4 Math Unit 08: Fraction Equivalence

Content Area: **Mathematics**
Course(s):
Time Period: **Marking Period 3**
Length: **9 days**
Status: **Published**

Unit Overview

Equivalence and Comparison of Fractions

In this unit, students use visual representations to recognize equivalent fractions, noticing the relationship between the number of the parts in the whole and then number of parts that represent each fraction. They connect this relationship to the numerical process of multiplying and dividing a fraction by the same non-zero whole number to generate an equivalent fraction.

Students work with a few strategies for comparing fractions. they might use the benchmark numbers 0, 1/2, or 1 to decide how the fractions compare to each other. Students can also generate equivalent fractions for one or both fractions so that the fractions have the same numerator or the same denominator.

Students will extend their understanding of fraction equivalence and comparison strategies learned in previous grades. These include:

- **Recognize and Generate Equivalent Fractions:** Students explain the numerical process of multiplying or dividing to generate an equivalent fraction using visual representations. they us this numerical process to recognize and generate equivalent fractions.
- **Comparing Fractions:** Students compare fractions with different numerators and different denominators.

What Students Are Learning

- Students explain the relationship between the number of parts in equivalent fractions using visual models. They use multiplication and division to recognize and generate equivalent fractions.
- Students compare two fractions with different numerators and different denominators. They us symbols >, =, or < to record comparison.

- Where Does It Go?
- About How Much?
- Notice & Wonder
- Which Doesn't Belong?

Standards

4.NF.A.1	Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
4.NF.A.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the

conclusions, e.g., by using a visual fraction model.

Materials

Core Materials:

Reveal Math

8.1 Equivalent Fractions

8.2 Generate Equivalent Fractions using Models

8.3 Generate Equivalent Fractions using Number Lines

8.4 Compare Fractions using Benchmarks

8.5 Other Ways to Compare Fractions

Supplemental Materials:

- ST Math
- Happy Numbers
- 3 Act Lessons
- Building Fact Fluency Kit
- Brainingcamp Manipulatives
- Nearpod Lessons
- Brainpop Resources
- Online Resources

Technology

DA	Data & Analysis
	Data can be organized, displayed, and presented to highlight relationships.
8.1.5.DA.1	Collect, organize, and display data in order to highlight relationships or support a claim.
	Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.
8.1.5.DA.3	Organize and present collected data visually to communicate insights gained from different views of the data.
8.1.5.DA.4	Organize and present climate change data visually to highlight relationships or support a claim.
8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
8.2.5.ED.3	Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Assessment

Formative Assessment

- Unit Readiness Diagnostics
- Lesson Checks
- Exit Tickets
- Teacher Observation

Summative Assessment

- Unit Assessment Performance Task
- Benchmark Tests
- Alternative Assessments: Performance Tasks & Projects

Accommodations & Modifications

Special Education

<table>
<tr><th colspan="4">Differentiated Instruction</th></tr>
<tr><td colspan="4">Accommodate Based on Students Individual Needs: Strategies</td></tr>
<tr>
<td>Time/General
Extra time for assigned tasks
Adjust length of assignment
Timeline with due dates for reports and projects
Communication system between home and school
Provide lecture notes/outline</td>
<td>Processing
Extra response time
Have students verbalize steps
Repeat, clarify, or reword directions
Mini-breaks between tasks
Provide a warning for transitions
Reading partners</td>
<td>Comprehension
Precise step-by-step directions
Short manageable tasks
Brief and concrete directions
Provide immediate feedback
Small group instruction
Emphasize multi-sensory learning</td>
<td>Recall
Teacher-made checklist
Use visual graphic organizers
Reference resources to promote independence
Visual and verbal reminders
Graphic organizers</td>
</tr>
<tr>
<td>Assistive Technology</td>
<td>Tests/Quizzes/Grading</td>
<td>Behavior/Attention</td>
<td>Organization</td>
</tr>
</table>

• Computer/whiteboard • Tape recorder • Spell-checker • Audio-taped books	• Extended time • Study guides • Focused/chunked tests • Read directions aloud	• Consistent daily structured routine • Simple and clear classroom rules • Frequent feedback	• Individual daily planner • Display a written agenda • Note-taking assistance • Color code materials

504

- In class/pull out support with special ed teacher Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks Graphic organizers
- Vocabulary support Mnemonic devices
- Songs/videos to reinforce concepts Limit number of questions
- Scribe Manipulatives Calculators Reteach pages Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System Another look homework video
- Practice buddy

ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

At-risk of Failure

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Calculators

- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

Gifted & Talented

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

Interdisciplinary Connections

RI.CI.4.2	Summarize an informational text and interpret the author's purpose or main idea citing key details from the text.
ETS1.B	Developing Possible Solutions
	Testing a solution involves investigating how well it performs under a range of likely conditions.

Career Readiness, Life Literacies & Key Skills

9.2.5.CAP.3	Identify qualifications needed to pursue traditional and non-traditional careers and occupations.
9.2.5.CAP.4	Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.
9.4.5.CT	Critical Thinking and Problem-solving
	The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.
9.4.5.CT.1	Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
9.4.5.CT.3	Describe how digital tools and technology may be used to solve problems.
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).
9.1.5.FI	Financial Institutions
	People can choose to save money in many places such as home in a piggy bank, bank, or credit union.
9.1.5.FI.1	Identify various types of financial institutions and the services they offer including banks, credit unions, and credit card companies.

Career Ready Practices

STEM CAREER: Photonics Engineer Student talks about his aspirations to be a photonics engineer. Student uses fraction equivalence to make sure there is a good variety of colors in a light show.

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP12. Work productively in teams while using cultural global competence.