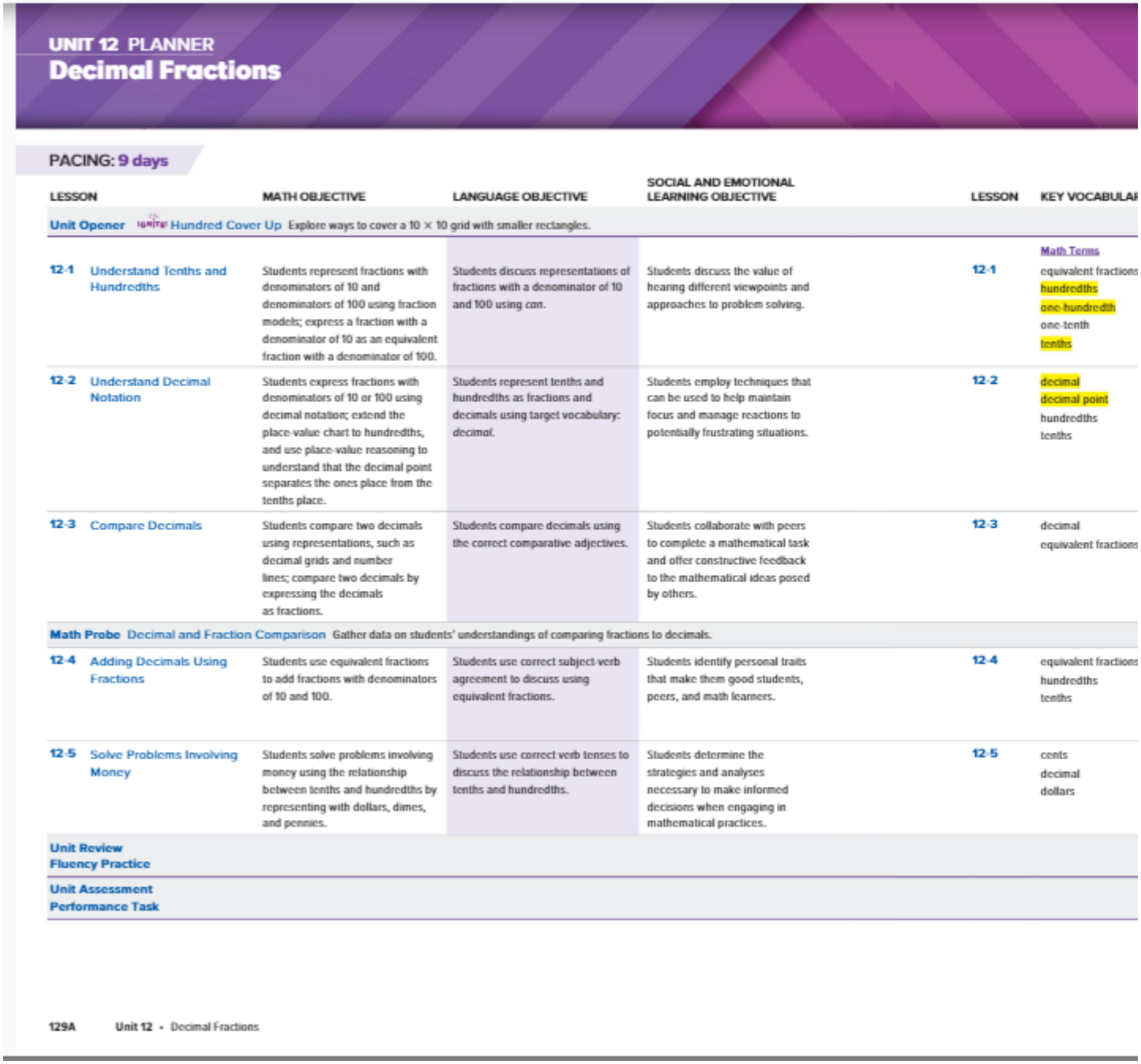
Unit 12 Reveal Grade 4

Content Area: **Math**
Course(s): **Math**
Time Period: **May**
Length: **2 weeks**
Status: **Published**

Unit Overview



UNIT 12 PLANNER
Decimal Fractions

PACING: 9 days

LESSON		MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE	LESSON	KEY VOCABULAR
Unit Opener	IGNITE Hundred Cover Up Explore ways to cover a 10 × 10 grid with smaller rectangles.					
12-1	Understand Tenths and Hundredths	Students represent fractions with denominators of 10 and denominators of 100 using fraction models; express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100.	Students discuss representations of fractions with a denominator of 10 and 100 using *con*.	Students discuss the value of hearing different viewpoints and approaches to problem solving.	12-1	Math Terms equivalent fractions hundredths one hundredth one tenth tenths
12-2	Understand Decimal Notation	Students express fractions with denominators of 10 or 100 using decimal notation; extend the place-value chart to hundredths, and use place-value reasoning to understand that the decimal point separates the ones place from the tenths place.	Students represent tenths and hundredths as fractions and decimals using target vocabulary: *decimal*.	Students employ techniques that can be used to help maintain focus and manage reactions to potentially frustrating situations.	12-2	decimal decimal point hundredths tenths
12-3	Compare Decimals	Students compare two decimals using representations, such as decimal grids and number lines; compare two decimals by expressing the decimals as fractions.	Students compare decimals using the correct comparative adjectives.	Students collaborate with peers to complete a mathematical task and offer constructive feedback to the mathematical ideas posed by others.	12-3	decimal equivalent fractions
Math Probe	Decimal and Fraction Comparison Gather data on students' understandings of comparing fractions to decimals.					
12-4	Adding Decimals Using Fractions	Students use equivalent fractions to add fractions with denominators of 10 and 100.	Students use correct subject-verb agreement to discuss using equivalent fractions.	Students identify personal traits that make them good students, peers, and math learners.	12-4	equivalent fractions hundredths tenths
12-5	Solve Problems Involving Money	Students solve problems involving money using the relationship between tenths and hundredths by representing with dollars, dimes, and pennies.	Students use correct verb tenses to discuss the relationship between tenths and hundredths.	Students determine the strategies and analyses necessary to make informed decisions when engaging in mathematical practices.	12-5	cents decimal dollars
Unit Review Fluency Practice						
Unit Assessment Performance Task						

129A Unit 12 • Decimal Fractions

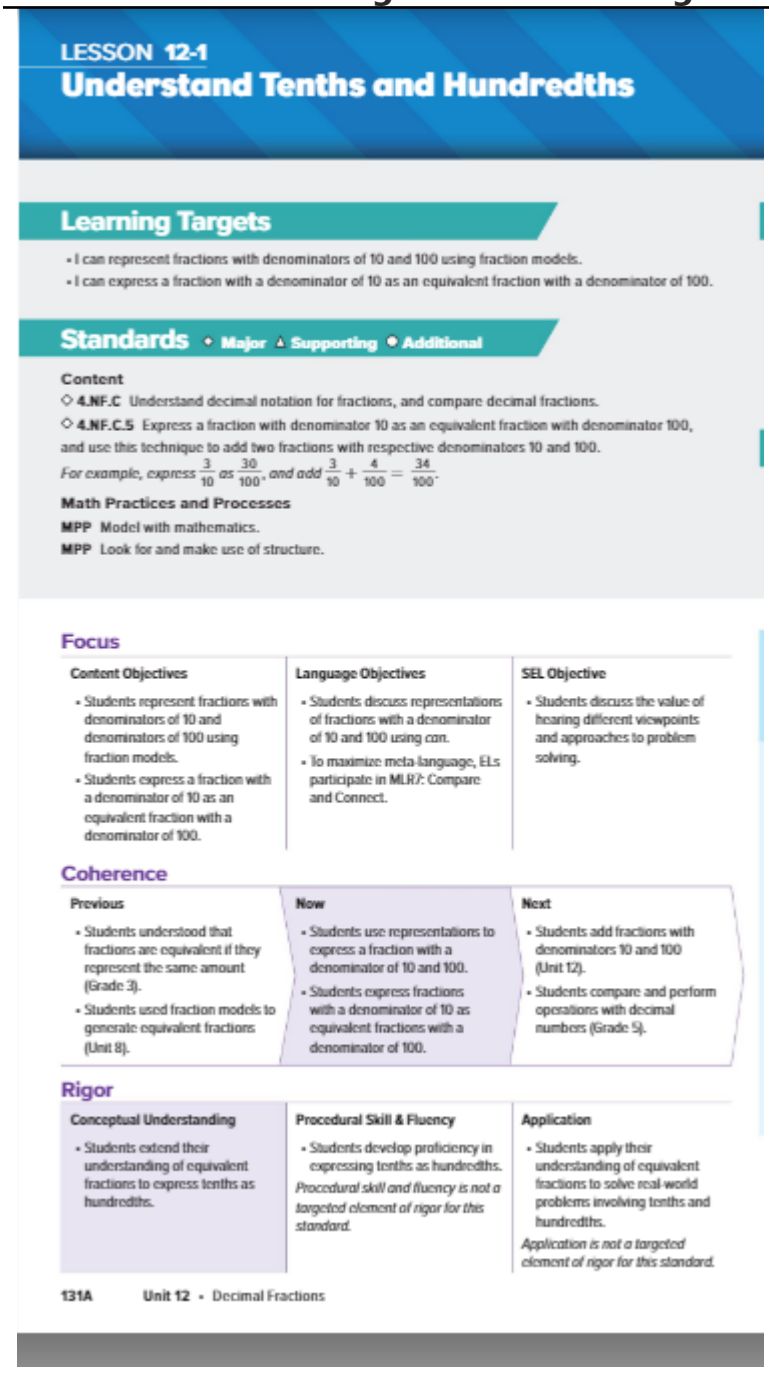
Enduring Understandings

See Above

Essential Questions

See Above

Instructional Strategies and Learning Activities



LESSON 12-1

Understand Tenths and Hundredths

Learning Targets

- I can represent fractions with denominators of 10 and 100 using fraction models.
- I can express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **4.NF.C** Understand decimal notation for fractions, and compare decimal fractions.

◇ **4.NF.C.5** Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.

For example, express $\frac{3}{10}$ *as* $\frac{30}{100}$*, and add* $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$.

Math Practices and Processes

MPP Model with mathematics.

MPP Look for and make use of structure.

Focus

Content Objectives

- Students represent fractions with denominators of 10 and denominators of 100 using fraction models.
- Students express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100.

Language Objectives

- Students discuss representations of fractions with a denominator of 10 and 100 using *con*.
- To maximize meta-language, ELs participate in MLR7: Compare and Connect.

SEL Objective

- Students discuss the value of hearing different viewpoints and approaches to problem solving.

Coherence

Previous

- Students understood that fractions are equivalent if they represent the same amount (Grade 3).
- Students used fraction models to generate equivalent fractions (Unit 8).

Now

- Students use representations to express a fraction with a denominator of 10 and 100.
- Students express fractions with a denominator of 10 as equivalent fractions with a denominator of 100.

Next

- Students add fractions with denominators 10 and 100 (Unit 12).
- Students compare and perform operations with decimal numbers (Grade 5).

Rigor

Conceptual Understanding

- Students extend their understanding of equivalent fractions to express tenths as hundredths.

Procedural Skill & Fluency

- Students develop proficiency in expressing tenths as hundredths.

Procedural skill and fluency is not a targeted element of rigor for this standard.

Application

- Students apply their understanding of equivalent fractions to solve real-world problems involving tenths and hundredths.

Application is not a targeted element of rigor for this standard.

LESSON 12-2

Understand Decimal Notation

Learning Targets

- I can represent fractions with denominators of 10 or 100 using decimal notation.
- I can identify the place value of tenths and hundredths using a place-value chart.

Standards ◇ Major △ Supporting ○ Additional

Content

◇ **4.NF.C** Understand decimal notation for fractions, and compare decimal fractions.

◇ **4.NF.C.6** Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as* $\frac{62}{100}$*; describe a length as 0.62 meters; locate 0.62 on a number line diagram.*

Math Practices and Processes

MPP Look for and make use of structure.

Focus

Content Objectives

- Students express fractions with denominators of 10 or 100 using the decimal notation.
- Students extend the place-value chart to hundredths, and use place-value reasoning to understand that the decimal point separates the ones place from the tenths place.

Language Objectives

- Students represent tenths and hundredths as fractions and decimals using target vocabulary: *decimal*.
- To support sense-making, ELs participate in MLR2: Collect and Display.

SEL Objective

- Students employ techniques that can be used to help maintain focus and manage reactions to potentially frustrating situations.

Coherence

Previous

- Students represented fractions as part of the whole (Grade 3).
- Students solved problems involving fractions and mixed numbers (Unit 10).

Now

- Students represent tenths and hundredths as fractions and decimals.
- Students identify the place value of tenths and hundredths.

Next

- Students compare two decimals (Unit 12).
- Students explain the relationship of place values in decimal numbers (Grade 5).

Rigor

Conceptual Understanding

- Students build on their understanding of fractions and decimals by using multiple representations to name tenths and hundredths as fractions and decimals.

Procedural Skill & Fluency

- Students build proficiency with naming tenths and hundredths as fractions and decimals.

Application

- Students will apply their understanding of fractions to represent tenths and hundredths as both fractions and decimals in real-world contexts.

Application is not a targeted element of rigor for this standard.

LESSON 12-3

Compare Decimals

Learning Targets

- I can compare two decimals to hundredths using different representations and tools.
- I can explain the comparison of two decimals using representations and by using equivalent fractions.

Standards ◇ Major △ Supporting ○ Additional

Content

◇ **4.NF.C** Understand decimal notation for fractions, and compare decimal fractions.

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

Math Practices and Processes

MPP Reason abstractly and quantitatively.

MPP Use appropriate tools strategically.

Focus

Content Objectives	Language Objectives	SEL Objective
• Students compare two decimals using representations, such as decimal grids and number lines. • Students compare two decimals by expressing the decimals as fractions.	• Students compare decimals using the correct comparative adjectives. • To optimize output, ELs participate in MLR1: Stronger and Clearer Each Time.	• Students collaborate with peers to complete a mathematical task and offer constructive feedback to the mathematical ideas posed by others.

Coherence

Previous	Now	Next
• Students compared two fractions with the same numerator or denominator (Grade 3). • Students generated equivalent fractions (Unit 8).	• Students compare decimals to hundredths. • Students use representations to compare decimals.	• Students solve word problems that involve converting units of time or measure (Unit 13). • Students compare decimals to the thousandths (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students use their understanding of decimal representations to reason about the size of two decimals and compare them.	• Students build proficiency with comparing decimals. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of decimal comparisons to solve problems with real-world contexts. *Application is not a targeted element of rigor for this standard.*

LESSON 12-4

Adding Decimals Using Fractions

Learning Targets

- I can add two fractions that have denominators of 10 and 100.
- I can explain how to add fractions with denominators 10 and 100 by using equivalent fractions.

Standards ◇ Major △ Supporting ○ Additional

Content

◇ **4.NF.C** Understand decimal notation for fractions, and compare decimal fractions.

◇ **4.NF.C.5** Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express* $\frac{3}{10}$ *as* $\frac{30}{100}$, *and add* $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$.

Math Practices and Processes

MPP Model with mathematics.

MPP Attend to precision.

Focus

Content Objective

- Students use equivalent fractions to add fractions with denominators of 10 and 100.

Language Objectives

- Students use correct subject-verb agreement to discuss using equivalent fractions.
- To cultivate conversation, ELs participate in MLR 8: Discussion Supports.

SEL Objective

- Students identify personal traits that make them good students, peers, and math learners.

Coherence

Previous

- Students identified equivalent fractions (Grade 3).
- Students generated equivalent fractions with denominators of 10 and 100 (Unit 8).

Now

- Students use representations and equivalent fractions to add tenths and hundredths.

Next

- Students use the four operations to solve word problems involving measurements and fractions (Unit 13).
- Students recognize the multiplication and division base-ten pattern (Grade 5).

Rigor

Conceptual Understanding

- Students build on their understanding of equivalent fractions to add fractions with denominators of 10 and 100.

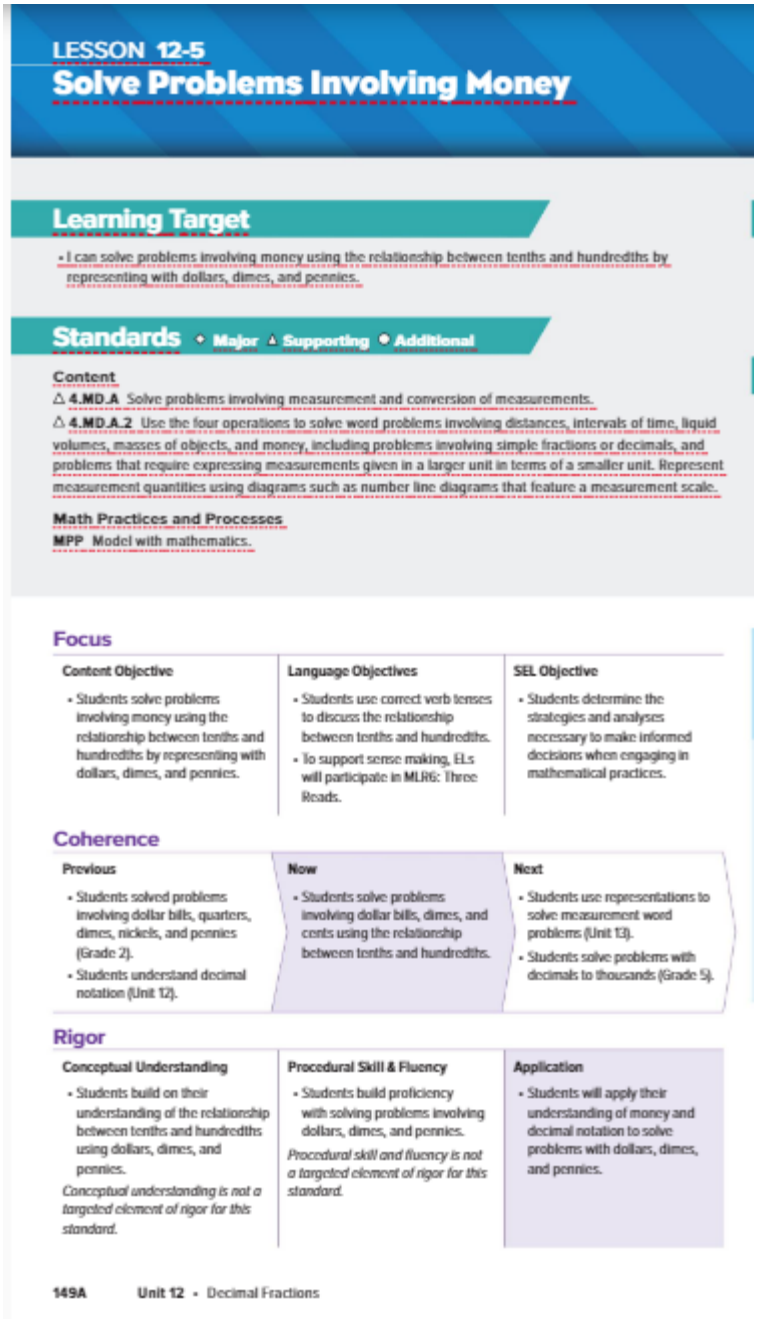
Procedural Skill & Fluency

- Students build proficiency in adding fractions with denominators 10 and 100.

Application

- Students apply their understanding of adding decimal fractions to solve problems with real-world contexts.

Application is not a specific element of rigor for this standard.



LESSON 12-5

Solve Problems Involving Money

Learning Target

- I can solve problems involving money using the relationship between tenths and hundredths by representing with dollars, dimes, and pennies.

Standards ◆ Major △ Supporting ○ Additional

Content

△ **4.MD.A** Solve problems involving measurement and conversion of measurements.

△ **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.

Math Practices and Processes

MPP Model with mathematics.

Focus

Content Objective	Language Objectives	SEL Objective
• Students solve problems involving money using the relationship between tenths and hundredths by representing with dollars, dimes, and pennies.	• Students use correct verb tenses to discuss the relationship between tenths and hundredths. • To support sense making, ELs will participate in MLR6: Three Reads.	• Students determine the strategies and analyses necessary to make informed decisions when engaging in mathematical practices.

Coherence

Previous	Now	Next
• Students solved problems involving dollar bills, quarters, dimes, nickels, and pennies (Grade 2). • Students understand decimal notation (Unit 12).	• Students solve problems involving dollar bills, dimes, and cents using the relationship between tenths and hundredths.	• Students use representations to solve measurement word problems (Unit 13). • Students solve problems with decimals to thousands (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of the relationship between tenths and hundredths using dollars, dimes, and pennies. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students build proficiency with solving problems involving dollars, dimes, and pennies. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students will apply their understanding of money and decimal notation to solve problems with dollars, dimes, and pennies.

Integration of Career Readiness, Life Literacies and Key Skills

9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
9.1.2.CR.2	List ways to give back, including making donations, volunteering, and starting a business.
9.1.2. FI.1	Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards).

9.4.2.CT.2	Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.1.2.FP.1	Explain how emotions influence whether a person spends or saves.
9.1.2.FP.3	Identify the factors that influence people to spend or save (e.g., commercials, family, culture, society).
9.4.2.DC.3	Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4).
9.1.2.PB.1	Determine various ways to save and places in the local community that help people save and accumulate money over time.
9.1.2.PB.2	Explain why an individual would choose to save money.
9.4.2.DC.6	Identify respectful and responsible ways to communicate in digital environments.
9.4.2.DC.7	Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).
9.4.2.TL.2	Create a document using a word processing application.
9.4.2.TL.5	Describe the difference between real and virtual experiences.
9.4.2.TL.6	Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).
9.4.2.TL.7	Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2).

Technology and Design Integration

8.1.2.CS.1	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
8.1.2.DA.1	Collect and present data, including climate change data, in various visual formats.
8.1.2.DA.3	Identify and describe patterns in data visualizations.
8.1.2.DA.4	Make predictions based on data using charts or graphs.
8.1.2.AP.4	Break down a task into a sequence of steps.
8.1.2.AP.5	Describe a program’s sequence of events, goals, and expected outcomes.
8.2.2.ITH.4	Identify how various tools reduce work and improve daily tasks.

Interdisciplinary Connections

LA.RI.4	Reading Informational Text
LA.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.
LA.RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
LA.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.
LA.RI.4.5	Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
LA.RI.4.6	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.

LA.RI.4.8	Explain how an author uses reasons and evidence to support particular points in a text.
LA.RI.4.9	Integrate and reflect on (e.g., practical knowledge, historical/cultural context, and background knowledge) information from two texts on the same topic in order to write or speak about the subject knowledgeably.
LA.SL.4	Speaking and Listening
LA.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.
LA.SL.4.2	Paraphrase portions of a text read aloud or information presented in diverse media and formats (e.g., visually, quantitatively, and orally).
LA.SL.4.3	Identify the reasons and evidence a speaker provides to support particular points.
LA.SL.4.4	Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

Differentiation

- Understand that gifted students, just like all students, come to school to learn and be challenged.
- Pre-assess your students. Find out their areas of strength as well as those areas you may need to address before students move on.
- Consider grouping gifted students together for at least part of the school day.
- Plan for differentiation. Consider pre-assessments, extension activities, and compacting the curriculum.
- Use phrases like "You've shown you don't need more practice" or "You need more practice" instead of words like "qualify" or "eligible" when referring to extension work.
- Encourage high-ability students to take on challenges. Because they're often used to getting good grades, gifted students may be risk averse.

- **Definitions of Differentiation Components**:

    - Content – the specific information that is to be taught in the lesson/unit/course of instruction.
    - Process – how the student will acquire the content information.
    - Product – how the student will demonstrate understanding of the content.
    - Learning Environment – the environment where learning is taking place including physical location and/or student grouping

Differentiation occurring in this unit:



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Modifications and Accommodations

Refer to QSAC EXCEL SMALL SPED ACCOMMOCATIONS spreadsheet in this discipline.

Modifications and Accommodations used in this unit:

Benchmark Assessments

Benchmark Assessments are given periodically (e.g., at the end of every quarter or as frequently as once per month) throughout a school year to establish baseline achievement data and measure progress toward a standard or set of academic standards and goals.

Schoolwide Benchmark assessments:

Aimsweb benchmarks 3X a year

Linkit Benchmarks 3X a year

DRA

Additional Benchmarks used in this unit:

Reveal Unit assessments

Formative Assessments

Assessment allows both instructor and student to monitor progress towards achieving learning objectives, and can be approached in a variety of ways. **Formative assessment** refers to tools that identify misconceptions, struggles, and learning gaps along the way and assess how to close those gaps. It includes effective tools for helping to shape learning, and can even bolster students' abilities to take ownership of their learning when they understand that the goal is to improve learning, not apply final marks (Trumbull and Lash, 2013). It can include students assessing themselves, peers, or even the instructor, through writing, quizzes, conversation, and more. In short, formative assessment occurs throughout a class or course, and seeks to improve student achievement of learning objectives through approaches that can support specific student needs (Theal and Franklin, 2010, p. 151).

Formative Assessments used in this unit:

Teacher observation

Checklists

Questioning and Discussion

Quizzes

Summative Assessments

summative assessments evaluate student learning, knowledge, proficiency, or success at the conclusion of an instructional period, like a unit, course, or program. Summative assessments are almost always formally graded and often heavily weighted (though they do not need to be). Summative assessment can be used to great effect in conjunction and alignment with formative assessment, and instructors can consider a variety of ways to combine these approaches.

Summative assessments for this unit:

End of Unit assessments

Instructional Materials

See above

Standards

MA.4.NF.C.5	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.
MA.4.NF.C.6	Use decimal notation for fractions with denominators 10 or 100.
MA.4.NF.C.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.
MA.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.