Readington Township Public Schools

Grade 4 Math Curriculum

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Fourth Grade Mathematics

Overview

The Fourth Grade Mathematics course is designed to teach students grade-level mathematics while promoting higher-order thinking skills. The course is directly correlated to the New Jersey Student Learning Standards and covers such topics as number sense, geometry, measurement, number operations in base ten and fractions, and algebraic thinking. The course also promotes and instills the skills of problem-solving, communication in mathematics, and making mathematical connections. Students will utilize various tools and technology in the process, including manipulatives, calculators, websites, and computers to better enhance a well-rounded understanding of course topics. A strong focus of the program is on promoting high levels of mathematical thought through experiences that extend beyond traditional computation.

STUDENT OUTCOMES

(Linked to New Jersey Student Learning Standards for Mathematics 2023)

OPERATIONS AND ALGEBRAIC THINKING (4.OA)

A. Use the four operations with whole numbers to solve problems

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.
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.
3. Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

B. Gain familiarity with factors and multiples

4 Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

C. Generate and analyze patterns

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.

NUMBER AND OPERATIONS IN BASE TEN (4.NBT)

A. Generalize place value understanding for multi-digit whole numbers.

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

B. Use place value understanding and properties of operations to perform multi-digit arithmetic.

4. With accuracy and efficiency, add and subtract multi-digit whole numbers using the standard algorithm.
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.
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 model.

NUMBER AND OPERATIONS—FRACTIONS (4.NF)

A. Extend understanding of fraction equivalence and ordering

1. Explain why a fraction a/b is equivalent to a fraction (nxa)/nxb) 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.
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.

3. Understand a fraction a/b with a>1 as a sum of fractions 1/b .
    a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
    b. 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: ⅜=⅛+⅛+⅛; ⅜=⅛+2/8; 2 ⅛=1+1+⅛=8/8+8/8+⅛
    c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
    d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.
4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
    a. Understand a fraction *a*/*b* as a multiple of 1/*b*. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).*
    b. Understand a multiple of *a*/*b* as a multiple of 1/*b*, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)*
    c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*

C. Understand decimal notation for fractions, and compare decimal fractions.

5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*
6. Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.*

7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.

MEASUREMENT (4.M)

A. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

1. Know relative sizes of measurement units within one system of units including km, m, cm. mm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*
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.
3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*

B. Geometric measurement: understand concepts of angle and measure angles.

4. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
    a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360th of a circle is called a "one-degree angle," and can be used to measure angles.
    b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees.
5. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
6. 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.

DATA LITERACY (4.DL)

A. Organize data and understand data visualizations

1. Create data-based questions, generate ideas based on the questions, and then refine the questions.
2. Develop strategies to collect various types of data and organize data digitally.
3. Understand that subsets of data can be selected and analyzed for a particular purpose.
4. Analyze visualizations of a single data set, share explanations and draw conclusions that the data supports.

B. Represent and interpret measurement data

5 Make a line plot to display a data set of measurements in fractions of a unit (½, ¼, ⅛). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

GEOMETRY (4.G)

A. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

1. Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

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. Recognize right triangles as a category, and identify right triangles.
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.

PERSONAL FINANCIAL LITERACY (9.1)

Civic Responsibility

9.1.5.CR.1: Compare various ways to give back and relate them to your strengths, interests, and other personal factors.

Credit Profile

9.1.5.CP.1: Identify the advantages of maintaining a positive credit history.

Economic and Government Influences

9.1.5.EG.1: Explain and give examples of what is meant by the term "tax."
9.1.5.EG.2: Describe how tax monies are spent
9.1.5.EG.3: Explain the impact of the economic system on one's personal financial goals.
9.1.5. EG.4: Describe how an individual's financial decisions affect society and contribute to the overall economy.
9.1.5. EG.5: Identify sources of consumer protection and assistance.

Financial Institutions

9.1.5.FI.1: Identify various types of financial institutions and the services they offer including banks, credit unions, and credit card companies.

Financial Psychology

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.
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.).
9.1.5.FP.5: Illustrate how inaccurate information is disseminated through various external influencers including the media, advertisers/marketers, friends, educators, and family members.

Planning and Budgeting

9.1.5.PB.1: Develop a personal budget and explain how it reflects spending, saving, and charitable contributions.
9.1.5.PB.2: Describe choices consumers have with money (e.g., save, spend, donate).

Risk Management and Insurance

9.1.5.RMI.1: Identify risks that individuals and households face.
9.1.5.RMI.2: Justify reasons to have insurance.

Mathematical Practices

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

Strategies

- Teacher presentation
- Teacher read-aloud
- Group discussion
- Small Group instruction

- Group presentations
- Interactive Smartboard Lessons
- Partner work
- Museum walks
- Math talk (students explain their thinking)
- Small Group Work
- Daily 5 Math
- Centers/ stations

Accommodations

Accommodations and Modification Addendum

Assessments

Formative	Summative
• Independent student work • Ready Classroom Lesson Quizzes • Teacher Observations • Class Participation • Class Discussions • Class Assignments • Homework Assignments • Notebooks • Anecdotal Records	• Mid-Unit Test • Unit Test
Benchmark	**Alternative**
• I-Ready Diagnostic • Performance Assessments	• Live Online Assessment Tools (Kahoot, Brainpop) • Student Projects • Student Presentations • Self-Assessments

Resources

Required/Primary	Supplemental

• Ready Classroom Mathematics, Curriculum Associates, LLC
  ○ Teacher Manual Volumes 1 & 2
  ○ Student Books Volumes 1 & 2
  ○ Ready Classroom Teacher Toolbox
	• Brain Pop
	• IXL
	• Reflex Math
	• Online Tutorials (Learnzillion, Khan Academy, Math Antics)
	• Online Math Games (Math is Fun, Funbrain, Cool Math Games, Math Playground)

Essential Questions And Content

Operations and Algebraic Thinking

- What is multiplication?
- How do you use multiplication and division to solve comparison problems?
- How can you identify multiples of a number?
- How can numbers be broken down into its smallest factors?
- How do you figure out and describe patterns?
- How can you model and solve multi-step word problems

Number and Operations in Base Ten

- How can you use place value to understand and compare very large numbers?
- What strategies and understandings allow you to successfully add, subtract, multiply, and divide multi-digit whole numbers?
- How can multi-digit whole numbers be rounded?

Number and Operations in Fractions

- How does finding equivalent fractions help you to compare them?
- What is the process of adding and subtracting fractions and mixed numbers with like denominators?
- How can understanding repeated addition of fractions help you to multiply fractions by whole numbers?
- How can you express a fraction as a decimal?
- How can you compare decimals through hundredths?

Measurement

- How can you convert measurements of the U.S. customary system and the metric system?
- What strategies can you use to solve measurement word problems?
- How can you use an understanding of money and time to complete real-world problems?
- How can you determine what situations you would use area and perimeter in and how do you solve them?
- How are you able to use a line plot to organize data and answer questions about the data?
- What are angles and how do you measure and draw them?
- How can you use addition and subtraction to solve problems involving angles?

Data Literacy

- How can data be represented?
- In what ways can data be organized?

Geometry

- How can you identify a point, line, line segment, ray, and angle?
- How can you use parallel and perpendicular lines to classify two-dimensional shapes?
- What is a line of symmetry and how do you find it?
- What is the process of multiplying multi-digit whole numbers using the standard algorithm?

Pacing and Interdisciplinary Connections

Whole Numbers: Place Value, Comparison, Addition, and Subtractions
Lessons 0-5 (25 days)

- Understand Place Value
- Compare Whole Numbers
- Round Whole Numbers
- Add Whole Numbers
- Subtract Whole Numbers

Interdisciplinary Connections:

- **SLPE..4.1.** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly.

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

  Activity: Students will be able to solve place value problems by comparing whole numbers. Students will be given small scenarios where it is describing a situation. They will then have to decide which whole number in the scenario is larger. Before they decide, students will complete the routine of Try-it, Discuss-it, Connect-it. In this routine students will give the problem a go on their own. Once they think they have solved it they will then discuss with peers and the teacher how they solved the problem. Once that is done, the teacher will then connect their learning to their background knowledge.

- **4-ESS2-1** Analyze and interpret data from maps to describe patterns of Earth's features.

  4.NBT.B.4 With accuracy and efficiency, add and subtract multi-digit whole numbers using the standard algorithm.

  Activity: Students will be learning about topographical maps. Students will learn how to read and draw one. Students will understand what the interval measurements mean and be able to calculate the distance between two intervals by using subtraction.

Operations: Multiplication, Division and Algebraic Thinking
Lessons 6-10 (24 days)

- Understand Multiplication as a Comparison
- Multiplication and Division in Word Problems
- Multiples and Factors
- Number and Shape Patterns
- Model and Solve Multi-Step Problems

Interdisciplinary Connections:

- **4-ESS1-1** Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.
  4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.
  Activity: Students will be able to look at patterns in different landforms and layers of rock. Students will be able to decide from these patterns how the land has changed over time and what type of life had lived there previously.
- **RI.CR.4.1.** Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
  4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
  Activity: Students will be able to learn how to interpret remainders in division problems. Students will complete division problems in lesson 15 session 2 of the Ready Classroom Grade 4 math program. As they are doing these problems they will have to interpret what the remainder means and how to use it in the final answer.

Multi-Digit Operations and Measurement: Multiplication, Division, Perimeter and Area
Lessons 11-16 (26 days)

- Multiply by One-Digit Numbers
- Multiply by Two-Digit Numbers
- Use Multiplication to Convert Measurements
- Divide Three-Digit Numbers
- Divide Four-Digit Numbers
- Find Perimeter and Area

Interdisciplinary Connections:

- **SL.PE.4.1** Engage effectively in a range of collaborative discussions with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
  4.OA.A.2 Use the four operations with whole numbers to solve problems
  Activity: Students will explain their thinking and the strategies they use to solve multiplication and division for one and two-digit numbers.

Fractions, Decimals, and Measurement: Addition, Subtraction and Multiplication
Lesson17-29 (55 days)

- Understand Equivalent Fractions
- Compare Fractions
- Understand Fraction Addition and Subtraction
- Add and Subtract Fractions
- Add and Subtract Mixed Numbers
- Add and Subract Fractions in Line Plots
- Understand Fraction Multiplication
- Multiply Fractions by Whole Numbers
- Fractions as Tenths and Hundredths
- Relate Decimals and Fractions

- Compare Decimals
- Problems About Time and Money
- Problems About Length, Liquid Volume, Mass and Weight

Interdisciplinary Connections:

- **6.1.5.CivicsPI.8:** Describe how the United States Constitution defines and limits the power of government.

  4.NF.A.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

  Activity: Students will learn how our government has a series of checks and balances so that one of the three branches doesn't have too much power. The teacher will discuss with the students how another branch's decisions can be overturned. We will look specifically at how a President's veto of a bill can be overturned if Congress gets a two-thirds vote in each chamber. Students will learn how they can figure out how many senators' and representatives' votes specifically will be needed by using equivalent fractions.
- **W.IW..4.2.** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

  4.NF.A.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

  Activity: On P. 380 in the Ready Classroom Grade 4 book students will be able to reflect on the question that if 2 fractions of a granola bar are equivalent to each other will they also be equivalent if the 2 pieces come from different-sized granola bars.

Geometry and Measurement: Figues, Classification, and Symmetry
Lessons 30-34 (24 days)

- Points, Lines, Rays, and Angles
- Angles
- Add and Subtract with Angles
- Classify Two-Dimensional Figures
- Symmetry

Interdisciplinary Connections:

- **W.IW.4.2.D** Use precise language and domain-specific vocabulary to inform about or explain the topic.
  4.G.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. Recognize right triangles as a category, and identify right triangles.

  Activity: Students will be asked to classify shapes according to specific attributes they have. These attributes include types of lines and types of shapes. Students will have to make the connection between the written description and the visual representation.
- **4-LS1-1** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
  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 across the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

  Activity: Students will be able to observe mealworms. As students are observing them they will be able to take notes and make detailed drawings. As they are drawing the teacher will remind them to think about lines of symmetry and how they can be used when drawing the organism. Students will then be able to label their drawing pointing out specific body parts and uses.

Personal Financial Literacy 9.1 (10 days)

Civic Responsibility

- You can give back in areas that matter to you.

Credit Profile

- There are benefits to having a positive credit history.

Economic and Government Influences

- Taxes are collected on a variety of goods and services at the local, state, and federal levels.
- There is a broader economic system that influences your financial goals.
- There are agencies, laws, and resources to protect individuals as consumers.

Financial Institutions

- People can choose to save money in many places such as home in a piggy bank, bank, or credit union.

Financial Psychology

- An individual's financial traits and habits affect his/her finances.
- Spending choices and their intended and unintended consequences impact financial outcomes and personal well-being.
- Not all financial information is accurate or truthful.

Planning and Budgeting

- There are specific steps associated with creating a budget.
- Saving money can impact an individual's ability to address emergencies and accomplish their short-and long-term goals.

Risk Management and Insurance

- Individuals can choose to accept the inevitable risk or take steps to protect themselves by avoiding or reducing risk.

Career, Computer Science, and Key Skills

Number and Operations in Base Ten

- **Career Ready Practices**
  Utilize critical thinking to make sense of problems and persevere in solving them.
  4.NBT.A.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.
  Activity: Students will have to use clues that
  are provided to try and figure out the 4 digit mystery number. Students will be allowed to work with partners.

- **9.2 Career Awareness, Exploration, and Preparation**
  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.
  4.NBT.B.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
  Activity: While learning about division in whole numbers students will complete a T-chart. The first column of the chart will list a real-life activity that uses division. The second corresponding column will list a profession that uses this activity. For example, you would need to divide if you were taking a large recipe and splitting it in half for fewer people. A chef would use division in this manner.

- **9.4 Life Literacies and Key Skills**
  9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity
  9.4.5.IML.3: Represent the same data in multiple visual formats in order to tell a story about the data.
  9.4.5.DC.4: Model safe, legal, and ethical behavior when using online or offline technology.
  4.NBT.A.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division*.

Activity: Students will be able to discuss and brainstorm how numbers are related. Students will be able to figure out on their own that places to the left are 10 times greater than the ones to the right. They will also learn that places to the right are one-tenth the value of the place to the left. Students will discuss place value and the relationship between dollars and cents, when saving money, and what impacts those numbers.

- **Computer Science**
  8.1.5.DA.1 Collect, organize, and display data in order to highlight relationships or support a claim.
  4.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place.
  Activity: Students will be able to use a digital number line to visualize how to round numbers. The teacher will be able to model using this digital tool and then the students can use it via the SMART Board. Students will be able to complete lesson 3 in the Ready Math Classroom Grade 4 book.

Operations and Algebraic Thinking

- **Career Ready Practices**
  Utilize critical thinking to make sense of problems and persevere in solving them.
  4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
  Activity: Students will be solving multi-step word problems that have them using equations and deciding what to do with remainders. Students will also have to show how their answer is reasonable.

- **9.2 Career Awareness, Exploration, and Preparation**
  9.2.5.CAP.1 Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
  4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
  Activity: Sstudents will learn about a job where a worker has to set up a display for a wildlife museum. Students will be able to see how math relates to his job. Students will also be able to discuss other different traditional and nontraditional jobs based on their likes and dislikes.

- **9.4 Life Literacies and Key Skills**
  9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.
  4.OA.A.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
  9.4.5.TL.5: Collaborate digitally to produce an artifact.
  9.4.5.DC.3: Distinguish between digital images that can be reused freely and those that have copyright restrictions.
  Activity: Students will work with a partner to create a multiplication game using a digital platform (Kahoot, Blooket, Google Slides)

- **Computer Science**
  8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.
  4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.
  Activity: Students will be able to find patterns in the school and make some of their own. They will then display the patterns on a shared Google Jamboard. Students will then explain the properties of the patterns and how they are the same and different.

Number and Operations in Fractions

- **Career Ready Practices**
  Work productively in teams while using cultural/global competence.
  4.NF.A.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.
  Activity: Students will have to use prior knowledge that they have learned to do this. This skill builds upon their whole number number sense, fraction number sense, and understanding of fractions. Students will be able to work in a group part of the time to solve these problems.

- **9.2 Career Awareness, Exploration, and Preparation**
  9.2.5.CAP.4: Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., lifeguards, child care, medicine, education) and examples of these requirements.
  4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.
  Activity: Students will learn how to convert fractions with denominators of 10 and 100 into decimals. Students will be able to relate this to money. Students will be able to understand that the way we write money is in decimal form. As students are learning this in lesson 25 session 2 of the Ready Classroom Grade 4 math program the teacher will discuss with them why it is so important to learn the skill of understanding money and what careers deal with money every day. Students will be able to complete P. 523-526 using this knowledge.

- **9.4 Life Literacies and Key Skills**
  9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process.
  9.4.5.IML.2: Create a visual representation to organize information about a problem or issue.
  9.4.5.TL.5: Collaborate digitally to produce an artifact.
  4.NF.B.3 Understand a fraction a/b with a > 1 as a sum of fractions 1/b.
  Activity: Students will be able to understand how fractions are important in all parts of everyday life. Students will see how fractions are used in recipes every day. Students will be able to understand what could happen to their food if they use the wrong amounts. Students will research recipes and discuss what happens when a recipe needs to be doubled or cut in half and create a visual presentation to show their thinking.

- **Computer Science**
  8.1.5.DA.3: Organize and present collected data visually to communicate insights gained from different views of the data.
  4.NF.A.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
  Activity: Students will learn how to make equivalent fractions. Students will be able to use a digital tool to help them visualize these equivalent fractions.

Measurement

- **Career Ready Practices**
  Act as a responsible and contributing community members and employee.
  4.M.A.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical

problems.

Activity: Students will be able to use Math Talk to discuss area and perimeter problems with their classmates and their teacher. Students will use prompts such as, "How did you get started?", "Why did you choose that strategy?", and "Do you agree with me? Why?"

- **9.2 Career Awareness, Exploration, and Preparation**

  9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.

  4.M.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

  Activity: Students will pretend they work for a zoo and need to develop birdcages according to different criteria based on perimeter.

- **9.4 Life Literacies and Key Skills**

  9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process

  9.4.5.TL.4: Compare and contrast artifacts produced individually to those developed collaboratively.

  9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions.

  9.4.5.DC.6: Compare and contrast how digital tools have changed social interactions.

  4.M.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

  Activity: Students will be learning how to solve word problems involving length, mass, weight, and volume. They will also be converting measurements to larger and smaller units. During this time the teacher will lead a discussion on how important it is to pay attention to the unit. The class will discuss how in history using the wrong unit has caused major problems in the area of space exploration. LA Times article

- **Computer Science**

  8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes.

  4.M.A.1 Know relative sizes of measurement units within one system of units including km, m, cm. mm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table.

  Activity: Students will be able to make a graphic organizer using a site like Google Slides. On this graphic organizer, they will be able to record what they know about converting measurements. They will explain what it is in their own words, they will be able to illustrate what it is, and then they will show examples and non-examples. This activity will be done during session 1 of lesson 13 in the Ready Math Classroom Grade 4 program. While students are doing this the teacher will discuss how computers and software like Google Slides has changed the way people live and work.

Data Literacy

- **Career Ready Practice**

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

  4.DL.A.1 Create data-based questions, generate ideas based on the questions, and then refine the questions.

  Activity: Students will be given a set of data and be asked to create questions. They will switch with a partner and solve the problem and then ask another question.

- **9.2 Career Awareness, Exploration, and Preparation**
  9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
  4.DL.A.2 Develop strategies to collect various types of data and organize data digitally.
  Activity: Students will design a way to collect information about likes and dislikes and graph the information. Students will then generate careers that match the results.

Geometry

- **Career Ready Practice**
  Demonstrate creativity and innovation.
  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.
  Activity: Students will be able to create pictures that have lines of symmetry. For this activity students will be able to use any mathematical tools that they wish. These tools can include pattern blocks, rulers, protractors or compasses.

- **9.2 Career Awareness, Exploration, and Preparation**
  9.2.5.CAP.3: Identify qualifications needed to pursue traditional and non-traditional careers and occupations.
  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. Recognize right triangles as a category, and identify right triangles.
  Activity: Students will be able to classify shapes that an artist cut to use in mosaic designs. As students complete this activity the teacher will discuss with them where we can find math in different careers. An artist cutting shapes may not immediately seem like math to many students.

- **9.4 Life Literacies and Key Skills**
  9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).
  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. Recognize right triangles as a category, and identify right triangles.
  9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions.
  9.4.5.DC.4: Model safe, legal, and ethical behavior when using online or offline technology.
  Activity: Students will be able to learn how to classify 2 dimensional shapes. Students will be able to work in groups to brainstorm based on attributes of shapes what a given shape is. Students will research and discuss how shapes can be analyzed, described, and categorized and what impact that has on creating structures.

- **Computer Science**
  8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes.
  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. Recognize right triangles as a category, and identify right triangles.
  Activity: Students will be able to use i-Ready to practice classifying two-dimensional figures and triangles. The teacher will discuss with the students how using the I-Ready software is like having another teacher and that having this technology gives students 2 ways to learn information.