use Benchmark Fractions to Compare and Order • 8-8 Problem Solving Investigation: Use Logical Reasoning • 8-9 Mixed Numbers • 8-10 Mixed Numbers and Improper Fractions • Post-Assessment • Performance Task Chapter 9 • Chapter Opener • Am I Ready?/Pre-Assessment • Vocabulary Cards/Foldable • 9-1 Hands On: Use Models to Add Like Fractions • 9-2 Add Like Fractions • 9-3 Hands On: Use Models to Subtract Like Fractions • 9-4 Subtract Like Fractions • 9-5 Problem-Solving Investigation: Work Backward • 9-6 Add Mixed Numbers • 9-7 Subtract Mixed Numbers • Chapter 9 Project - Growing Up • 9-8 Hands On: Model Fractions and Multiplication • 9-9 Multiply Fractions by Whole Numbers • Post-Assessment • Performance Task Chapter 10 • Chapter Opener • Am I Ready?/Pre-Assessment • 10-1 Hands On: Place Value Through Tenths and Hundredths • 10-2 Tenths • 10-3 Hundredths	• least common multiple • benchmark fractions • mixed number Chapter 9 • like fractions Chapter 10 • decimal • tenth • hundredth

• 10-4 Hands On: Model Decimals and Fractions • 10-5 Decimals and Fractions • 10-6 Use Place Value and Models to Add • 10-7 Compare and Order Decimals • Chapter 10 Project - Bake Sale Equivalents • 10-8 Problem Solving Investigation: Extra or Missing Information • Post-Assessment • Performance Task	

Assessments:

Formative:

- ❖ Exit Slip
- ❖ One-Sentence Summary
- ❖ Quick Draw
- ❖ One-Minute Essay
- ❖ Error Analysis
- ❖ Check My Progress
- ❖ Application Cards
- ❖ Summarize
- ❖ Chapter Review
- ❖ Vocabulary Check
- ❖ Concept Check
- ❖ Problem Solving
- ❖ Test Practice
- ❖ Reflect
- ❖ Example/Non-example

- ❖ Think-Pair-Share
- ❖ Sequence
- ❖ Definitions
- ❖ Number Sort
- ❖ Analogy Prompt
- ❖ Turn to Your Partner
- ❖ Questioning

Summative Assessment

- ❖ Performance Task
- ❖ Diagnostic Assessment
- ❖ Chapter Pre-Test

Differentiation in the Mathematics Classroom

Differentiate the Test

- Use alternative leveled chapter assessments (approaching level, on level and beyond level) to differentiate assessment for specific needs of students
- Provide option of print vs. online assessment
- Reduce the number of problems given
- Provide a checklist of the steps needed to complete the problem
- Provide place value charts and resources
- Provide lots of white-space to make it less busy
- If still struggling, reteach & retest

- Provide multiplication charts/calculators
- Provide hints written on tests, such as mnemonic devices
- Give extra time

Differentiation - Best Practices

- ➢ Provide multiplication tables (or calculators) to students who struggle with fluency. This allows you to see if they've mastered the skill at hand (i.e., adding/subtracting fractions) without the barrier of fact fluency issues. Click here for a copy of a multiplication chart.
- ➢ Represent numbers in place value charts whenever possible. Give students their own laminated copies of place value charts so they can organize their thoughts while completing their work.
- ➢ Assign fewer complex problems and have students illustrate or explain the reasoning they use.
- ➢ Emphasize the role of diagramming in interpreting and solving problems in mathematics.
- ➢ Provide students with graph paper to help them organize their math in an effort to reduce errors being made due to handwriting.
- ➢ Use tasks that provide multiple entry points and provide scaffolds that support student participation.
- ➢ Have a vocabulary wall.
- ➢ Provide reduced amount of homework for struggling learners. Give them 2 relevant math problems rather than an entire worksheet.
- ➢ Conference with the students often to learn about how they think about math.
- ➢ Make flashcards for terms and examples, then mix and match.
- ➢ Conference with the students often to learn about how they think about math.
- ➢ Model decimals using money
- ➢ Use number line for representing decimals

Special Education Students

Chapter 8

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- 8-1 Tell students to find the factor pairs of 12 by arranging 12 unit cubes on the grid paper in as many different arrays that are possible. Tell students that the number of rows and number of columns make the factor pair. Address the Commutative Property and to not repeat any pairs. Repeat the activity with other numbers.
- 8-2 Provide students with counters and have them arrange the counters into two different arrays using different factor pairs. Point out that if they can make only one array with the counters ($1 \times n$), the number is prime.
- Check My Progress - Students can use approaching level or on level activities from Lesson 1 to review concepts; use manipulatives
- 8-4 Tell students to color each row a different color, and then show them how to "read" the fraction tiles. To help them track down the rows, show them how to line up a ruler to find equivalent fractions. Write a fraction on the board that can be represented with the tiles and have them find all the equivalent fractions.
- 8-5 Write an unsimplified fraction on the board that can be represented with fraction tiles. Ask students to write, then model the fraction. To simplify the fraction, have students find the one smaller tile that in quantity will match the length of the given fraction. Have them write the simplified form of the fraction with a symbol of equivalency. You may want to give some fractions that are simplified, also.
- 8-6 On grid paper, have students outline two 2×5 rectangles. Tell them to shade in 4 squares in the first rectangle and 6 in the second one. Guide students in labeling each rectangle with a fraction that represents the amount of the rectangle that is shaded. Have students look at the amount of each rectangle that is shaded to help them compare the fractions. Repeat the previous two steps with different fractions.
- 8-7 Guide students to make three number lines. Label as shown on p. 523 of the student book. Have students write each fraction, $\frac{6}{8}$, $\frac{2}{6}$, and $\frac{1}{2}$ on half of 3 index cards. Help them decide which fractions are greater than $\frac{1}{2}$ and which are less than $\frac{1}{2}$ by placing them on the number lines. Continue to guide them as they order. Repeat with more fractions.
- 8-8 Work with students on Exercise 2 from Apply the Strategy page. Show them how to make a table to organize the given information. Since all the fractions have different denominators, review making equivalent fractions and ordering them. Fraction tiles or circles will lend support. Show how to use the process of elimination to solve.

- 8-9 Write a mixed number on the board. Guide students in modeling the mixed number using fraction tiles or circles. Then ask students to write an equation to represent the mixed number
- 8-10 Have students practice modeling whole number fractions, $\frac{2}{2}$, $\frac{4}{4}$, and so on. After they have modeled each whole number, ask them to add 1 or more additional equal parts and tell you the improper fraction it represents.

Chapter 9

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- 9-2 **Hands-On Activity** Materials: clear one-cup measuring container with fractional increments, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{3}$, and $\frac{1}{2}$ measuring cups, uncooked rice, large bowl for each group. In small groups, with a set of measuring cups and a bowl of uncooked rice, read a like-fraction addition problem with a sum less than or equal to one, such as $\frac{1}{4} + \frac{2}{4}$.Have students model measuring the fractional amounts and pouring them into the one-cup container. Students can read the sum from the measurement marks on the side of the cup.
- 9-4 Write the minuend from a fraction subtraction problem on the board. Have students color the tiles on their paper, and write the minuend in the margin. Write the subtrahend on the board. Students now cross out that many tiles, and record the subtrahend, subtraction sign, and the difference in the margin. Repeat with more problems.
- Check My Progress - **IF** students miss 5 or more, **THEN** choose a resource: Students can use the Approaching Level or On Level RtI activities from Lessons 1–4 to review the concepts. For reviewing concepts by using manipulatives, turn to the Build Conceptual Understanding section of Lessons 1–4 or use the Virtual Manipulatives online.
- 9-5 Work with the students on Exercise 2. Guide them by modeling the problem and talking through your thought process. Allow them to work with a partner mimicking your process while solving Exercise 3.
- 9-6 Use Independent Exercises 3–11 (odd). Have students model each mixed number addend with fraction circles. Have them combine the fraction pieces first, then the whole circles to add. When necessary, have them trade fraction pieces for whole circles to rename improper fractions. Then have them count wholes and fraction pieces to find the sum.

- 9-7 Have students draw a fraction bar across the center of a sheet of paper. Place 10 fruit snacks on each student's paper above the fraction bar. Remind students that the total number of snacks is the denominator. Have students write 10 under the fraction bar. *What fraction is represented with the snacks?* $\frac{10}{10}$ Direct students to eat two pieces of fruit snacks. *What fraction was subtracted?* $\frac{2}{10}$ *What fraction of the snack is left?* $\frac{8}{10}$ Write the equation. $\frac{10}{10} - \frac{2}{10} = \frac{8}{10}$. Subtract snacks until the total is $\frac{0}{10}$.
- 9-9 Work with the students using Exercises 7–10. Guide them by modeling the problems, while talking through your thought process. Allow them to work with a partner mimicking your process for solving the problems.

Chapter 10

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- 10-2 *Why can we use dimes to model tenths?* A dime is one tenth of one dollar. Write one decimal from 0.1–0.9 on the board. Have students model the decimal using dimes as they count aloud, one tenth, two tenths, and so on. Then have them shade the grid appropriately and write the decimal in the place-value chart. Continue with more decimals.
- 10-3 Write 25¢ on the board. Ask students to use the pennies and dimes to represent 25¢, using the most possible dimes. *How many dimes did you use?* 2 *How many tenths is 2 dimes?* 0.2 Record the 2 in the tenths place of Work Mat 6. *How many pennies did you use?* 5 *How many hundredths is 5 pennies?* 0.05 Record the 5 in the hundredths place. *The 2 dimes represent tenths, and the 5 pennies represent the hundredths.* Repeat with other amounts.
- Check My Progress
- 10-5 Use play money to represent 0.6, 0.21, and 0.08 with dimes and pennies. Then represent each decimal as a fraction. *If the number has just dimes, what word is used to name the decimal?* Tenths. *If the number has dimes and pennies or just pennies that are not multiples of 10, what word is used?* hundredths

- 10-6 Give one tenths grid and one hundredths grid to each student. Tell students to find the sum of four tenths and thirty-seven hundredths. $\frac{77}{100}$ Guide students to shade the correct portion of each grid, write the fraction below each grid, and then write an addition sentence. Help students solve the addition sentence. Repeat, but this time after the grid is shaded, trade grids with a partner to complete. Watch for students who need more guidance.
- 10-7 Have Student 1 spin two times as Student 2 records each number on the place-value chart. The first spin should be recorded in the tenths place and the second in the hundredths place. Repeat to make four decimals in all. Have students order their four place-value charts from *greatest* to *least* and *least* to *greatest*. Repeat with four more numbers with students trading roles as spinner and writer.
- 10-8 Have the students look at Exercise 7. Have them choral read it together. Using the four-step plan, ask them what they know and what they need to find, underlining the information needed to solve the problem and crossing out the extra information. Work together to plan a strategy and solve.

English Language Learners

➢ All WIDA Can Do Descriptors can be found at this link: https://www.wida.us/standards/CAN_DOs/

- ☐ Grades 4-5 WIDA Can Do Descriptors:
- ☐ Listening
- ☐ Speaking
- ☐ Reading
- ☐ Writing
- ☐ Oral Language

- Sentence Frames
- Read-Aloud/Modeled Talk
- Pictures/Photographs
- Pairs or Partners
- Communication Guide

- Turn and Talk
- Anchor Chart
- Utilize Resources
- Turn and Talk
- Activate Prior Knowledge
- Partners Work/Pairs Check
- Tiered Questions
- Mnemonic Device
- Report Back
- Numbered Heads Together
- Cognates

At-Risk Students

- ➢ Reduce the number of problems given
- ➢ Provide calculators
- ➢ Give extra time

504 Students

- ➢ Provide a checklist of the steps needed to complete the problem
- ➢ Provide place value charts
- ➢ Provide lots of white-space to make it less busy
- ➢ If still struggling, reteach and retest

Gifted and Talented Students

☐ Modify activities/assignments/projects/assessments

☐ Provide an option for alternative activities/assignments/projects/assessments

☐ Modify Content

☐ Adjust Pacing of Content

☐ Small Group Enrichment

☐ Individual Enrichment

☐ Higher-Level Text

Chapter 8

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- Use a Math at Home: Game Time worksheet from previous chapter
- 8-1 Draw a line down the center of a few cards. Label left side multiple and the right side factor pairs. A student rolls the number cube, writes the number at the top of the index card and one multiple of the number. Play passes to the next student who writes the factor pairs for the multiple given and a new multiple of the rolls number. Play continues until all have a turn or there are no multiples and factor pairs remaining. Roll a new number and repeat.
- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.
- 8-2 Fold a piece of paper n half long ways . Label the column on the left side Prime and the column on the right side composite. In pairs, students will take turns ruling the number cubes to make a two-digit number, writing it in the correct column. See who can reach 10 prime numbers first.
- 8-4 Together students will make 15 pairs of equivalent fractions. Then, in groups of four. students will play memory. Place all cards face down on the table. Players will take turns flipping over two cards at a time to find a pair of equivalent fractions. If a player finds a pair, he or she keeps the cards and continues until he or she does not turn over an equivalent fraction pair. Play passes to the next student.
- 8-5 Tell students that there are 365 days, or 52 weeks, in a year. Have them calculate the number of weekdays and weekend days in one year. Then have students round the figures to the nearest ten and determine approximately what fraction of a year is made up of weekdays and what fraction is made up of weekend days. Have students write fraction
- 8-6 In groups of 3 or 4, students make 20 fraction cards using denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100. One student will deal out the cards evenly, facedown. Students keep their cards in a pile facedown. Each student will flip over their top card. Students will work together to order the fractions *least to greatest*. Whoever had the greatest fraction wins all the cards. The student with the most cards wins.
- 8-7 Each student will take a recipe and order the fractions *least to greatest*. Then students will find an equivalent fraction for each of the six fractions. Students will plot the equivalent fractions on a number line.

- 8-8 Have students create their own logical reasoning word problems. They must use fractions for the quantities and require comparing and ordering of the fractions to solve. They will exchange problems and solve. If time permits, present them to the whole group.
- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.
- 8-9 Have students create questions about the value of a quantity of pattern blocks in which the answer will result in a mixed number, i.e. *If a hexagon has a value of 1 whole, what is the value of 3 trapezoids?* ½ since each trapezoid is half of a hexagon.
- 8-10 Students will each write five mixed numbers and five improper fractions. They combine all the cards, shuffle, and place facedown. In pairs, each student draws a card keeping it facedown. They both count, "1, 2, 3, Go!" and turn over their card. The first student to convert their mixed number or improper fraction correctly, earns a point.

Chapter 9

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- Use a Math at Home: Game Time worksheet from previous chapter
- 9-2 Have students use colored pencils to color the squares of a 10 × 10 grid to create a picture. Students trade pictures with another student and then find the fraction of the picture represented by each color, including the squares that are not colored. Students should write an addition sentence to find the sum of all the fractions. The sum of the numerators should equal 100 because each piece of the whole is being counted.
- 9-4 On separate cards, each student writes several subtraction problems and their solutions using like fractions. *Use only sixths, eighths, tenths, and twelfths as the denominators.* Be sure there are at least 24 problems. Collect the cards, and list each solution on the board. Write "free" in any one square and the 24 solutions in the other squares of the grid. Read a problem aloud. Students place only 1 counter on the solution. Follow bingo rules to win.
- Check My Progress - **IF** students miss 2 or less, **THEN** choose a resource: Use a game or activity from the My Learning Station. Use a Math at Home: Game Time worksheet from a previous chapter.
- 9-5 Give the students the following problems: $a - 50 = b$; $b \div 10 = c$; $c + 5 = 12$ $a = 120$; $b = 70$; $c = 7$ In pairs, have students find *a, b,* and *c* using the work backward strategy and inverse operations. Then have them create a similar problem, on an index card, that requires the work backward strategy to solve. They should trade with a partner to solve.

- 9-6 The goal of the activity is to match two mixed number addends to their sum. Group students and have each student write one addition equation using mixed numbers. Write each addend on separate cards and the sum on a third card. Students separate their cards into an addend pile and a sum pile. Shuffle each pile. Place each pile facedown in 2 arrays. Students turn over two cards from the addend group and one from the sum group in an attempt to match. If it is a match they keep the cards, if not, the cards are turned facedown and play continues with the next student.
- 9-7 In pairs, Student 1 chooses a whole number card from a facedown, shuffled pile, and then rolls each number cube to make a fraction. Student 2 writes a mixed number with a like denominator that is less than the one made by Student 1. Then each student will work quickly to subtract the two mixed numbers to see who gets the correct answer first. Next round, students switch roles.
- 9-9 Student 1 secretly writes a multiplication problem that multiplies a fraction by a whole number. Then Student 1 models the process to the solution, as well as the solution. Student 2 must figure out what problem Student 1 wrote secretly by watching the modeling. Next round, students switch roles.

Chapter 10

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- Use a Math at Home: Game Time worksheet from previous chapter
- 10-2 Students cut apart all Work Mats. They count off 1 through 5. Student 1 writes any decimal from 0.1 to 0.9 on a card, and then passes the card. Student 2 models the decimal on a place-value chart, Student 3 models the decimal on a tenths grid, Student 4 models the decimal on a hundredths grid, and Student 5 models the decimal on a number line. Students will check for accuracy and then rotate roles.
- 10-3 Have students use index cards to make two sets of number cards with the digits 0–9 on them, one digit per card. Tell students to shuffle the cards and place them facedown in a pile. Have students draw two cards and place them face-up. Challenge students to write the least and greatest decimals using these digits. Students should check answers with a hundredths grid or a number line.
- Check My Progress

- 10-5 Student pairs will each make a grocery list of five items that are less than $1. Next to the item the student will write the price as a fraction of a dollar. Students will exchange grocery lists. Next to the fraction, the partners will write the price as a decimal and the change they would receive from $1. i.e. can of beans. Student 1: $\frac{69}{100}$; Student 2: $0.69; $0.31
- 10-6 Have students work in pairs. One partner writes a fraction with 10 as a denominator, and the other partner writes a fraction with 100 as the denominator. Have partners reveal their fractions to one another at the same time, then race to find the sum of the two fractions. Tell students to write the sum as both a fraction with a denominator of 100 and as a decimal. The first student to complete the addition problem wins. Students reverse roles in the next round.
- 10-7 Each student makes four decimal cards, some tenths and some hundredths. Students pair up, shuffle their cards together, and place them facedown.
- Place the first card face up on the table. Student 1 picks a card and places it either before or after the first card to order the two *least* to *greatest*. Student 2 repeats, adding it to the two. Students should continue taking turns until all eight cards are ordered.
- 10-8 Student 1 writes the first sentence of a real-world word problem. Student 2 writes a second sentence, providing more information. Continue this pattern until the paper is handed to the last student who writes a question about the information that is given. The group decides if there is extra or missing information. If the problem cannot be solved,have them decide what is missing.

Domain 4: Measurement and Data

Chapter 11 - Customary Measurement
Chapter 12 - Metric Measurement
Chapter 13 - Perimeter & Area

NJ 2016 Student Learning Standards: Mathematics Grade 4	**NJDOE Mathematics Curricular Framework** Guide Document and Supports Mathematics Curricular Framework
● 4.MD.1 - **Know relative sizes of measurement units within one system of units including km, m, cm;** kg, g; lb, oz.; l, ml; hr, min, sec. **Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit.** Record measurement equivalents in a two column table. ● 4.MD.2 - **Use the four operations to solve word problems involving distances,**intervals of time, **liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit.** Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. ● 4.MD.3 - **Apply the area and perimeter formulas for rectangles in real world and mathematical problems.**	**Mathematical Practices** **MP. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.** **highlight appropriate indicators for unit/domain** MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics. MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning. Chapter 11 ● Collaboration - Have students use the Virtual Manipulatives customary ruler to measure different tangrams to the nearest inch, half inch, and quarter inch. You may want to guide them through measuring the first tangram. Tell students that if they make the ruler and object being measured overlap the ruler will become

	transparent. This can help them with lining up the zero on the ruler with the front end of the object being measured. Chapter 12 ● Critical Thinking - Show students objects that have a mass of 1 gram (penny or paper clip) and objects that have a mass of 1 kilogram (math textbook or loaf of bread). Show students different objects that have unknown masses. After showing students each object, ask them: *Should this object's mass be measured in grams or kilograms?* Chapter 13 ● Collaboration - Introduce students to the basics of using a spreadsheet. Have them work together in small groups to make a spreadsheet in which one column is the length, one the width, one the perimeter, and one the area. If the length is in cell A2 and the width is in cell B2, they can enter the formula =2*A2 + 2*B2 to automatically figure the perimeter and =A2*B2 for the area. Have them copy each formula and paste it into all the cells in that column for automatic figuring of the perimeter and area for each figure they define by the width and length. This can help them compare perimeter and area for different dimensions.
Career Readiness, Life Literacies, and Key Skills Integration	**21st Century Student Outcomes**

NJSLS - CRLLKS 2020 **highlight appropriate indicators for unit/domain** CRLLKS1. Act as a responsible and contributing community members and employee. CRLLKS2. Attend to financial well-being. CRLLKS3. Consider the environmental, social and economic impacts of decisions. CRLLKS4. Demonstrate creativity and innovation. CRLLKS5. Utilize critical thinking to make sense of problems and persevere in solving them CRLLKS6. Model integrity, ethical leadership and effective management. CRLLKS7. Plan education and career paths aligned to personal goals. CRLLKS8. Use technology to enhance productivity increase collaboration and communicate effectively.persevere in solving them. CRLLKS9. Work productively in teams while using cultural/global competence.	http://www.battelleforkids.org/networks/p21 **Learning and Innovation Skills** **highlight appropriate indicators for unit/domain** Think Creatively Work Creatively with Others Implement Innovations Reason effectively Use Systems Thinking Make Judgments and Decisions Solve Problems Communicate Clearly Collaborate with Others **Life and Career Skills** **highlight appropriate indicators for unit/domain** Adapt to Change Be Flexible Manage Goals and Time Work Independently Be Self-directed Learners Interact Effectively with Others Work Effectively in Diverse Teams
Enduring Understandings Chapter 11 ● How to convert customary units of length ● How to convert customary units of capacity ● How to convert customary units of weight	**Essential Questions** Chapter 11 ● Why do we convert measurements?

● How to convert units of time ● How to use a line plot to represent measurement data involving fractions of units Chapter 12 ● How to estimate measures of lengths in the metric system ● How to estimate metric units of capacity ● How to estimate metric units of mass ● How to convert metric units of measurement ● How to solve word problems involving metric measurements Chapter 13 ● How to find the perimeter of a rectangles ● How to find the perimeter of a rectangle by using a formula ● How to find the area of a rectangle ● How to find the area of a square ● How to relate perimeter and area of rectangles	Chapter 12 ● How can conversions of measurements help me solve real-world problems Chapter 13 ● Why is it important to measure area and perimeter?
Content Knowledge Chapter 11 ● I can estimate and measure length using customary units. ● I can convert customary units of length. ● I can estimate and measure customary capacities. ● I can convert customary units of capacity. ● I can estimate and measure customary units of weight. ● I can convert customary units of weight. ● I can convert units of time.	**Skills** Chapter 11 ● Find measurement equivalents for customary units of length ● Find measurement equivalents for customary units of capacity ● Find measurement equivalents for customary units of

● I can display measurement data in a line plot. ● I can solve problems involving measurement. ● I can solve problems using the guess, check, and revise strategy. Chapter 12 ● I can estimate and measure lengths within the metric system ● I can estimate and measure metric capacities ● I can estimate and measure mass and learn the difference between weight and mass ● I can make an organized list to solve problems ● I can convert metric units ● I can solve problems involving measurement Chapter 13 ● I can find the perimeter of a figure ● I can solve a simpler problem to solve problems ● I can explore the area of a figure ● I can find the area of rectangles and squares ● I can relate area to perimeter	weight ● Create a conversion table to show the relationship between two units of time, like seconds and minutes ● Use line plots to represent measurement values that are fractions Chapter 12 ● Measure the lengths of objects to the nearest centimeter ● Determine reasonable estimates for the capacity of containers, such as a sports drink bottle ● Determine reasonable estimates for the mass of objects, such as a cat ● Convert metric units of length, capacity, and mass ● Solve measurement problems Chapter 13 ● Find the perimeter of rectangles ● Use a formula to find the perimeter of rectangles ● Find the area of rectangles ● Find the area of squares ● Determine possible dimensions of perimeters of rectangles for given areas
Primary and Supplementary Resources Grade 4 My Math Teacher Edition Grade 4 My Math Student Edition Grade 4 Pacing Calendar	

Chapter Vocabulary Cards

My Math Resources

EdConnect Login

NJSLA Mathematics Operational Evidence Statements
https://docs.google.com/spreadsheets/d/18M5r1jk4P729fTpAlWAzrw1gE6tken233I-Yk0U712M/edit#gid=554025491

NJSLA Released Items
https://nj.digitalitemlibrary.com/home
https://resources.newmeridiancorp.org/

Illustrative Mathematics

iReady
i-Ready makes differentiated instruction a practical reality for teachers and students. *i-Ready*:

- integrates powerful assessments and rich insights with effective and engaging instruction in reading and mathematics to address students' individual needs.
- empowers teachers every day to make more informed instructional decisions.
- motivates students with access to their own personalized path to growth.

XtraMath

- This program helps students practice their math facts for addition, subtraction, multiplication, and addition.
- Can individualize the fluency skills for each student.
- Can run reports to determine progress.

Scholastic Study Jams

- Fun videos which explain common mathematics concepts.
- Questions at the end of the video reinforce the concepts.

Khan Academy

- a set of online tools that help educate students. The organization produces short lessons in the form of YouTube videos.
- Its website also includes supplementary practice exercises and materials for educators.

4th grade Flip Book:
https://drive.google.com/file/d/1OGbH2NpRp3-N7ZBTZtgb77BNznZ5X5tT/view?usp=sharing

101 Math Discourse Questions:
http://www.casamples.com/downloads/100MathDiscourseQuestions_Printable.pdf

Asking Effective Questions
http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_AskingEffectiveQuestions.pdf

Fluency Support for Grades 3-5
https://jenniferfindley.com/free-math-intervention-activities-grades-3-5/

Achieve the Core Coherence Map
https://achievethecore.org/coherence-map/4

Chapter 11 • Chapter Opener • Am I Ready?/Pre-Assessment • Vocabulary Cards/Foldable • 11-1 Customary Units of Length • 11-2 Convert Customary Units of Length • 11-3 Customary Units of Capacity • 11-4 Convert Customary Units of Capacity • Check My Progress • 11-5 Customary Units of Weight • 11-6 Convert Customary Units of weight • 11-7 Convert Units of Time • Check My Progress • 11-8 Display Measurement Data on a Line Plot	**Vocabulary** Chapter 11 • Customary • System • Foot • Yard • Convert • Mile • Capacity • Cup • Fluid ounce • Gallon • Pint • Quart • Ounce • Pound

• 11-9 Solve Measurement Problems • 11-10 Problem-Solving Investigation: Guess, Check and Revise • Post-Assessment • Performance Task Chapter 12 • Chapter Opener • Am I Ready?/Pre-Assessment • Vocabulary Cards/Foldable • 12-1 Metric Units of Length • 12-2 Metric Units of Capacity • 12-3 Metric Units of Mass • Check My Progress • 12-4 Problem Solving Investigation: Make an Organized List • 12-5 Convert Metric Units • 12-6 Solve Measurement Problems • Post-Assessment • Performance Task Chapter 13 • Chapter Opener • Am I Ready?/Pre-Assessment • Vocabulary Cards/Foldable • 13-1 Measure Perimeter • 13-2 Problem Solving Investigation: Solve a Simpler Problem • Check My Progress • 13-3 Hands On: Model Area • 13-4 Measure Area • 13-5 Relate Area & Perimeter	• Ton • Weight • Seconds • Line plot Chapter 12 • Centimeter • Kilometer • Meter • Metric system • Millimeter • Liter • Milliliter • Gram • Kilogram • Mass Chapter 13 • Perimeter • Unit Square • Square Unit • Area

• Post-Assessment • Performance Task	

Assessments:

Formative:

- ❖ Exit Slip
- ❖ One-Sentence Summary
- ❖ Quick Draw
- ❖ One-Minute Essay
- ❖ Error Analysis
- ❖ Check My Progress
- ❖ Application Cards
- ❖ Summarize
- ❖ Chapter Review
- ❖ Vocabulary Check
- ❖ Concept Check
- ❖ Problem Solving
- ❖ Test Practice
- ❖ Reflect
- ❖ Example/Non-example
- ❖ Think-Pair-Share
- ❖ Sequence
- ❖ Definitions
- ❖ Number Sort
- ❖ Analogy Prompt
- ❖ Turn to Your Partner
- ❖ Questioning

Summative Assessment

- ❖ Performance Task
- ❖ Diagnostic Assessment
- ❖ Chapter Pre-Test

Differentiation in the Mathematics Classroom

Differentiate the Test

- Use alternative leveled chapter assessments (approaching level, on level and beyond level) to differentiate assessment for specific needs of students
- Provide option of print vs. online assessment
- Reduce the number of problems given
- Provide multiplication charts/calculators
- Provide hints written on tests, such as mnemonic devices
- Give extra time
- Provide a checklist of the steps needed to complete the problem
- Provide place value charts and resources
- Provide lots of white-space to make it less busy
- If still struggling, reteach & retest

Differentiation - Best Practices

- Provide multiplication tables (or calculators) to students who struggle with fluency. This allows you to see if they've mastered the skill at hand (i.e., adding/subtracting fractions) without the barrier of fact fluency issues. Click here for a copy of a multiplication chart.
- Represent numbers in place value charts whenever possible. Give students their own laminated copies of place value charts so they can organize their thoughts while completing their work.
- Assign fewer complex problems and have students illustrate or explain the reasoning they use.
- Emphasize the role of diagramming in interpreting and solving problems in mathematics.
- Provide students with graph paper to help them organize their math in an effort to reduce errors being made due to handwriting.
- Use tasks that provide multiple entry points and provide scaffolds that support student participation.
- Have a vocabulary wall.
- Provide reduced amount of homework for struggling learners. Give them 2 relevant math problems rather than an entire worksheet.
- Conference with the students often to learn about how they think about math.
- Make flashcards for terms and examples, then mix and match.
- Make a square on a geoboard and then change the square to a rectangle that is not a square.
- Use paper to cut squares and rectangles that are not squares
- Sort squares and rectangles that are not square attribute pieces
- Create squares and rectangles that are not squares with craft sticks
- Label objects in the room with words square, rectangle, or both
- Cut out pictures from magazines and create a two-sided poster to illustrate squares and rectangles.
- Use geoboard to illustrate perimeter.
- Cut out shapes from grid paper to show area
- Draw shapes on grid paper
- Trace around attribute pieces to exemplify perimeter
- Label objects in the room with the words width and length.
- Combine shape blocks to create composite figures.

Special Education Students

Chapter 11

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- 11-1 Have students cut out the rulers. Provide a variety of objects for the students to measure. Give them ample opportunity to measure the same object to the nearest inch, $\frac{1}{2}$ inch, and $\frac{1}{4}$ inch.
- 11-2 Have students measure 1 strip. *How many feet long is the strip?* 1 foot How many inches are there in 1 foot? 12 inches Show them how to make tic marks using a ruler so they have 12 equal parts, and label 1 in. on each part. Guide them in marking and labeling each strip like the first. *Since each strip is 1 foot long, what is the total number of feet you have?* 3 feet *Line up your strips in a row. Tape them together. What unit of measurement do you have now?* Yard *Use this ruler to help you convert lengths.*
- 11-3 To make a gallon gal or guy divide one piece of paper equally into 4 short strips, another into 8 equal-sized squares, and another into 16 equal-sized squares. Use 1 whole sheet of paper for the body (label gal); glue 4 strips as arms and legs (label qt), 2 squares for each hand and foot (label pt), 2 small squares for each hand and foot as fingers and toes (label c). Make a head, add hair, and hang.
- 11-4 Allow students to use customary capacity containers as manipulatives to determine conversions.
- Check My Progress - Students can use approaching level or on level activities from Lesson 1 to review concepts; use manipulatives
- 11-5 Have students hold and compare how heavy each of the two pieces of fruit feel. Then have students look through magazines for pictures of things that would be weighed in ounces and things that are weighed in pounds. They will glue the pictures on one of two large pieces of paper labeled *Ounce* (oz) and *Pound (*lb). Post each poster for reference.
- 11-6 Each student will find 3 objects in the room that they estimate would be between 2 pounds and 5 pounds. In a table they will list the object, an estimate in pounds, and the actual weight in pounds (rounded to nearest pound). After students weigh their objects and complete the table they will exchange them with a partner. The partner will find the weight in ounces. Students will check together.
- 11-7 Tell students to write *1 hour* at the top of one plate, below write *60 minutes*, and below that *3,600 seconds*. Discuss why those numbers are on one plate. Divide the second plate in half top to bottom. At top of each side write $\frac{1}{2}$ *hour*, below that *30 minutes*, and below that *1,800 seconds*. Discuss why those numbers are on the plate Divide the last plate in fourths top to

bottom, and side to side. At top of each quarter write $\frac{1}{4}$ *hour*, below that *15 minutes*, and below that *900 seconds*. Use for reference.

- 11-8 Have students measure 2 short objects to the nearest $\frac{1}{4}$ inch. Record each student's data on a tally chart. Review how to label the number line as a line plot. As you work the problem on the board, ask students to replicate it on their number line. Ask students for questions that can be asked about the data and answered by the group
- 11-9 Guide students through Exercise 3 showing them how to work through each answer choice to find the correct solution. Then work with students on Exercise 4. Show them how the number line is a useful tool in solving this problem. As a group, write a similar problem and ask students for answer choices.
- 11-10 Refer students to Exercise 3. Choral read it together. Using the four-step plan, ask them what they know and what they need to find, underlining the information needed to solve the problem. Show them how to set up a table to keep track of their guesses. Ask students if there is an additional strategy they could use. Finally, emphasize the importance of asking themselves, "Does this solution make sense?"

Chapter 12

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- 12-1 Students cut out and tape together their own centimeter and meter rulers. Use a meterstick to demonstrate that 10 millimeters = 1 centimeter and 100 centimeters = 1 meter. Tell students that 1,000 meters or 1,000 meter sticks = 1 kilometer. Write the equivalencies on the board for the lesson. Have students refer to the meterstick and chart to help them choose the best estimates.
- 12-2 Display a 1-liter container and a product that is measured in milliliters. Give pairs of students a grocery ad to look for and cut out one product that could be measured in milliliters. Allow students to share their pictures, and then glue them on the left side of the paper. Repeat the process with liters, gluing pictures on the right side. Label each side with the appropriate unit of measure.
- 12-3 Show students objects that have a mass of 1 gram (penny or paper clip) and objects that have a mass of 1 kilogram (math textbook or loaf of bread). Show students different objects that have unknown masses. After showing students each

object, ask them: *Should this object's mass be measured in grams or kilograms?* Help students by telling them what you are thinking as you reason through the question

- 12-4 Help students make an organized list of all the possible combinations that can be made using one color counter and one pattern block. Show them how to organize the given information, by putting the items in individual piles. Continue by showing them how to combine each item with another item without repeating any combinations. There will be 6 combinations.
- Check My Progress - Students can use approaching level or on level activities from Lesson 1 to review concepts; use manipulatives
- 12-5 Copy the following problem on the board: *In a frog-jumping contest, Cindy's frog jumped a total of 3 meters. Gary's frog jumped a total of 300 centimeters. Which frog jumped farther? Explain your answer.* Have students use a meterstick to help them answer this question. Tell them to write their answer on paper. The frogs jumped the same distance. The students should show that each meter has 100 centimeters, so 300 centimeters equals 3 meters.
- 12-6 Work with students to write a few riddles that help them think about metric conversions, i.e. *I am a metric unit and I am equal to 1,000 grams. What am I?* 1 kilogram Then ask students to write one of their own on a card. Share them with the group.

Chapter 13

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- 13-1 To help students remember its meaning, point out to students that the word *perimeter* has the word *rim* in it. Keeping this in mind, have students use an appropriate measuring tool to measure the perimeter of real objects. Ask students to make a chart to record the item, an estimated measurement, and its actual measurement. Once they are confident, encourage students to use the formulas for the square and rectangle and then compare that answer to the actual measurement.
- 13-2 Choose one of the exercises from today's lesson that the students had found difficult. Help students break down the problem by walking them through the four-step plan. As they identify what is known and what is needed help them begin to develop a plan. Work through the problem talking aloud so students understand what they should be thinking.

- Check My Progress - Students can use approaching level or on level activities from Lesson 1 to review concepts; use manipulatives

- 13-4 Have students draw a rectangle of any size on the grid paper and then count the units in its length and width. When students have found the length and width, have them substitute the numbers in the formula: $A = \ell \times w$. To confirm, have them count the number of unit squares in the drawing and compare to the answer they got from multiplying the length and width. Repeat with other squares.
- 13-5 Give students a large sheet of paper labeled with the formulas for area and perimeter. Write large enough so that the letters ℓ and w can be covered with an index card. One color card represents length and the other width. As students solve problems they will write the length and width on their respective color cards, and then lay each card on top of the correct symbol in the formulas to help them relate the number to the symbol correctly

English Language Learners

➢ All WIDA Can Do Descriptors can be found at this link: https://www.wida.us/standards/CAN_DOs/

- ☐ Grades 4-5 WIDA Can Do Descriptors:
- ☐ Listening
- ☐ Speaking
- ☐ Reading
- ☐ Writing
- ☐ Oral Language

- Making Connections
- Word Web
- Frontload Academic Vocabulary
- Realia and Mnemonics
- Build Background Knowledge
- Activate Prior Knowledge
- Cognates
- Build Background Knowledge
- Round the Table
- Review Basic Vocabulary

- Modeled Talk
- Frontload Academic Vocabulary
- Native Language Peers/Aides
- Communication Guide

At-Risk Students

➢ Reduce the number of problems given
➢ Provide calculators
➢ Give extra time

504 Students

➢ Provide a checklist of the steps needed to complete the problem
➢ Provide place value charts
➢ Provide lots of white-space to make it less busy
➢ If still struggling, reteach and retest

Gifted and Talented Students

☐ Modify activities/assignments/projects/assessments

☐ Provide an option for alternative activities/assignments/projects/assessments

☐ Modify Content

☐ Adjust Pacing of Content

☐ Small Group Enrichment

☐ Individual Enrichment

☐ Higher-Level Text

Chapter 11

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- Use a Math at Home: Game Time worksheet from previous chapter

- 11-1 Have students use the Virtual Manipulatives customary ruler to measure different tangrams to the nearest inch, $\frac{1}{2}$ inch, and $\frac{1}{4}$ inch. They may need guidance measuring the first tangram. Tell students that if they make the ruler and object being measured overlap, the ruler will become transparent. This will help them when lining up the zero on the ruler with the front end of the object being measured.
- 11-2 Students write each number 5–14 in order in one of the squares in the first column under *Yards*. The equivalent number of inches and feet will each be written on the squares of paper and placed in their respective bags. Students take turns drawing a square from each bag and gluing them in their correct spot on the grid to show the feet and inch equivalencies for 5–14 yards.
- 11-3 Students will label each large piece of paper with one of the customary units of capacity. Then they will look for pictures in the magazines that are real-world examples of each unit of measurement. Students should glue the pictures to the appropriate poster. Post in the classroom for reference.
- 11-4 Each student writes a measure of capacity in gallons on a card. Cards are passed to the student on their right, who writes the conversion to quarts. Card passes to the right again and it is converted to pints. Continue until all cards have been converted to fluid ounces. Pass one more time to be checked for errors.
- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.
- 11-5 Have partners take turns choosing a classroom object and estimating its weight. Student 1 names an object and Student 2 records an estimate of its weight. Together they weigh the object and discuss how close to the estimate the actual weight is. Have them use the bucket balance for small, light objects and the bathroom scale for large, heavier objects. Students switch roles each round.
- 11-6 Assign partners. One student names a range of weights, such as greater than 5 pounds but less than 25 pounds. The partner names an object that they think would fit that range and estimates the weight. Together the partners convert the estimated weight into ounces. Partners record their ranges, objects, estimates, and conversions.
- 11-7 Students will use the Internet to find a picture of a world map that shows the different time zones. They will find the time zones in which the following cities are located: New York, Paris, Tokyo, and Moscow. They will write five problems

that are similar to the following model: *I live in (name city). It is (name time) here. In (name city) it is (name time). That is a difference of (name hours) or (name minutes) or (name seconds).*

- 11-8 Have students create their own measurement data in fractions of a unit, display it in a tally chart, and then write 3 questions. Each question will require addition and/or subtraction of fractions using information they will gather from the line plot. Students will exchange with a partner, display the data in a line plot, and answer the questions. Students should regroup to check their work.
- 11-9 Have students take a small handful of coins out of the bag without looking. They write a real-world word problem about the coins they have. The problem should use fractions and two or more operations. Exchange problems with a partner and solve. Check together for reasonableness.
- 11-10 Students work in pairs. Student 1 secretly rolls the number cubes and gives a clue about the two factors rolled by saying, "The product of the two factors is…" Student 2 attempts to guess the two factors rolled. If there are two different possibilities, let the student give another clue, such as "The difference of the two factors is…" Reverse roles next round.

Chapter 12

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- Use a Math at Home: Game Time worksheet from previous chapter
- 12-1 Compare the customary and metric units of length. Find the answers to the following questions. Use rulers and the Internet. *About how many centimeters is 1 inch?* 2.5 cm *About how many inches is 1 meter?* 39 in. *About how many kilometers is 1 mile?* 1.6 km Create three similar questions of your own in which a partner must solve. Discuss the answers and check for accuracy.
- 12-2 Ask students to create their own folding capacity graphic organizer. Have students brainstorm different ways they can fold their paper in order to include each metric unit of capacity, benchmark objects for each unit, and pictures that would be examples of products that are sold in those units.
- 12-3 Have students explore the following question, and then justify their conclusion with three examples. Can a smaller object have more mass than a larger object? Yes; Sample answer: roll of pennies and an inflated balloon Students should make a small poster and label it with the question. Then they will glue or draw pictures of their three examples.
- 12-4 Each student will make a list of 3 kinds of hats, 2 colors of shirts, and 3 kinds of shoes. They will exchange their lists with a partner. Each student will then create an organized list using one item from each category to show all the possible

outfit combinations. When completed, students will look for a relationship between the number of items in each category and the total number of combinations. 3 hats × 2 shirts × 3 shoes = 18 combinations.

- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.
- 12-5 Assign partners. One student names a range of mass, such as greater than 2 kilograms but less than 12 kilograms. (About 5–25 pounds.) The partner names an object that would fit that range and estimates the mass. Together the partners convert the estimated mass into grams. Partners record their ranges, objects, estimates, and conversions.
- 12-6 Have students use the cards to write two true or false questions about a real-world situation that requires a conversion of metric units. Sample: *Phil's baskets hold 500 grams each. He says that 8 baskets will be enough to hold 16 kilograms of apples. True or False?* Shuffle all cards together and place facedown in a pile. Take turns drawing a card and answering. If it is false, tell what needs to be done to make it true.

Chapter 13

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- Use a Math at Home: Game Time worksheet from previous chapter
- 13-1 Have students use grid paper to make a drawing of the following figure with each square equaling 1 foot.The perimeter of this figure is the same as the perimeter of a 30-foot by 20-foot rectangle. Ask students to explore and explain why the statement above is true.
- 13-2 Have each student write a multi-step real-world word problem that will require a simpler problem to be solved first. Direct students to use the concepts of measurement and perimeter in the content. Have the students trade with another student and solve each other's problem.
- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.
- 13-4 Have students estimate the area of a square or rectangular two-dimensional object in the classroom, i.e. a poster, to the nearest inch or centimeter. Then have students use a customary or metric ruler to find accurate measures, and then calculate the area. Finally, have students use grid paper to draw a model of the square or rectangle they measured. Tell students to label the model appropriately. Have them ask a partner to check their work.

- 13-5 In groups students make a spreadsheet in which one column is the length, one the width, one the perimeter, and one the area. If the length is in cell A2 and the width in cell B2, enter the formula *= 2*A2 + 2*B2* to figure the perimeter and = A2*B2 for the area. They copy each formula and paste it into all the cells in that column to figure the perimeter and area for each rectangle they define by its width and length. This enables comparison of perimeter and area of different dimensions.

Domain 5: Geometry	
Chapter 14 - Geometry	
NJ 2016 Student Learning Standards: Mathematics Grade 4 **Geometry** ● 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 the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size.	**NJDOE Mathematics Curricular Framework** Guide Document and Supports Mathematics Curricular Framework **Mathematical Practices** **MP. The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.**

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. **Measurement and Data** ● 4.MD.5.a/b- Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement ● 4.MD.6 -Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. ● 4.MD.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.	**highlight appropriate indicators for unit/domain** MP.1. Make sense of problems and persevere in solving them. MP.2. Reason abstractly and quantitatively. MP.3. Construct viable arguments and critique the reasoning of others. MP.4. Model with mathematics. MP.5. Use appropriate tools strategically. MP.6. Attend to precision. MP.7. Look for and make use of structure. MP.8. Look for and express regularity in repeated reasoning. Chapter 14 ● Communication - This chapter is full of symbolism that students need to learn when speaking and writing about geometry. These symbols will be used in high school and college courses. Students should be able to communicate effectively with symbols or words, both written and spoken, Encourage students to express themselves in multiple ways as they learn the concepts in this chapter.
Career Readiness, Life Literacies, and Key Skills Integration **NJSLS - CRLLKS 2020** **highlight appropriate indicators for unit/domain** CRLLKS1. Act as a responsible and contributing community members and employee. CRLLKS2. Attend to financial well-being.	**21st Century Student Outcomes** http://www.battelleforkids.org/networks/p21 **Learning and Innovation Skills** **highlight appropriate indicators for unit/domain** Think Creatively Work Creatively with Others Implement Innovations Reason effectively

CRLLKS3. Consider the environmental, social and economic impacts of decisions. CRLLKS4. Demonstrate creativity and innovation. CRLLKS5. Utilize critical thinking to make sense of problems and persevere in solving them CRLLKS6. Model integrity, ethical leadership and effective management. CRLLKS7. Plan education and career paths aligned to personal goals. CRLLKS8. Use technology to enhance productivity increase collaboration and communicate effectively.persevere in solving them. CRLLKS9. Work productively in teams while using cultural/global competence.	Use Systems Thinking Make Judgments and Decisions Solve Problems Communicate Clearly Collaborate with Others **Life and Career Skills** **highlight appropriate indicators for unit/domain** Adapt to Change Be Flexible Manage Goals and Time Work Independently Be Self-directed Learners Interact Effectively with Others Work Effectively in Diverse Teams
Enduring Understandings ● Draw and identify lines and angles, and classify shapes by properties of their lines and angles ● Understand concepts of angle and measure angles (Geometric measurement) ● Use the four operations with whole numbers to solve problems ● Use place value understanding and properties of operations to perform multi-digit arithmetic ● I can draw points, lines, line segments and rays and identify these in two-dimensional figures ● I can draw parallel, intersecting and perpendicular lines and identify these in two-dimensional figures ● I can understand concepts of angles and angle	**Essential Questions** ● How are different ideas about geometry connected?

measurement ● I can use concepts of angle measurement to classify angles ● I can use a protractor to measure angles to the nearest degree ● I can use a protractor to draw angles of a specified measure ● I can solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical situations ● I can classify triangles based on angle measure and describe triangles using their attributes ● I can classify quadrilaterals using their attributes ● I can identify figures with line symmetry and draw lines of symmetry ● I can solve problems by making a model	
Content Knowledge How o draw examples of parallel lines and perpendicular lines. ● Parallel line are the same distance apart and never meet ● Perpendicular lines form right angles How to measure angles ● Use a protractor ● Use degrees to describe the angle measures How to classify triangles	**Skills** ● Draw an example of parallel lines ● Use a protractor to measure angles in a whole-number degrees ● Classify triangles by angles ● Classify quadrilaterals based on their angles and sides ● Recognize figures that have line symmetry and draw lines of symmetry

• Use the measures of the angles • Triangles may be acute (all acute angles), right(1 right angle), or obtuse (1 obtuse angle) How to classify quadrilaterals • Classify the angles • Determine if there are any sides that are parallel or perpendicular • How to identify figures that have line symmetry and draw lines of symmetry ○ A line of symmetry is a line across a figure such that the figure can be folded along the line into matching parts	

Primary and Supplementary Resources

Grade 4 My Math Teacher Edition
Grade 4 My Math Student Edition
Grade 4 Pacing Calendar
Chapter Vocabulary Cards

My Math Resources

EdConnect Login

NJSLA Mathematics Operational Evidence Statements
https://docs.google.com/spreadsheets/d/18M5r1jk4P729fTpAlWAzrw1gE6tken233I-Yk0U712M/edit#gid=554025491

NJSLA Released Items
https://nj.digitalitemlibrary.com/home
https://resources.newmeridiancorp.org/

Illustrative Mathematics

iReady
i-Ready makes differentiated instruction a practical reality for teachers and students. *i-Ready*:
- ➢ integrates powerful assessments and rich insights with effective and engaging instruction in reading and mathematics to address students' individual needs.
- ➢ empowers teachers every day to make more informed instructional decisions.
- ➢ motivates students with access to their own personalized path to growth.

XtraMath
- ➢ This program helps students practice their math facts for addition, subtraction, multiplication, and addition.
- ➢ Can individualize the fluency skills for each student.
- ➢ Can run reports to determine progress.

Scholastic Study Jams
- ➢ Fun videos which explain common mathematics concepts.
- ➢ Questions at the end of the video reinforce the concepts.

Khan Academy
- ➢ a set of online tools that help educate students. The organization produces short lessons in the form of YouTube videos.
- ➢ Its website also includes supplementary practice exercises and materials for educators.

4th grade Flip Book:
https://drive.google.com/file/d/1OGbH2NpRp3-N7ZBTZtgb77BNznZ5X5tT/view?usp=sharing

101 Math Discourse Questions:
http://www.casamples.com/downloads/100MathDiscourseQuestions_Printable.pdf

Asking Effective Questions
http://www.edu.gov.on.ca/eng/literacynumeracy/inspire/research/CBS_AskingEffectiveQuestions.pdf

Fluency Support for Grades 3-5
https://jenniferfindley.com/free-math-intervention-activities-grades-3-5/

Achieve the Core Coherence Map
https://achievethecore.org/coherence-map/4

Chapter 14	**Vocabulary** Chapter 14 • Point • Line • Ray • Endpoint • line segment • Parallel • Intersecting • perpendicular • angle • Degree • one-degree angle • right angle • acute angle • obtuse angle • right triangle • acute triangle • obtuse triangle • Parallelogram • Rectangle • Rhombus • Square • Trapezoid

	● Line symmetry ● Line of symmetry

Assessments:

- **Formative:**
  - Quick Write
  - Exit Slip
  - Response Cards
  - Quick Draw
  - Graphic Organizer

- **Summative Assessment**
  - Performance Task
  - Diagnostic Assessment
  - Chapter Pre-Test

Differentiation in the Mathematics Classroom

Differentiate the Test

- Use alternative leveled chapter assessments (approaching level, on level and beyond level) to differentiate assessment for specific needs of students
- Provide option of print vs. online assessment
- Provide a checklist of the steps needed to complete the problem
- Provide place value charts and resources
- Provide lots of white-space to make it less busy
- If still struggling, reteach & retest

- Reduce the number of problems given
- Provide multiplication charts/calculators
- Provide hints written on tests, such as mnemonic devices
- Give extra time

Differentiation - Best Practices

- ➢ Provide multiplication tables (or calculators) to students who struggle with fluency. This allows you to see if they've mastered the skill at hand (i.e., adding/subtracting fractions) without the barrier of fact fluency issues. Click here for a copy of a multiplication chart.
- ➢ Represent numbers in place value charts whenever possible. Give students their own laminated copies of place value charts so they can organize their thoughts while completing their work.
- ➢ Assign fewer complex problems and have students illustrate or explain the reasoning they use.
- ➢ Emphasize the role of diagramming in interpreting and solving problems in mathematics.
- ➢ Provide students with graph paper to help them organize their math in an effort to reduce errors being made due to handwriting.
- ➢ Use tasks that provide multiple entry points and provide scaffolds that support student participation.
- ➢ Have a vocabulary wall.
- ➢ Provide reduced amount of homework for struggling learners. Give them 2 relevant math problems rather than an entire worksheet.
- ➢ Conference with the students often to learn about how they think about math.
- ➢ Use base-ten models and other manipulatives to represent numbers through ten-thousands
- ➢ Draw pictures of base-ten models to represent and compare numbers.
- ➢ Compare numbers in various forms including standard, word, and expanded forms.
- ➢ Make flashcards for terms and examples, then mix and match.
- ➢ Draw an angle and name it around the classroom
- ➢ Move bendable straws or craft sticks into various angles

- ➢ Identify parallel and perpendicular streets on a map
- ➢ Use craft sticks to demonstrate lines
- ➢ Use chalk to draw perpendicular and parallel line segments.
- ➢ Use a mirror to demonstrate line symmetry of shapes.
- ➢ Fold a sheet of paper in half and cut out a figure around the fold line.
- ➢ Fold precut capital letters to check for symmetry
- ➢ Cut out shapes and use a pencil to fix the center of rotation
- ➢ Label symmetric objects in the classroom.

Special Education Students
Chapter 14

- Use Am I Ready? Worksheets to review concepts students missed on assessment
- 14-1 Guide students to draw and label an example of a line, line segment, ray, and endpoint on 4 cards. On each card with a different color marker, have students identify the figure with its name. With a third color, have students identify the figure with its symbol and letters. Tell students to keep the cards for future reference throughout the chapter
- 14-2 Draw and label examples of intersecting, parallel, and perpendicular lines on three cards with one color marker. Use a different color to identify the figure with its name. With a third color, identify the figure with its symbol and letters. Tell students to keep the cards for future reference throughout the chapter. Now find examples of parallel, intersecting, and perpendicular lines in the classroom. Compare these examples and explain the differences.
- Check My Progress - Students can use approaching level or on level activities from Lesson 1 to review concepts; use manipulatives
- 14-4 Guide students to draw and label an example of a right, acute, and obtuse angle on 3 cards. With a different color marker for each, have students identify the angle with its name. Tell students to keep the cards for future reference throughout the chapter. Then have students find examples of right, acute, and obtuse angles in the classroom. Ask them to compare the examples and explain the differences.
- 14-5 Give each student a circle paper. Ask them to cut out the circle.
- Instruct students to: Fold the circle in half, in half again, and then one more time. Open the circle. Where the folds meet in the center is the vertex of the angles. Draw a line from the vertex to the edge of the circle. Draw another line along any one of the folds. Is your angle greater than, equal to, or less than 90°? What type of angle did you draw? Estimate the measure of your angle. Find the exact measure.

- 14-6 Give students an angle measure to draw on their grid paper. During this time watch for struggling students. Once the angles are drawn, ask students to check another student's angle against theirs. They should be of equal measure. Continue as time allows.
- 14-7 Each student will draw one angle on an index card and write its measure. Shuffle all the cards together and pass out one card to each student. Have two students come together and find the total angle measure of their two cards. Repeat the exercise.
- 14-8 Have groups of students construct examples of each of the following triangles: acute, obtuse, and right. (Craft sticks and pretzels can be broken to make different lengths.) Have students label each type of triangle.
- 14-9 Have students walk around the classroom looking for quadrilaterals. Remind them that quadrilaterals are two-dimensional, flat figures. Have students write what they find on paper. Ask them to make a quick sketch, identify the object (such as a window), and write the type of quadrilateral that best describes the shape. Have students return to the group and discuss their findings.
- 14-10 Have students draw a figure on the dot paper. Then they will cut it out and with a partner determine if it has line symmetry by folding it in half. If it does, ask them to find out how many lines of symmetry there are. Encourage them to share their findings with the rest of the group.
- 14-11 Choose one of the exercises from today's lesson that the students found difficult. Help students break down the problem by walking them through the four-step plan. As they identify what is known and what is needed, help them begin to develop a plan. Work through the problem talking aloud so students understand what they should be thinking.

English Language Learners

➢ All WIDA Can Do Descriptors can be found at this link: https://www.wida.us/standards/CAN_DOs/

- ☐ Grades 4-5 WIDA Can Do Descriptors:
- ☐ Listening
- ☐ Speaking
- ☐ Reading
- ☐ Writing
- ☐ Oral Language

- Discuss multiple meanings for words
- Use Spanish cognates
- Model the meaning of each word
- Provide math examples
- Use mnemonic devices and illustrations
- Display pictures of angles and angels. Point to labels on each picture and say aloud
- Partners write sentences to differentiate words
- Model
- Read Aloud Exercises
- Provide Sentence Frames
- Preview terms
- Show real-life examples
- Draw examples & model
- Exaggerate sounds
- Anchor Chart
- Pair emerging students with expanding or bridging students
- Direct questions or prompts to student pairs instead of individual students
- Choral Repeat
- Define unknown words
- Demonstrate unknown words

At-Risk Students	**504 Students**
➢ Reduce the number of problems given ➢ Provide calculators ➢ Give extra time	➢ Provide a checklist of the steps needed to complete the problem ➢ Provide place value charts

	➢ Provide lots of white-space to make it less busy ➢ If still struggling, reteach and retest

Gifted and Talented Students

☐ Modify activities/assignments/projects/assessments

☐ Provide an option for alternative activities/assignments/projects/assessments

☐ Modify Content

☐ Adjust Pacing of Content

☐ Small Group Enrichment

☐ Individual Enrichment

☐ Higher-Level Text

- Have students complete the chapter pretest to determine what skills in the chapter they already know
- Use a Math at Home: Game Time worksheet from previous chapter
- 14-1 Present the following directions to students. Using grid paper, draw a simple picture of a real-world object using only line segments, lines, endpoints, and rays. Make a key in which each word is represented and its symbol is a different color. Then trace over the different parts of the picture with the appropriate color.
- 14-2 Give students street maps of cities laid out in a grid, and have them identify examples of parallel, intersecting, and perpendicular streets. Ask them to verbally explain the relationship between the two streets to a partner
- Check My Progress - Use a game or activity from the My Learning Station; Use a math at home game time worksheet from previous chapter.
- 14-4 Have students use magazines or the Internet to conduct research to find real-world examples of acute, right, and obtuse angles. Have them classify each angle.
- 14-5 Have students use their protractor to draw an angle, and write its measurement. With the straightedge of the protractor, divide the angle so it is now two angles side by side. Trade papers with a partner. The partner will find the measure of the

two angles, and then write an addition or subtraction equation to represent the situation. Partners should discuss how to check for accuracy.

- 14-6 On 3 different cards, have students draw each type of angle. Below the angle the student writes a true or false statement about the angle's measure, i.e. This angle measures 60°. All of the cards will be shuffled together and one card is passed to each student. The student measures the angle and decides if the statement is true or false. If it is false, the statement must be corrected. Continue until all the cards have been used.
- 14-7 Have students write riddles with the following two sentence stems. 1. My combined angle measure is _____. One angle measures _____. What is my other angle's measure? 2. One angle measures _____. The other angle measures _____. What is my combined angle measure? Cards are shuffled together. One card is given to each student. On the back of the card the riddle is solved by drawing and labeling the given angles.
- 14-8 Explore the following using the given materials: Can you draw a triangle that has one 90° angle, one 45° angle, and with the length of the side between those two angles as 5 cm? Yes Classify this triangle. right triangle Can you draw a triangle in which the length of two sides are 4 cm and 7 cm, and has one 30° angle? No Explain. Have students continue to work with angles and sides until they realize that they need to know two angles and one side length to draw a triangle.
- 14-9 Ask students to write a logical statement about one or more quadrilaterals on each card. Statements may look like this: I always have four right angles; I am a quadrilateral but not a parallelogram. Then students will identify and draw as many quadrilaterals on the card that fit in each category. When completed, students will regroup and discuss their answers.
- 14-10 Ask students to conduct research on the Internet to find examples of traffic signs that display line symmetry (with or without considering the words on each sign). Have students print out the signs and draw any lines of symmetry. Then display these around the classroom.
- 14-11 Have students write a multi-step real-world word problem that will require someone to make a model in order to solve. Use the concept of classifying triangles and quadrilaterals by their attributes, and line symmetry in the content. Trade with another student and solve each other's problems