

# **Readington Township Public Schools**

## **Grade 4 Math Curriculum**

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**Approval Date:** August 18, 2020

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## **I. OVERVIEW**

Readington Township Public Schools' K-5 mathematics curriculum provides students with a strong foundation in mathematics content while promoting and instilling the skills of problem solving, communication in mathematics, making mathematical connections, and reasoning. Throughout the delivery of the K-5 mathematics program, various tools and technology are employed, including manipulatives, calculators, software, apps, videos, websites, and computing devices (computers, tablets, interactive whiteboards, etc.). A strong focus of the program is on promoting high levels of mathematical thought through experiences which extend beyond traditional computation.

The Mathematics 4 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 which extend beyond traditional computation. Students will use websites such as Reflex Math and i-Ready.

## **II. STUDENT OUTCOMES ([Linked to New Jersey Student Learning Standards for Mathematics 2016](#))**

### **Grade 4 Math**

#### **MATHEMATICAL PRACTICES**

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

#### **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  $35 = 5 \times 7$  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.<sup>1</sup>
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.

##### **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  $700 \div 70 = 10$  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. Fluently 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 models.

## **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  $(n \times a)/(n \times b)$  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.
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:  $3/8 = 1/8 + 1/8 + 1/8$ ;  $3/8 = 1/8 + 2/8$ ;  $2 \frac{1}{8} = 1 + 1/8 = 8/8 + 1/8$ .*
  - 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  $5 \times (1/4)$ , recording the conclusion by the equation  $5/4 = 5 \times (1/4)$ .*
  - 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  $3 \times (2/5)$  as  $6 \times (1/5)$ , recognizing this product as  $6/5$ . (In general,  $n \times (a/b) = (n \times a)/b$ .)*
  - 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.<sup>4</sup> *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 AND DATA (4.MD)**

**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. Represent and interpret data.**

4. Make a line plot to display a data set of measurements in fractions of a unit ( $1/2$ ,  $1/4$ ,  $1/8$ ). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*

**C. Geometric measurement: understand concepts of angle and measure angles.**

5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:
  - a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points

where the two rays intersect the circle. An angle that turns through  $1/360$  of a circle is called a “one-degree angle,” and can be used to measure angles.

- b. An angle that turns through  $n$  one-degree angles is said to have an angle measure of  $n$  degrees.
6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
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.

## **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)**

### **Income and Careers**

- A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.
- A.2 Identify potential sources of income.
- A.3 Explain how income affects spending and take-home pay.

### **Money Management**

- B.1 Differentiate between financial wants and needs.
- B.2 Identify age-appropriate financial goals.
- B.3 Explain what a budget is and why it is important.
- B.4 Identify common household expense categories and sources of income.
- B.5 Identify ways to earn and save.

### **Credit and Debt Management**

- C.1 Explain why people borrow money and the relationship between credit and debt.
- C.2 Identify common sources of credit (e.g., banks, credit card companies) and types of credit (e.g., loans, credit cards, mortgages).
- C.3 Compare and contrast credit cards and debit cards and the advantages and disadvantages of using each.
- C.4 Determine the relationships among income, expenses, and interest.
- C.5 Determine personal responsibility related to borrowing and lending.
- C.6 Summarize ways to avoid credit problems.

### **Planning, Saving, and Investing**

- D.1 Determine various ways to save.
- D.2 Explain what it means to “invest.”
- D.3 Distinguish between saving and investing.

### **Becoming A Critical Consumer**

- E.1 Determine factors that influence consumer decisions related to money.
- E.2 Apply comparison shopping skills to purchasing decisions.

### **Civic Financial Responsibility**

F.1 Demonstrate an understanding of individual financial obligations and community financial obligations.

F.2 Explain the roles of philanthropy, volunteer service, and charitable contributions, and analyze their impact on community development and quality of living.

### **Insuring and Protecting**

G.1 Describe how valuable items might be damaged or lost and ways to protect them.

## **III. ESSENTIAL QUESTIONS**

### **Grade 4 Math**

#### **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 and Data**

- 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?

#### **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?

## **IV. STRATEGIES**

- Group discussions
- Teacher presentation
- Student projects
- Guided groups
- One to one instruction
- Interactive SMARTBoard lessons
- Tutorials

- Online practice such as Reflex Math and IXL

## V. ACCOMMODATIONS

- [Accommodations and Modification Addendum](#)

## VI. ASSESSMENTS

- **Formative**
  - o Independent student work
  - o Ready Classroom Lesson Quizzes
  - o Teacher Observations
  - o Class Participation
  - o Class Discussions
  - o Class Assignments
  - o Homework Assignments
  - o Notebooks
  - o Anecdotal Records
- **Summative**
  - o Mid-Unit Test
  - o Unit Test
- **Alternative**
  - o Live Online Assessment Tools (Quizizz, Kahoot, Plickers, Quizlet, Brainpop)
  - o Student Projects
  - o Student Presentations
  - o Self-Assessments
- **Benchmark** (given September, March, and June)
  - o I-Ready Diagnostic
  - o Performance Assessments
  - o Reflex Mathematics

## VII. MATERIALS

- **Core**
  - o Ready Classroom Mathematics, Curriculum Associates, LLC
  - o Teacher Manual Volumes 1 & 2
  - o Student Books Volumes 1 & 2
  - o Ready Classroom Teacher Toolbox
- **Supplemental Resources**
  - o Technology
    - Brain Pop
    - IXL
    - Reflex Math
    - Online Tutorials (Learnzillion, Khan Academy, Math Antics)
    - Online Math Games (Math is Fun, Funbrain, Cool Math Games, Math Playground)

## VIII. 21<sup>st</sup> CENTURY SKILLS

### Number and Operations in Base Ten

- **Career Ready Practices**  
**CRP8.** 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 be able to work on and complete the Mystery Number enrichment problem that is in lesson 1 of the Ready Classroom Math Grade 4 program. 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**  
**9.2.4.A.2** Identify various life roles and civic and work-related activities in the school, home, and community.  
**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 less people. A chef would use division in the manor.
- Technology**  
**4.NBT.A.3.** Use place value understanding to round multi-digit whole numbers to any place.  
**8.1.5.A.1** Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.  
**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**  
**CRP8** 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 able to complete page 209-212 in Ready Math Grade 4 book. In this 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**  
**9.2.4.A.3** Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.  
**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 complete the Unit 2 Math in Action lesson from the Ready Classroom Math program. In this activity students 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.
- Technology**  
**8.1.5.D.4** Understand digital citizenship and demonstrate an understanding of the personal consequences of inappropriate use of technology and social media.  
**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. They will then record a video using a platform such as Flipgrid. Students will then explain the properties of the pattern and ask questions to the audience about the pattern. Students will then watch each others' videos and record answers to the questions with video and text. Students will learn about digital citizenship and who they should respond to others in an online format.



## Number and Operations in Fractions

- **Career Ready Practices**

**CRP2.** Apply appropriate academic and technical skills.

**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  $\frac{1}{2}$ . 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:** All throughout Lesson 18 in the Ready Classroom Math Grade 4 program students will compare fractions. 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.

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

**9.2.4.A.4** Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

**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 skills in school because they will relate to their career success. Students will be able to complete P. 523-526 using this knowledge.

- **Technology**

**8.1.5.A.1** Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

**4.NF.A.1** Explain why a fraction  $\frac{a}{b}$  is equivalent to a fraction  $\frac{(n \times a)}{(n \times b)}$  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. Students will use this too to complete Lesson 17 in the Ready Classroom Grade 4 book.

## Measurement and Data

- **Career Ready Practices**

**CRP4.** Communicate clearly and effectively and with reason.

**4.MD.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?". Students will be able to use this Math Talk all throughout Lesson 16 in the Ready Classroom Grade 4 program.

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

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

**9.2.4.A.4** Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

**Activity:** Students will complete Fourth Grade Ready Math Math In Action Unit 3 lesson on page 350-353. In this activity students will pretend they work for a zoo and need to develop birdcages according to different criteria based on perimeter.

- **Technology**  
**8.1.5.A.3** Use a graphic organizer to organize information about problems or issues.  
**4.MD.A.1** Know relative sizes of measurement units within one system of units including km, m, cm, mm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table.  
**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.

## Geometry

- **Career Ready Practice**  
**CRP6.** 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**  
**9.2.4.A.3** Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.  
**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:** During the Unit 5 Math In Action activity in the Ready Classroom Math Grade 4 program students will be able to classify shapes that an artist cut to use in one of her 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.
- **Technology**  
**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.  
**8.1.5.A.1** Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems  
**Activity:** Students will be able to use IXL and/ or i-Ready to practice classifying two-dimensional figures and triangles.

## IX.

### PACING

#### Fourth Grade

#### Number and Operations in Base Ten

#### Lessons 1-5, 11-15 (34 days)

- Develop Understanding of Place Value
- Compare and Round Whole Numbers
- Add and Subtract Whole Numbers

#### *Interdisciplinary Connections:*

#### Math/ELA

- **SL.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  $700 \div 70 = 10$  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.

#### **Math/Science**

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

**4.NBT.B.4** Fluently 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 and Algebraic Thinking**

#### **Lessons 6-10(24 days)**

- Multiplication as a Comparison
- Multiplication and Division in Word Problems
- Patterns
- Model and Solve Multi-Step Problems
- Multiply and Divide Multi-Digit Numbers

#### **Interdisciplinary Connections:**

#### **Math/Science**

- **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.

#### **Math/ELA**

- **RI.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.

### **Number and Operations in Fractions**

#### **Lessons 17-21, 23-27 (50 days)**

- Develop Understanding of Equivalent Fractions
- Compare Fractions
- Add and Subtract Fractions

- Add and Subtract Mixed Numbers
- Multiply Fractions and Fractions by Whole Numbers
- Relate Decimals and Fractions
- Compare Decimals

#### ***Interdisciplinary Connections***

- **Math/Social Studies**

**6.1.4.A.4** Explain how the United States government is organized and how the United States Constitution defines and checks 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 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.

- **Math/ELA**

**W.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 size granola bars.

#### **Measurement and Data**

##### **Lessons 16, 22, 28-29, 31-32 ( 22 days)**

- Use Multiplication to Convert Measurements
- Solve Problems with Time and Money
- Solve Problems about Length, Liquid Volume, Mass, and Weight
- Identify and Measure Angles
- Add and Subtract with Angles

#### ***Interdisciplinary Connections:***

- **Math/Social Studies**

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

**6.1.4.C.10** Explain the role of money, savings, debt, and investment in individuals' lives.

**Activity:** Students will be able to learn about the role of money in their lives and discuss how budgeting and saving money can help them. Students will be able to solve problems using money that demonstrates their understanding of budgeting.

- **Math/ELA**

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

**RI.4.4.** Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.

**Activity:** Students will solve mathematical word problems. During this activity students will have to use the vocabulary in the problems to determine what operation and unit to use.

## **Geometry**

### **Lessons 30, 33-34 (16 days)**

- Identify points, line segments, rays and perpendicular and parallel lines
- Classify two-dimensional figures
- Draw and identify lines of symmetry

### ***Interdisciplinary Connections:***

- **Math/ELA**

**RL.4.7.** Make connections between specific descriptions and directions in a text and a visual or oral representation of the text.

**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:** In lesson 33 of the Ready Classroom Grade 4 math program 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.

- **Math/Science**

**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)**

### **Income and Careers**

- Define careers and jobs
- Identify potential sources of income
- Explore the relationship between income, spending, and take-home pay

### **Money Management**

- Financial wants and needs
- Age-appropriate financial goals
- Budgets
- Expenses and sources of income
- Earning and saving

### **Credit and Debt Management**

- Relationship between credit and debt
- Sources of credit (e.g., banks, credit card companies) and types of credit (e.g., loans, credit cards, mortgages)
- Credit cards and debit cards
- Relationships among income, expenses, and interest
- Personal responsibility related to borrowing and lending.

### **Planning, Saving, And Investing**

- Distinguish between saving and investing

**Becoming A Critical Consumer**

- Apply comparison shopping skills to purchasing decisions

**Civic Financial Responsibility**

- Individual financial obligations and community financial obligations
- Roles of philanthropy, volunteer service, and charitable contributions

**Insuring and Protecting**

- Describe how valuable items might be damaged or lost and ways to protect them.

Additional time will be spent on reviewing concepts that may need to be revisited and looking ahead to next year's curriculum.