



UNIT: FRACTION FUSION—WHERE ART AND NUMBERS COLLIDE BE THE FRACTION

Grade Band: 4
Content Focus: Theatre & Math



LEARNING DESCRIPTION

Students will bring fractions to life by becoming characters, such as $\frac{1}{4}$, setting off to find others who will complete their "fraction family" and help them add up to one whole. Through this role-play, students will work together to form complete "wholes" by joining with the right fractional parts.

LEARNING TARGETS

Essential Questions	"I Can" Statements
How do we add and subtract fractions with like denominators?	I can determine the best way to add and subtract fractions based on their denominators.
How do we work with partners to actively embody and express math concepts?	I can imagine being a fraction and interacting with other fractions to convey math concepts.



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GEORGIA STANDARDS

Curriculum Standards	Arts Standards
4.NR.4.6 Add and subtract fractions and mixed numbers with like denominators using a variety of tools.	TA4.PR.1 Act by communicating and sustaining roles in formal and informal environments.

SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
<p>4.NSF.3 Develop an understanding of addition and subtraction of fractions (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100) based on unit fractions.</p> <p>a. Compose and decompose a fraction in more than one way, recording each composition and decomposition as an addition or subtraction equation; b. Add and subtract mixed numbers with like denominators; c. Solve real-world problems involving addition and subtraction of fractions referring to the same whole and having like denominators.</p>	Anchor Standard 3: I can act in improvised scenes and written scripts.

KEY VOCABULARY

Content Vocabulary	Arts Vocabulary
<ul style="list-style-type: none"> • <u>Fraction</u> - A number that represents a part of a whole • <u>Numerator</u> - The number above the line that indicates how many parts of a whole are being counted • <u>Denominator</u> - The number below the line that indicates the total number of equal parts in the whole • <u>Addition</u> - Combining two or more numbers to find a total or sum • <u>Equation</u> - A mathematical sentence that has two equal sides separated by an equal sign 	<ul style="list-style-type: none"> • <u>Recite</u> – To speak or read a text out loud in a formal or performative manner • <u>Role</u> – A part played by an actor in a play, scene or drama activity • <u>Unison</u> – All together at once



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<ul style="list-style-type: none"> • <u>Equivalent</u> – Have equal value • <u>Like denominator</u> – A denominator that is found in two or more fractions • <u>Unlike denominators</u> – Denominators in two or more fractions that are different from each other 	
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MATERIALS

<ul style="list-style-type: none"> • Name tags with fractions written on them • Individual dry erase boards or note paper and utensils, if needed

INSTRUCTIONAL DESIGN

Opening/Activating Strategy
<ul style="list-style-type: none"> • Explain that fractions are parts of a whole. Today, they'll "become" fractions and work together to add up to one whole. • Tell the students that each of them will take on the role of a fraction and work with classmates to add up to a whole. Explain that fractions with the same denominator can be added by adding the numerators together. • Fraction warm-up game: Play a game where students must "freeze" in shapes that represent different fractions. For instance, a "1/2" could be a shape taking up half the space, while a "1/4" might be a quarter circle. This encourages them to visualize fraction sizes.
Work Session
<p><u>Like Denominators Chant</u></p> <ul style="list-style-type: none"> • Discuss/review how to add and subtract fractions. Introduce the following chant (as a projection, handout, or both): <p style="margin-left: 40px;">With like denominators, we just add our numerators And keep the original shared denominator.</p> <p style="margin-left: 40px;">With like denominators, we subtract the lesser numerator From the greater, and keep the same denominator.</p> • Work with students to find the best rhythm for the language of the chant. Establish a beat and recite the chant in unison. • Possibly, assign lines to individuals or pairs to recite rhythmically. <p>Role-Play</p> <ul style="list-style-type: none"> • Hand out a fraction card to each student and ask them to wear it on their shirt or hold it visibly.



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- Explain that each student is part of a fraction family but each family has been separated. They must work to find the rest of their fraction family so that when added together, they total one whole.
 - For example, a student with $\frac{1}{4}$ will need to find others in the “fourths family” with fractions like $\frac{3}{4}$ or two students with $\frac{1}{4}$ and $\frac{2}{4}$.
- Have students practice introducing themselves using dialogue. “Hi, I’m $\frac{1}{4}$ ”. Students should articulate clearly and project their voices.
- Allow students time to experiment by joining up with different classmates, testing if their fractions add up to a whole. Encourage them to double-check their math each time they form a new group.
 - Instruct students to stay in character and introduce themselves as the fraction every time they encounter a new student. Students can use dialogue, such as, “I am $\frac{1}{4}$. Are you the piece I need to make a whole?”
- Once a group thinks they’ve completed their fraction family, they should write down their fractions in an addition sentence (e.g., $\frac{1}{4} + \frac{1}{4} + \frac{2}{4} = \frac{4}{4}$ or 1).

Closing/Reflection

- Ask each group to share how they reached their solution and explain their thought process. If they made mistakes, ask them to talk about those too and how they adjusted.
 - Ask students: “What was the most challenging part of finding your whole?”.
- Talk about different ways to make one whole with fractions (e.g., two students with $\frac{1}{2}$, four students with $\frac{1}{4}$). Write these examples on the board and let students observe the patterns.
- Conclude the lesson with the chant:

With like denominators, we just **add** our numerators
And keep the original shared denominator.

With like denominators, we **subtract** the lesser numerator
From the greater, and keep the same denominator.

ASSESSMENTS

Formative

- Assess students based on their ability to collaborate, add fractions correctly, and explain their thought process.
- Observe whether students use their voices to speak the couplets clearly and readily assume the roles of fractions.

Summative

- Students can accurately write out the equations that reflect their process.
- Students can create complete fraction families that when added together, equal one whole.



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DIFFERENTIATION

Acceleration:

- Challenge students to try making fractions that add up to numbers other than 1, like $\frac{1}{2}$ or $\frac{3}{4}$.
- Challenge students to create an illustration of their fraction group adding up to one whole, like a pie chart or bar graph representation.
- Have students add fractions with unlike denominators.

Remediation:

- Direct several pairs in front of the class to model the process clearly.
- Limit the number of denominators so that the focus is on addition.
- Have students draw a fraction image on their name tag to help with visualization.

ADDITIONAL RESOURCES

CREDITS

U.S. Department of Education- STEM + the Art of Integrated Learning
Ideas contributed by: Barry Stewart Mann and Katy Betts

**This integrated lesson provides differentiated ideas and activities for educators that are aligned to a sampling of standards. Standards referenced at the time of publishing may differ based on each state's adoption of new standards.*

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