Unit 9 Reveal Grade 4

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

Unit Overview

UNIT 9 PLANNER

Addition and Subtraction Meanings and Strategies with Fractions

PACING: 10 days

LESSON		MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE	LESSON	KEY VOCABULARY
Unit Opener Ignite	IGNITE! Would You Rather Have ...? Students construct viable arguments as they decide which fractional amount is more.					
9-1	Understand Decomposing Fractions	Students use fraction models to decompose fractions into sums of fractions with the same denominator in more than one way.	Students use sequence words to discuss how to decompose fractions with the same denominator.	Students identify personal traits that make them good students, peers, and math learners.	9-1	Math Terms addend decompose like denominators sum unit fraction
9-2	Represent Adding Fractions	Students use fraction models to understand addition of fractions as joining parts that refer to the same whole. Students add fractions with like denominators.	Students discuss using fraction models to add fractions with like denominators using the correct units of measure.	Students exchange ideas for mathematical problem-solving with a peer, listening attentively and providing thoughtful and constructive feedback.	9-2	addends like denominators sum unit fractions
9-3	Add Fractions with Like Denominators	Students use representations to show that the sum of fractions with like denominators can be found by adding the numerators and keeping the denominators the same.	Students use the correct units of measure to discuss finding the sum of fractions by adding numerators and keeping the denominators the same.	Students set a focused mathematical goal and make a plan for achieving that goal.	9-3	denominator numerator
9-4	Represent Subtracting Fractions	Students use fraction models to understand subtraction of fractions as separating parts that refer to the same whole. Students subtract fractions with like denominators.	Students discuss subtracting fractions with like denominators using *can* and *could*.	Students collaborate with peers to complete a mathematical task and offer constructive feedback to the mathematical ideas posed by others.	9-4	denominator difference numerator
9-5	Subtract Fractions with Like Denominators	Students use representations to show that the difference of fractions with like denominators can be found by subtracting the numerators and keeping the denominators the same.	Students discuss using different strategies to subtract numerators keeping the denominators the same using the terms *One way* and *Another way*.	Students identify and discuss the emotions experienced during math learning.	9-5	difference
Math Probe	Fraction Sums and Differences Gather data on students' understandings of estimating fraction sums and differences.					
9-6	Solve Problems Involving Fractions	Students solve word problems involving addition and subtraction of fractions with like denominators.	Students use the correct units of measure to solve word problems using addition and subtraction of fractions with like denominators.	Students discuss how a rule or routine can help develop mathematical skills and knowledge and be responsible contributors.	9-6	difference sum
Unit Review Fluency Practice						
Performance Task Unit Assessment						

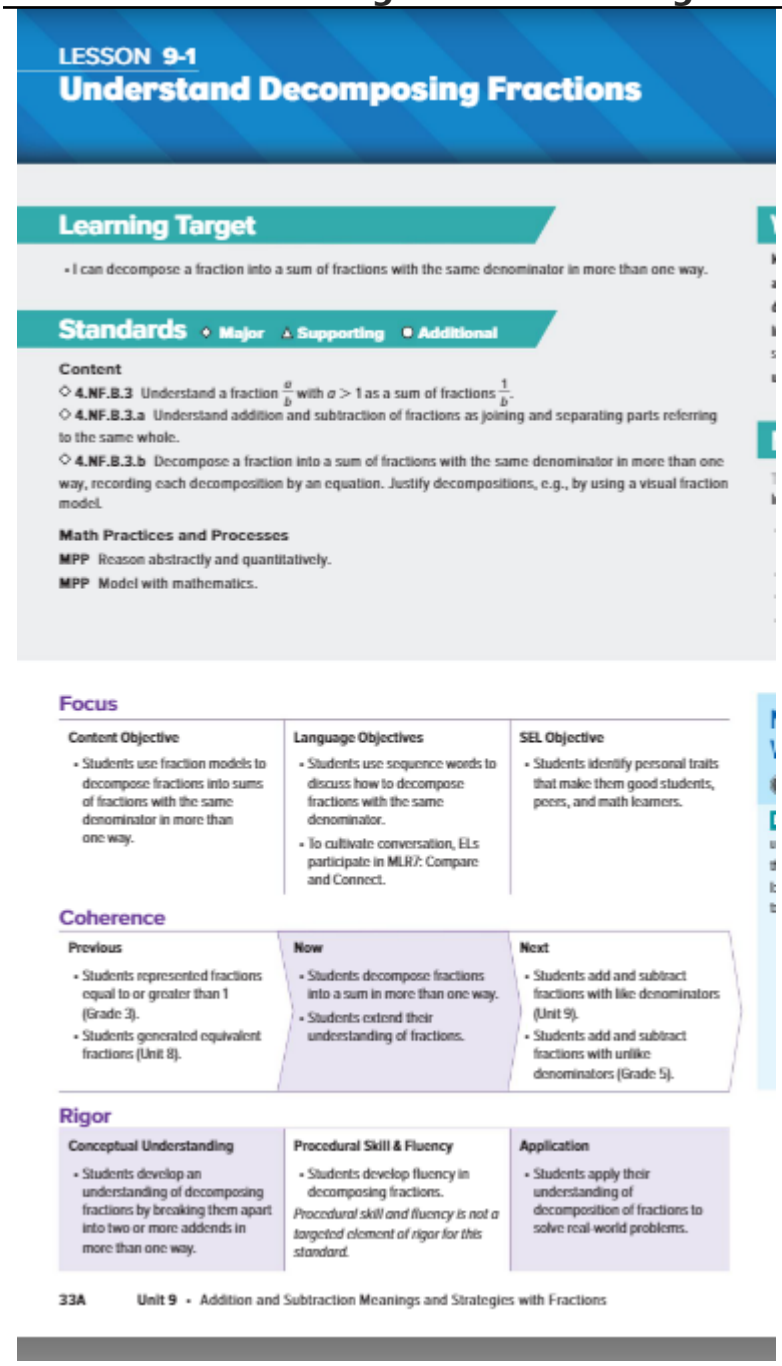
Enduring Understandings

See Above

Essential Questions

See Above

Instructional Strategies and Learning Activities



LESSON 9-1

Understand Decomposing Fractions

Learning Target

- I can decompose a fraction into a sum of fractions with the same denominator in more than one way.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **4.NF.B.3** Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$.

◇ **4.NF.B.3.a** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

◇ **4.NF.B.3.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.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

MPP Model with mathematics.

Focus

Content Objective	Language Objectives	SEL Objective
• Students use fraction models to decompose fractions into sums of fractions with the same denominator in more than one way.	• Students use sequence words to discuss how to decompose fractions with the same denominator. • To cultivate conversation, ELs participate in MLR7: Compare and Connect.	• Students identify personal traits that make them good students, peers, and math learners.

Coherence

Previous	Now	Next
• Students represented fractions equal to or greater than 1 (Grade 3). • Students generated equivalent fractions (Unit 8).	• Students decompose fractions into a sum in more than one way. • Students extend their understanding of fractions.	• Students add and subtract fractions with like denominators (Unit 9). • Students add and subtract fractions with unlike denominators (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop an understanding of decomposing fractions by breaking them apart into two or more addends in more than one way.	• Students develop fluency in decomposing fractions. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of decomposition of fractions to solve real-world problems.

LESSON 9-2

Represent Adding Fractions

Learning Targets

- I can use fraction models to represent addition of fractions with like denominators.
- I can add fractions with like denominators.

Standards ◇ Major ▲ Supporting ○ Additional

Content

◇ **4.NF.B.3** Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$.

◇ **4.NF.B.3.a** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. Example: $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

◇ **4.NF.B.3.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.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

MPP Use appropriate tools strategically.

Focus

Content Objectives	Language Objectives	SEL Objective
• Students use fraction models to understand addition of fractions as joining parts that refer to the same whole. • Students add fractions with like denominators.	• Students discuss using fraction models to add fractions with like denominators using the correct units of measure. • To maximize meta-language, ELs participate in MLR3: Critique, Correct, and Clarify.	• Students exchange ideas for mathematical problem-solving with a peer, listening attentively and providing thoughtful and constructive feedback.

Coherence

Previous	Now	Next
• Students used a number line to represent fractions (Grade 3). • Students used a number line to compare fractions (Unit 8).	• Students model addition of fractions with like denominators by joining parts that refer to the same whole.	• Students add fractions on a number line (Unit 9). • Students add fractions with unlike denominators (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students extend their understanding of fractions by using fraction models to represent adding fractions with like denominators.	• Students build proficiency with representing adding fractions with like denominators.	• Students add fractions to solve word problems. *Application is not a targeted element of rigor for this standard.*

LESSON 9-3

Add Fractions with Like Denominators

Learning Targets

- I can add fractions with like denominators.
- I can use representations to explain how to add fractions with like denominators.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **4.NF.B.3** Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$.

◇ **4.NF.B.3.a** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. Example: $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

◇ **4.NF.B.3.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.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

Focus

Content Objective	Language Objectives	SEL Objective
• Students use representations to show that the sum of fractions with like denominators can be found by adding the numerators and keeping the denominators the same.	• Students use the correct units of measure to discuss finding the sum of fractions by adding numerators and keeping the denominators the same. • To support sense-making, ELs participate in MLR6: Three Reads.	• Students set a focused mathematical goal and make a plan for achieving that goal.

Coherence

Previous	Now	Next
• Students learned that fractions are numbers made up of equal parts of a whole (Grade 3). • Students composed and decomposed fractions (Unit 8).	• Students model addition of fractions with common denominators. • Students add fractions with like denominators.	• Students subtract fractions with like denominators (Unit 9). • Students add and subtract fractions with unlike denominators (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students show that fractions with like denominators can be added by adding the numerators and keeping the denominators the same.	• Students build fluency adding fractions with like denominators. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of adding fractions with like denominators to solve word problems.

LESSON 9-4

Represent Subtracting Fractions

Learning Targets

- I can use fraction models to represent subtraction of fractions with like denominators.
- I can subtract fractions with like denominators.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **4.NF.B.3** Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$.

◇ **4.NF.B.3.a** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. Example: $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

◇ **4.NF.B.3.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.

Math Practices and Processes

MPP Model with mathematics.

Focus

Content Objectives

- Students use fraction models to understand subtraction of fractions as separating parts that refer to the same whole.
- Students subtract fractions with like denominators.

Language Objectives

- Students discuss subtracting fractions with like denominators using *can* and *could*.
- To support sense-making, ELs participate in MLR8: Discussion Supports.

SEL Objective

- Students collaborate with peers to complete a mathematical task and offer constructive feedback to the mathematical ideas posed by others.

Coherence

Previous

- Students learned that fractions are numbers made up of equal parts of a whole (Grade 3).
- Students used representations and strategies to add fractions with like denominators (Unit 9).

Now

- Students represent subtraction of fractions with like denominators by using fraction models.

Next

- Students subtract mixed numbers on a number line (Unit 10).
- Students add and subtract fractions with unlike denominators (Grade 5).

Rigor

Conceptual Understanding

- Students build understanding of subtracting fractions by exploring representations.

Procedural Skill & Fluency

- Students build proficiency with subtracting fractions with like denominators.

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

Application

- Students apply their knowledge of subtracting fractions to solve problems involving real-world contexts.

LESSON 9-5

Subtract Fractions with Like Denominators

Learning Targets

- I can subtract fractions with like denominators.
- I can use representations to explain how to subtract fractions with like denominators.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **4.NF.B.3** Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$.

◇ **4.NF.B.3.a** Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. Example: $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

◇ **4.NF.B.3.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.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

Focus

Content Objective

- Students use representations to show that the difference of fractions with like denominators can be found by subtracting the numerators and keeping the denominators the same.

Language Objectives

- Students discuss using different strategies to subtract numerators keeping the denominators the same using the terms *one way* and *another way*.
- To optimize output, ELs participate in MLR4: Information Gap.

SEL Objective

- Students identify and discuss the emotions experienced during math learning.

Coherence

Previous

- Students represented fractions on a number line (Grade 3).
- Students used representations to add fractions with like denominators (Unit 9).

Now

- Students subtract fractions with same-sized wholes.
- Students use fraction models to find a difference between fractions with like denominators.

Next

- Students solve addition and subtraction problems with mixed numbers (Unit 10).
- Students add and subtract fractions with unlike denominators (Grade 5).

Rigor

Conceptual Understanding

- Students build understanding of subtracting fractions using fraction models to show that fractions with like denominators can be subtracted by subtracting the numerators and keeping the denominators the same.

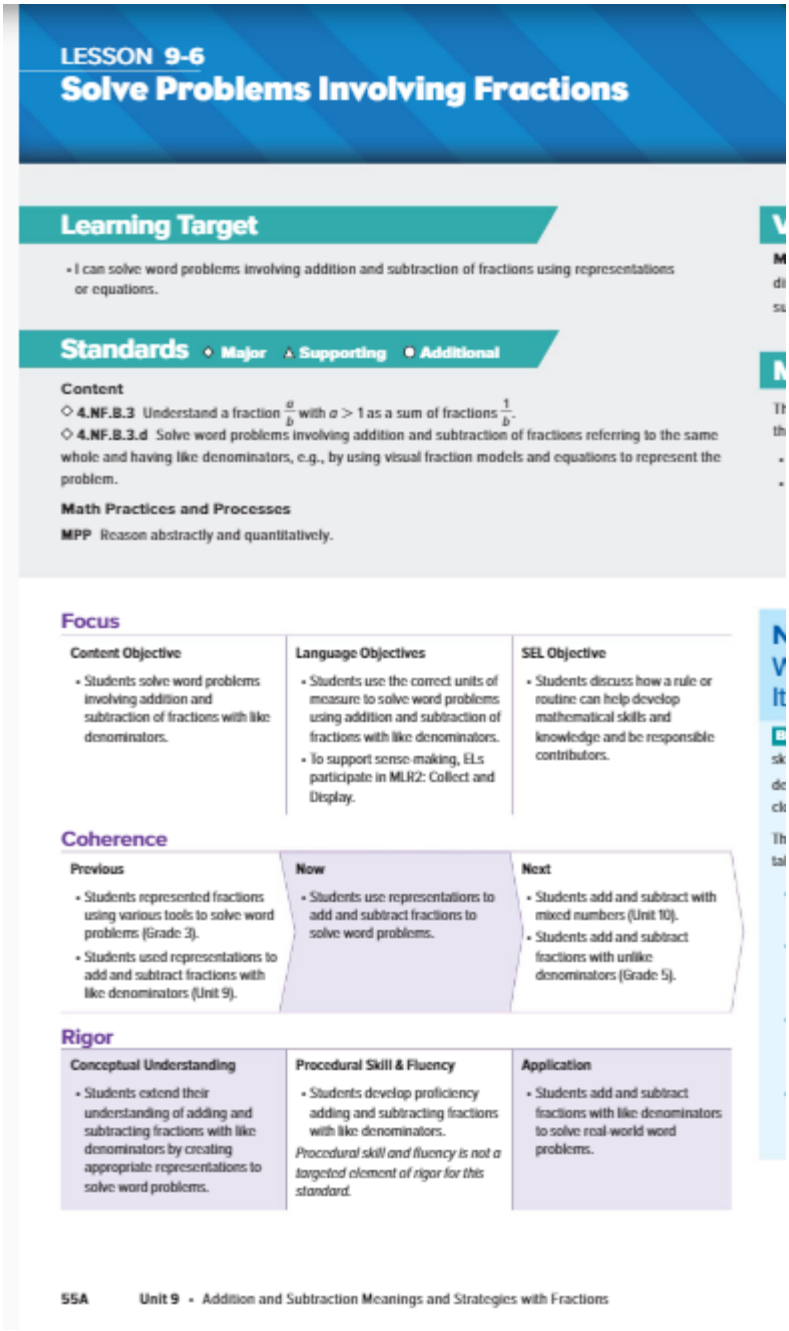
Procedural Skill & Fluency

- Students develop proficiency subtracting fractions with like denominators.

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

Application

- Students subtract fractions with like denominators to solve word problems in real-world contexts.



LESSON 9-6

Solve Problems Involving Fractions

Learning Target

- I can solve word problems involving addition and subtraction of fractions using representations or equations.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **4.NF.B.3** Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$.

◇ **4.NF.B.3.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.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

Focus

Content Objective

- Students solve word problems involving addition and subtraction of fractions with like denominators.

Language Objectives

- Students use the correct units of measure to solve word problems using addition and subtraction of fractions with like denominators.
- To support sense-making, ELs participate in MLR2: Collect and Display.

SEL Objective

- Students discuss how a rule or routine can help develop mathematical skills and knowledge and be responsible contributors.

Coherence

Previous

- Students represented fractions using various tools to solve word problems (Grade 3).
- Students used representations to add and subtract fractions with like denominators (Unit 9).

Now

- Students use representations to add and subtract fractions to solve word problems.

Next

- Students add and subtract with mixed numbers (Unit 10).
- Students add and subtract fractions with unlike denominators (Grade 5).

Rigor

Conceptual Understanding

- Students extend their understanding of adding and subtracting fractions with like denominators by creating appropriate representations to solve word problems.

Procedural Skill & Fluency

- Students develop proficiency adding and subtracting fractions with like denominators.

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

Application

- Students add and subtract fractions with like denominators to solve real-world word problems.

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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.B.3	Understand a fraction □/□ with □ > 1 as a sum of fractions 1/□.
MA.4.NF.B.3a	Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
MA.4.NF.B.3b	Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model.
MA.4.NF.B.3d	Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.