Unit 4 Reveal Grade 4

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

Unit Overview

UNIT 4 PLANNER

Multiplication as Comparison

PACING: 8 days

LESSON		MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE	LESSON	KEY VOCABULARY
Unit Opener	Comparing Gardens	Explore additive and multiplicative comparisons by comparing parts of flowers.				
4-1	Understand Comparing with Multiplication	Students represent multiplication as comparison; represent multiplicative comparison statements as multiplication equations.	Students compare quantities using multiplication and use multiplication equations to represent multiplicative comparison statements using the expression *times as much as*.	Students demonstrate self-awareness of personal strengths and areas of challenge in mathematics.	4-1	Math Terms multiplicative comparison
4-2	Represent Comparison Problems	Students use multiplication equations to represent multiplicative comparison; distinguish between multiplicative and additive comparison.	Students compose additive and multiplicative comparison problems using bar diagrams and equations and identify multiplicative and additvie comparisons using the expression *times as much*.	Students collaborate with peers and contribute to group effort to achieve a collective mathematical goal.	4-2	additive comparison multiplicative comparison
4-3	Solve Comparison Problems Using Multiplication	Students solve multiplicative comparison problems by using multiplication.	Students discuss using multiplication to solve word problems involving multiplicative comparisons and represent multiplicative comparisons with bar diagrams and equations using complete sentences.	Students practice strategies for persisting at a mathematical task, such as setting a small goal or setting timers for remaining focused.	4-3	bar diagram unknown
4-4	Solve Comparison Problems Using Division	Students solve multiplicative comparison problems by using division.	Students discuss multiplicative comparison word problems by using division and the word *cost/costs*.	Students identify a problem, use creativity to execute problem-solving steps, and identify multiple solutions.	4-4	bar diagram unknown
Math Probe	Comparison Problems	Gather data on students' understandings of using equations to represent comparison word problems.				
Unit Review Fluency Practice						
Unit Assessment Performance Task						

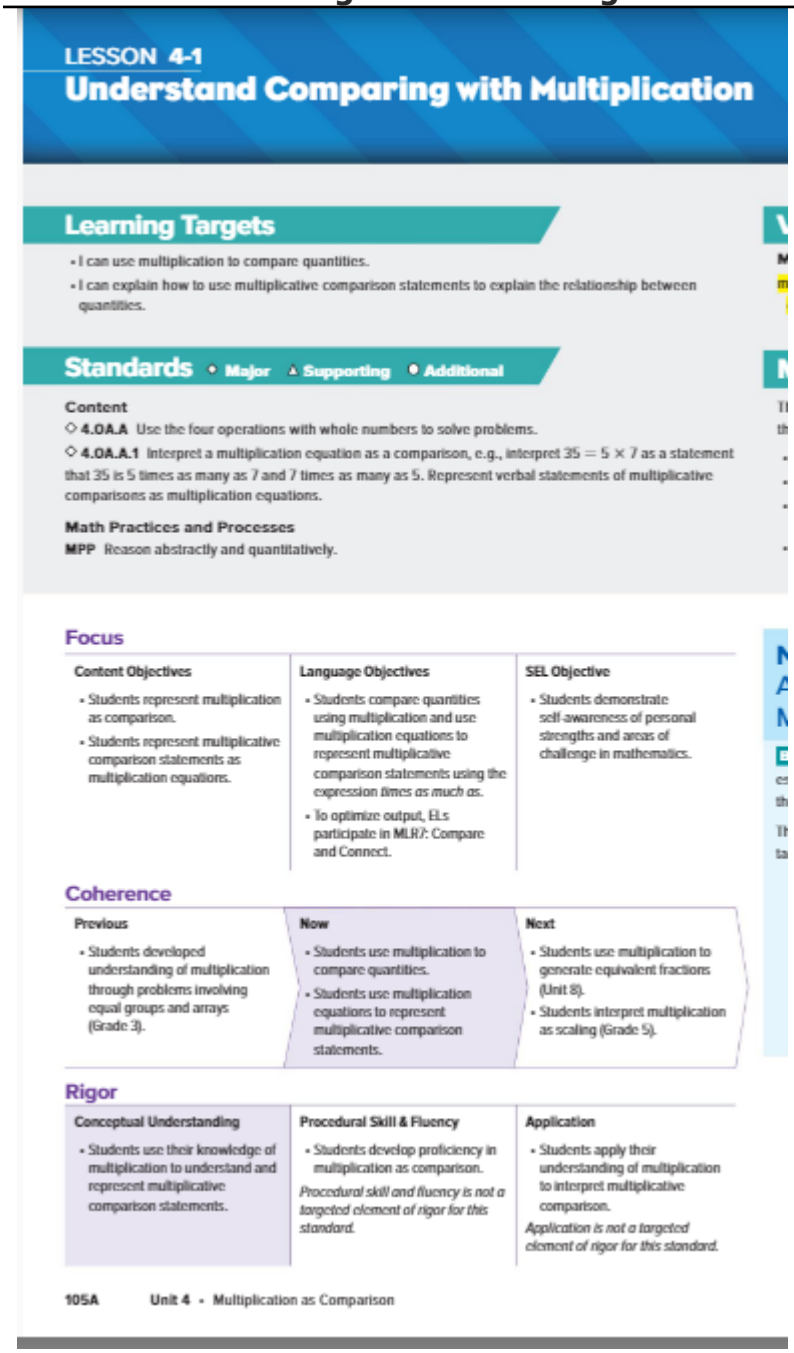
Enduring Understandings

See Above

Essential Questions

See Above

Instructional Strategies and Learning Activities



LESSON 4-1

Understand Comparing with Multiplication

Learning Targets

- I can use multiplication to compare quantities.
- I can explain how to use multiplicative comparison statements to explain the relationship between quantities.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **4.OA.A** Use the four operations with whole numbers to solve problems.

◇ **4.OA.A.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.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

Focus

Content Objectives

- Students represent multiplication as comparison.
- Students represent multiplicative comparison statements as multiplication equations.

Language Objectives

- Students compare quantities using multiplication and use multiplication equations to represent multiplicative comparison statements using the expression *times as much as*.
- To optimize output, ELs participate in MLR7: Compare and Connect.

SEL Objective

- Students demonstrate self-awareness of personal strengths and areas of challenge in mathematics.

Coherence

Previous

- Students developed understanding of multiplication through problems involving equal groups and arrays (Grade 3).

Now

- Students use multiplication to compare quantities.
- Students use multiplication equations to represent multiplicative comparison statements.

Next

- Students use multiplication to generate equivalent fractions (Unit 8).
- Students interpret multiplication as scaling (Grade 5).

Rigor

Conceptual Understanding

- Students use their knowledge of multiplication to understand and represent multiplicative comparison statements.

Procedural Skill & Fluency

- Students develop proficiency in multiplication as comparison.

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

Application

- Students apply their understanding of multiplication to interpret multiplicative comparison.

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

LESSON 4-2

Represent Comparison Problems

Learning Targets

- I can show how to solve comparison word problems using multiplication and addition.
- I can explain the difference between multiplicative comparison problems and additive comparison problems.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **4.OA.A.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.

◇ **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.

Math Practices and Processes

MPP Model with mathematics.

Focus

Content Objectives	Language Objectives	SEL Objective
• Students use multiplication equations to represent multiplicative comparison. • Students distinguish between multiplicative and additive comparison.	• Students identify multiplicative comparisons and additive comparisons using the expression *[4] times as many as*. • To support sense-making, ELs participate in MLR2: Collect and Display.	• Students collaborate with peers and contribute to group effort to achieve a collective mathematical goal.

Coherence

Previous	Now	Next
• Students solved word problems involving multiplication and division facts within 100 (Grade 3). • Students learned that multiplication can be used to compare quantities (Unit 4).	• Students represent additive and multiplicative comparison problems using bar diagrams and equations. • Students distinguish multiplicative comparisons from additive comparisons.	• Students solve multistep problems involving multiplication (Unit 6). • Students multiply fractions and mixed numbers to solve real-world problems (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build their understanding of multiplicative comparison, and distinguish between additive comparison and multiplicative comparison. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students develop proficiency in solving additive and multiplicative comparison word problems. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of additive and multiplicative comparisons to solve real-world problems.

LESSON 4-3

Solve Comparison Problems Using Multiplication

Learning Targets

- I can represent word problems involving multiplicative comparison using bar diagrams and multiplication equations.
- I can use multiplication to solve word problems involving multiplicative comparison.

Standards ◇ Major △ Supporting ○ Additional

Content

◇ **4.OA.A** Use the four operations with whole numbers to solve problems.

◇ **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.

Math Practices and Processes

MPP Model with mathematics.

Vocab

Math Terms

bar diagram

unknown

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Focus

Content Objective	Language Objectives	SEL Objective
• Students solve multiplicative comparison problems by using multiplication.	• Students discuss using multiplication to solve word problems involving multiplicative comparisons and represent multiplicative comparisons with bar diagrams and equations using complete sentences. • To maximize meta-language, ELs participate in MLR5: Co-Craft Questions or Problems.	• Students practice strategies for persisting at a mathematical task, such as setting a small goal or setting timers for remaining focused.

Coherence

Previous	Now	Next
• Students solved word problems involving multiplication (Grade 3). • Students used bar diagrams and equations to represent comparison situations (Unit 4).	• Students use multiplication to solve word problems involving multiplicative comparisons. • Students represent multiplicative comparisons with bar diagrams and multiplication equations.	• Students solve multistep problems involving multiplication (Unit 6). • Students multiply fractions and mixed numbers to solve real-world problems (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students extend their understanding of multiplication as a comparison. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students develop proficiency with solving problems involving multiplicative comparison. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of multiplication to solve real-world problems involving multiplicative comparison.

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Build Fluency

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These prompt

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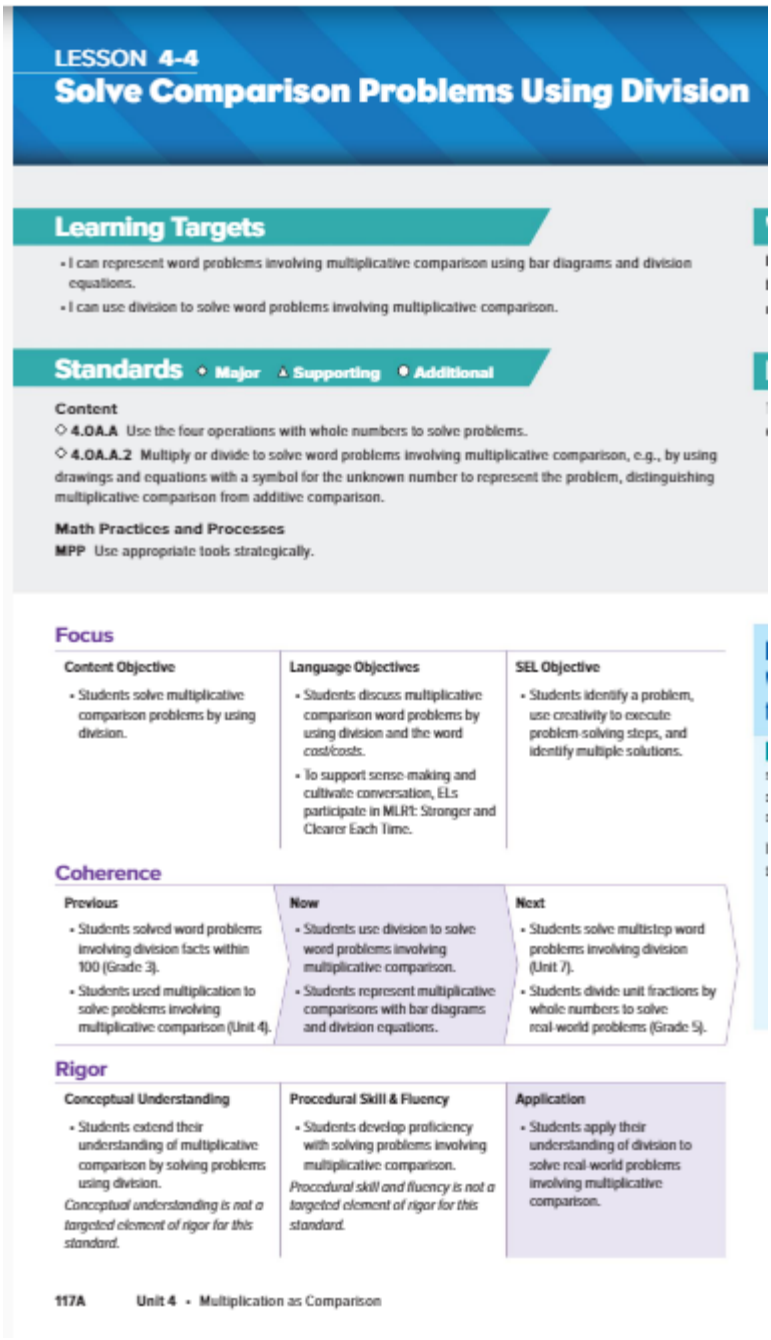
- What stra estimate
- How did your esti
- What is a estimate
- How do is reason



LESSON 4-4

Solve Comparison Problems Using Division

Learning Targets

- I can represent word problems involving multiplicative comparison using bar diagrams and division equations.
- I can use division to solve word problems involving multiplicative comparison.

Standards ◇ Major △ Supporting ○ Additional

Content

◇ **4.OA.A** Use the four operations with whole numbers to solve problems.

◇ **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.

Math Practices and Processes

MPP Use appropriate tools strategically.

Focus

Content Objective	Language Objectives	SEL Objective
• Students solve multiplicative comparison problems by using division.	• Students discuss multiplicative comparison word problems by using division and the word *cost/costs*. • To support sense-making and cultivate conversation, ELs participate in MLR1: Stronger and Clearer Each Time.	• Students identify a problem, use creativity to execute problem-solving steps, and identify multiple solutions.

Coherence

Previous	Now	Next
• Students solved word problems involving division facts within 100 (Grade 3). • Students used multiplication to solve problems involving multiplicative comparison (Unit 4).	• Students use division to solve word problems involving multiplicative comparison. • Students represent multiplicative comparisons with bar diagrams and division equations.	• Students solve multistep word problems involving division (Unit 7). • Students divide unit fractions by whole numbers to solve real-world problems (Grade 5).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students extend their understanding of multiplicative comparison by solving problems using division. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students develop proficiency with solving problems involving multiplicative comparison. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of division to solve real-world problems involving multiplicative comparison.

Integration of Career Readiness, Life Literacies and Key Skills

PFL.9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
PFL.9.1.2.CR.2	List ways to give back, including making donations, volunteering, and starting a business.
PFL.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).
PFL.9.1.2.FP.1	Explain how emotions influence whether a person spends or saves.
PFL.9.1.2.FP.3	Identify the factors that influence people to spend or save (e.g., commercials, family, culture, society).

PFL.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.
PFL.9.1.2.PB.2	Explain why an individual would choose to save money.
TECH.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).
TECH.9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
TECH.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).
TECH.9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
TECH.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).
TECH.9.4.2.DC.6	Identify respectful and responsible ways to communicate in digital environments.
TECH.9.4.2.DC.7	Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).
TECH.9.4.2.TL.2	Create a document using a word processing application.
TECH.9.4.2.TL.5	Describe the difference between real and virtual experiences.
TECH.9.4.2.TL.6	Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).
TECH.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

CS.K-2.8.1.2.AP.4	Break down a task into a sequence of steps.
CS.K-2.8.1.2.AP.5	Describe a program's sequence of events, goals, and expected outcomes.
CS.K-2.8.1.2.CS.1	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
CS.K-2.8.1.2.DA.1	Collect and present data, including climate change data, in various visual formats.
CS.K-2.8.1.2.DA.3	Identify and describe patterns in data visualizations.
CS.K-2.8.1.2.DA.4	Make predictions based on data using charts or graphs.
CS.K-2.8.2.2.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.OA.A.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.
MA.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.