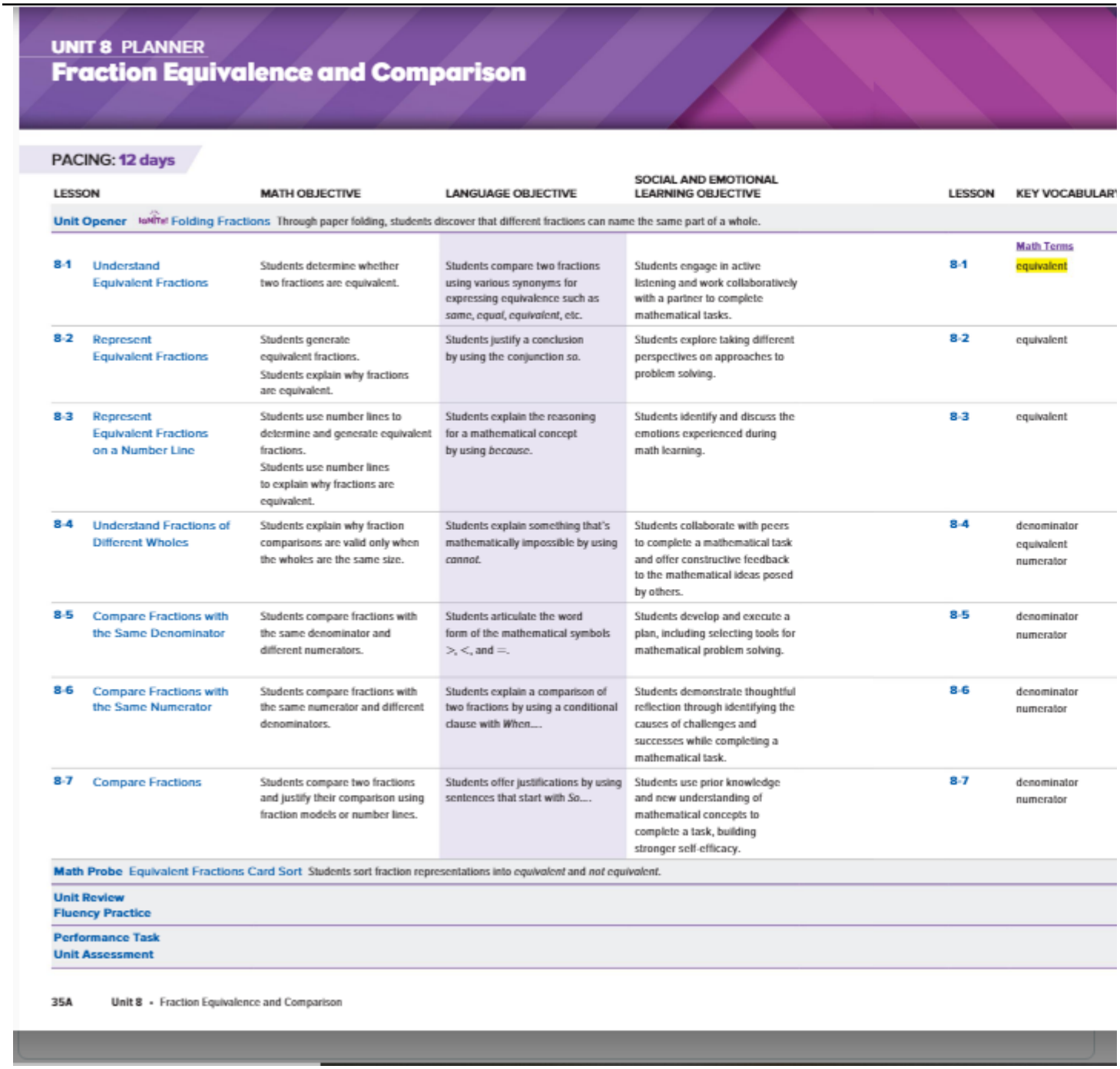
Unit 8 Reveal Grade 3

Content Area: **Math**
Course(s):
Time Period: **February**
Length: **3 weeks**
Status: **Published**

Unit Overview



UNIT 8 PLANNER

Fraction Equivalence and Comparison

PACING: 12 days

LESSON		MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE	LESSON	KEY VOCABULARY
Unit Opener	MATH Folding Fractions	Through paper folding, students discover that different fractions can name the same part of a whole.				
8-1	Understand Equivalent Fractions	Students determine whether two fractions are equivalent.	Students compare two fractions using various synonyms for expressing equivalence such as *same, equal, equivalent,* etc.	Students engage in active listening and work collaboratively with a partner to complete mathematical tasks.	8-1	Math Terms equivalent
8-2	Represent Equivalent Fractions	Students generate equivalent fractions. Students explain why fractions are equivalent.	Students justify a conclusion by using the conjunction *so*.	Students explore taking different perspectives on approaches to problem solving.	8-2	equivalent
8-3	Represent Equivalent Fractions on a Number Line	Students use number lines to determine and generate equivalent fractions. Students use number lines to explain why fractions are equivalent.	Students explain the reasoning for a mathematical concept by using *because*.	Students identify and discuss the emotions experienced during math learning.	8-3	equivalent
8-4	Understand Fractions of Different Wholes	Students explain why fraction comparisons are valid only when the wholes are the same size.	Students explain something that's mathematically impossible by using *cannot*.	Students collaborate with peers to complete a mathematical task and offer constructive feedback to the mathematical ideas posed by others.	8-4	denominator equivalent numerator
8-5	Compare Fractions with the Same Denominator	Students compare fractions with the same denominator and different numerators.	Students articulate the word form of the mathematical symbols >, <, and =.	Students develop and execute a plan, including selecting tools for mathematical problem solving.	8-5	denominator numerator
8-6	Compare Fractions with the Same Numerator	Students compare fractions with the same numerator and different denominators.	Students explain a comparison of two fractions by using a conditional clause with *When....*	Students demonstrate thoughtful reflection through identifying the causes of challenges and successes while completing a mathematical task.	8-6	denominator numerator
8-7	Compare Fractions	Students compare two fractions and justify their comparison using fraction models or number lines.	Students offer justifications by using sentences that start with *So....*	Students use prior knowledge and new understanding of mathematical concepts to complete a task, building stronger self-efficacy.	8-7	denominator numerator
Math Probe	Equivalent Fractions Card Sort	Students sort fraction representations into *equivalent* and *not equivalent*.				
Unit Review Fluency Practice						
Performance Task Unit Assessment						

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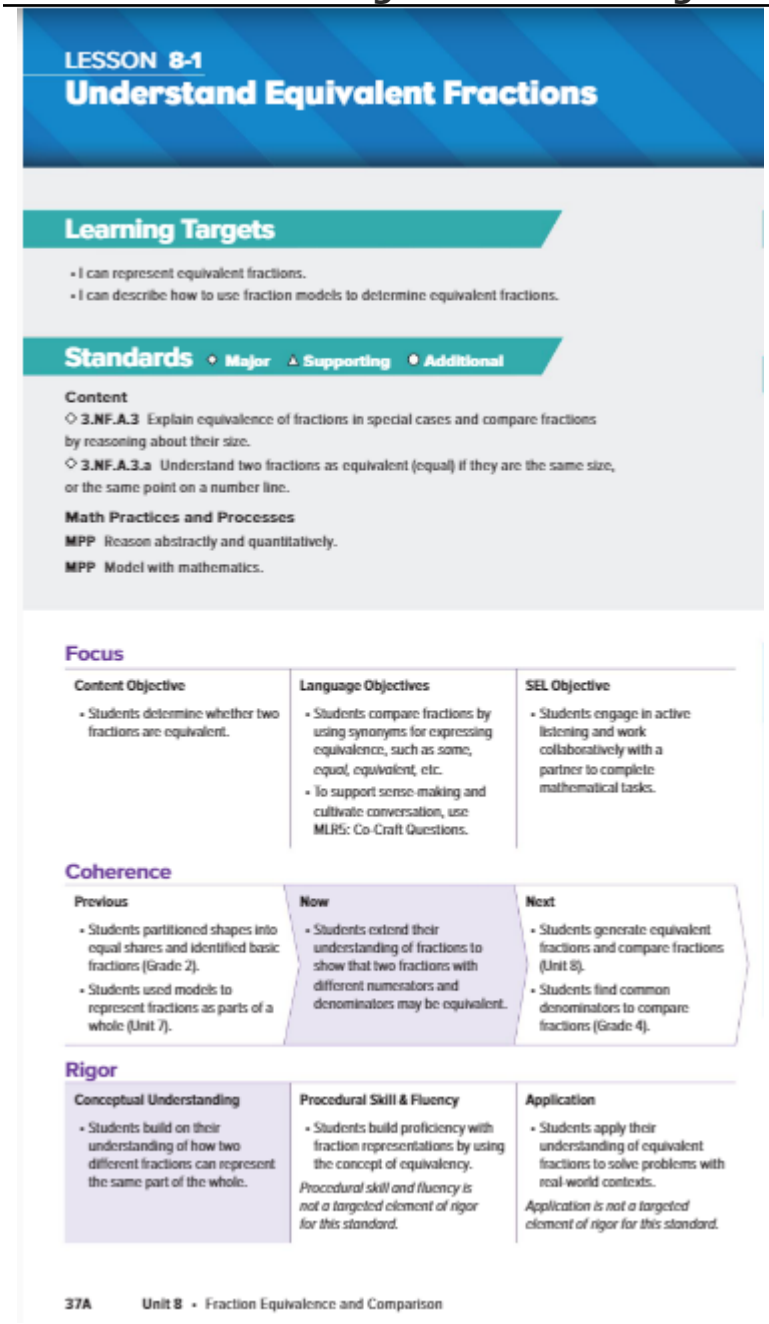
Enduring Understandings

See Above

Essential Questions

See Above

Instructional Strategies and Learning Activities



LESSON 8-1

Understand Equivalent Fractions

Learning Targets

- I can represent equivalent fractions.
- I can describe how to use fraction models to determine equivalent fractions.

Standards ◇ Major △ Supporting ○ Additional

Content

◇ **3.NF.A.3** Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.

◇ **3.NF.A.3.a** Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

MPP Model with mathematics.

Focus

Content Objective	Language Objectives	SEL Objective
• Students determine whether two fractions are equivalent.	• Students compare fractions by using synonyms for expressing equivalence, such as *same, equal, equivalent,* etc. • To support sense-making and cultivate conversation, use MLR5: Co-Craft Questions.	• Students engage in active listening and work collaboratively with a partner to complete mathematical tasks.

Coherence

Previous	Now	Next
• Students partitioned shapes into equal shares and identified basic fractions (Grade 2). • Students used models to represent fractions as parts of a whole (Unit 7).	• Students extend their understanding of fractions to show that two fractions with different numerators and denominators may be equivalent.	• Students generate equivalent fractions and compare fractions (Unit 8). • Students find common denominators to compare fractions (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of how two different fractions can represent the same part of the whole.	• Students build proficiency with fraction representations by using the concept of equivalency. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of equivalent fractions to solve problems with real-world contexts. *Application is not a targeted element of rigor for this standard.*

LESSON 8-2

Represent Equivalent Fractions

Learning Targets

- I can use fraction models to generate equivalent fractions.
- I can explain why two fractions are equivalent.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **3.NF.A.3** Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.

◇ **3.NF.A.3.b** Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.

Math Practices and Processes

MPP Model with mathematics.

MPP Look for and make use of structure.

Focus

Content Objectives	Language Objectives	SEL Objective
• Students generate equivalent fractions. • Students explain why fractions are equivalent.	• Students justify a conclusion by using the conjunction *so*. • To maximize linguistic and cognitive meta-awareness, use MLR2: Collect and Display.	• Students explore taking different perspectives on approaches to problem solving.

Coherence

Previous	Now	Next
• Students partitioned shapes into equal shares and identified basic fractions (Grade 2). • Students used models to represent fractions (Unit 7).	• Students extend their understanding of fractions to show that two fractions with different numerators and denominators may be equivalent.	• Students generate equivalent fractions and compare fractions (Unit 8). • Students find common denominators (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of fractions to investigate how different fractions can represent the same part of the whole.	• Students build proficiency with fraction representations by using the concept of equivalency. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of equivalent fractions to solve problems with real-world contexts. *Application is not a targeted element of rigor for this standard.*

LESSON 8-3

Represent Equivalent Fractions on a Numbe

Learning Targets

- I can use number lines to represent equivalent fractions.
- I can explain how to use number lines to represent equivalent fractions.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **3.NF.A.3** Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.

◇ **3.NF.A.3.a** Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

◇ **3.NF.A.3.b** Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

MPP Model with mathematics.

Focus

Content Objectives	Language Objectives	SEL Objective
• Students use number lines to determine and generate equivalent fractions. • Students use number lines to explain why fractions are equivalent.	• Students explain the reasoning for a mathematical concept by using *because*. • To cultivate conversation, use MLR4: Information Gap.	• Students identify and discuss the emotions experienced during math learning.

Coherence

Previous	Now	Next
• Students partitioned shapes into equal shares and identified basic fractions (Grade 2). • Students represented fractions on a number line (Unit 7).	• Students extend their understanding of fractions by determining equivalent fractions by using locations on a number line.	• Students compare fractions with the same numerator or the same denominator (Unit 8). • Students use the concept of equivalent fractions to add and subtract fractions (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop an understanding that fractions with different numerators and denominators may represent the same point on a number line.	• Students build proficiency locating and comparing fractions on number lines. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply an understanding of equivalent fractions to complete missing parts of equations with fractions. *Application is not a targeted element of rigor for this standard.*

LESSON 8-4

Understand Fractions of Different Wholes

Learning Targets

- I can compare fractions when they refer to the same whole.
- I can explain why you can compare fractions only when they refer to the same whole.

Standards ◇ Major △ Supporting ○ Additional

Content

◇ **3.NF.A.3** Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.

◇ **3.NF.A.3.d** Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions 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 Model with mathematics.

MPP Attend to precision.

Focus

Content Objective	Language Objectives	SEL Objective
• Students explain why fraction comparisons are valid only when the wholes are the same size.	• Students explain something that is mathematically impossible by using *cannot*. • To support sense-making, use MLR3: Critique, Correct, and Clarify.	• 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 partitioned rectangles and circles into equal parts (Grade 2). • Students used models to represent fractions as parts of a whole (Unit 7).	• Students extend their understanding of fractions as parts of a whole to compare fractions with the same-size whole.	• Students compare fractions (Unit 8). • Students recognize that comparisons are valid only when the two fractions refer to the same whole (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop an understanding as to why fraction comparisons are valid only when the wholes are the same size.	• Students build proficiency with fraction models and the concept of equivalency. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students use equivalent fractions to solve real-world problems. *Application is not a targeted element of rigor for this standard.*

LESSON 8-5

Compare Fractions with the Same Denomin

Learning Targets

- I can compare fractions with the same denominators and different numerators.
- I can explain how to compare fractions with the same denominators and different numerators.

Standards ◇ Major ▲ Supporting ○ Additional

Content

◇ **3.NF.A.3** Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.

◇ **3.NF.A.3.d** Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions 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 Use appropriate tools strategically.

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
• Students compare fractions with the same denominator and different numerators.	• Students articulate the word form of the mathematical symbols >, <, and =. • To optimize output, use MLR1: Stronger and Clearer Each Time.	• Students develop and execute a plan, including selecting tools for mathematical problem solving.

Coherence

Previous	Now	Next
• Students compared numbers using <, >, and = (Grade 2). • Students represented fractions on a number line (Unit 7).	• Students use the size of the numerator to compare fractions with the same denominator. • Students represent fractions with fraction tiles and number lines.	• Students compare fractions with the same numerator (Unit 8). • Students compare fractions with unlike denominators (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of fractions to compare fractions with the same denominator.	• Students build proficiency comparing fractions with the same denominator.	• Students compare fractions in real-world contexts. *Application is not a targeted element of rigor for this standard.*

LESSON 8-6

Compare Fractions with the Same Numerato

Learning Targets

- I can compare fractions with the same numerators and different denominators.
- I can explain how to compare fractions with the same numerators and different denominators.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **3.NF.A.3** Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.

◇ **3.NF.A.3.d** Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions 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 Look for and make use of structure.

MPP Construct viable arguments and critique the reasoning of others.

Focus

Content Objective

- Students compare fractions with the same numerator and different denominators.

Language Objectives

- Students explain a comparison of two fractions by using a conditional clause with *When...*
- To support sense-making, use MLR6: Three Reads.

SEL Objective

- Students demonstrate thoughtful reflection through identifying the causes of challenges and successes while completing a mathematical task.

Coherence

Previous

- Students compared numbers using <, >, and = (Grade 2).
- Students learned what the numerator and the denominator of a fraction represent (Unit 7).

Now

- Students use the size of the denominator to compare fractions with the same numerator.
- Students represent fractions with fraction circles, fraction tiles, and number lines.

Next

- Students compare fractions that have any numerator and denominator (Unit 8).
- Students add and subtract fractions (Grade 4).

Rigor

Conceptual Understanding

- Students develop an understanding of how the size of the denominator affects the size of a fraction.

Procedural Skill & Fluency

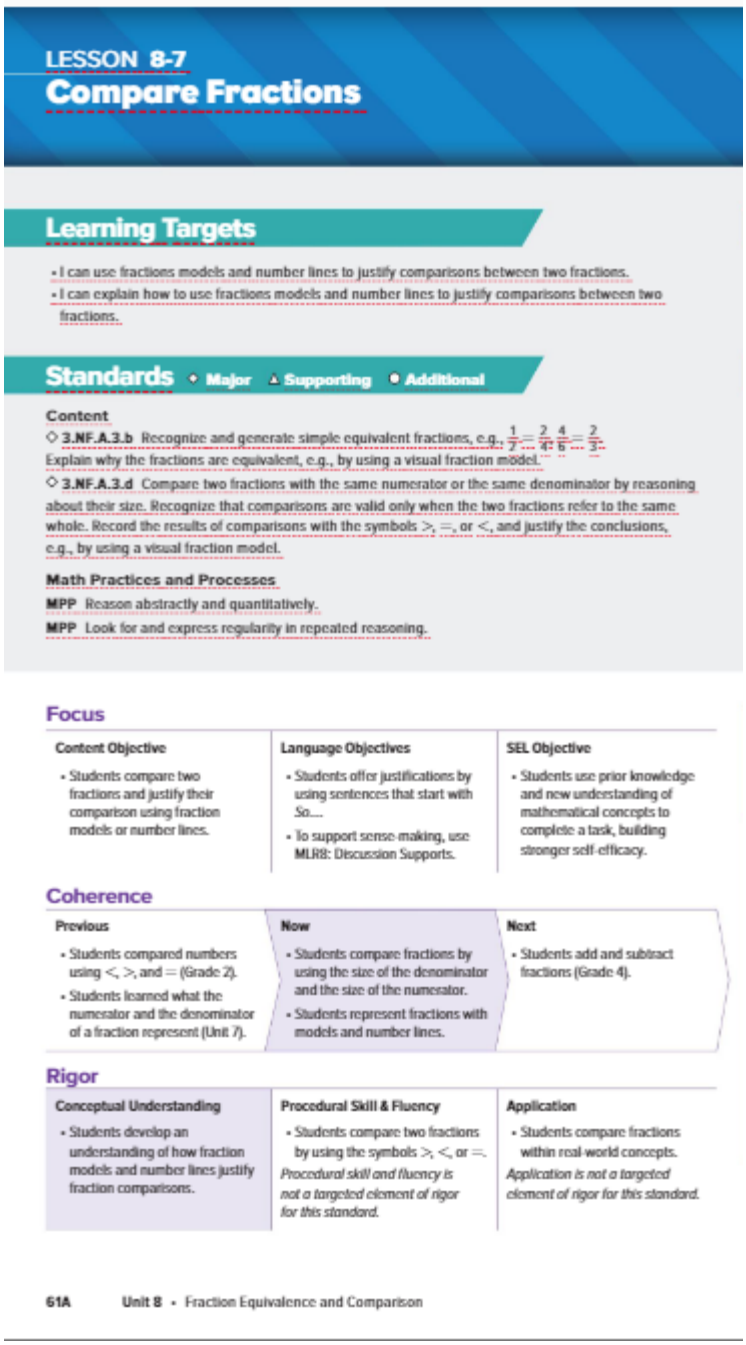
- Students compare two fractions with the same numerator.

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

Application

- Students apply their understanding by comparing fractions in real-world contexts.

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



LESSON 8-7

Compare Fractions

Learning Targets

- I can use fractions models and number lines to justify comparisons between two fractions.
- I can explain how to use fractions models and number lines to justify comparisons between two fractions.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **3.NF.A.3.b** Recognize and generate simple equivalent fractions, e.g., $\frac{1}{2} = \frac{2}{4}$, $\frac{4}{6} = \frac{2}{3}$. Explain why the fractions are equivalent, e.g., by using a visual fraction model.

◇ **3.NF.A.3.d** Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions 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 Look for and express regularity in repeated reasoning.

Focus

Content Objective	Language Objectives	SEL Objective
• Students compare two fractions and justify their comparison using fraction models or number lines.	• Students offer justifications by using sentences that start with *So....* • To support sense-making, use MLR8: Discussion Supports.	• Students use prior knowledge and new understanding of mathematical concepts to complete a task, building stronger self-efficacy.

Coherence

Previous	Now	Next
• Students compared numbers using <, >, and = (Grade 2). • Students learned what the numerator and the denominator of a fraction represent (Unit 7).	• Students compare fractions by using the size of the denominator and the size of the numerator. • Students represent fractions with models and number lines.	• Students add and subtract fractions (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop an understanding of how fraction models and number lines justify fraction comparisons.	• Students compare two fractions by using the symbols >, <, or =. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students compare fractions within real-world concepts. *Application is not a targeted element of rigor for this standard.*

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.3.1	Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
LA.RI.3.2	Determine the main idea of a text; recount the key details and explain how they support the main idea.
LA.RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
LA.RI.3.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.
LA.RI.3.5	Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
LA.RI.3.6	Distinguish their own point of view from that of the author of a text.

LA.RI.3.8	Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence) to support specific points the author makes in a text.
LA.RI.3.9	Compare, contrast and reflect on (e.g., practical knowledge, historical/cultural context, and background knowledge) the most important points and key details presented in two texts on the same topic.
LA.RI.3.10	By the end of the year, read and comprehend literary nonfiction at grade level text-complexity or above, with scaffolding as needed.
LA.W.3.4	With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
LA.SL.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
LA.L.3.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

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.3.NF.A.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
MA.3.NF.A.3a	Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
MA.3.NF.A.3b	Recognize and generate simple equivalent fractions (e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.
MA.3.NF.A.3d	Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions 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.