Facilitation Guide



10-15 Min
Small Group

Digital Guide

ARTS EVERY DAY
IN BALTIMORE CITY PUBLIC SCHOOLS

Puzzle Murals

Explore Brain Science

VISUAL THINKING

ARTFUL REPETITION

ROUTINE OVERVIEW

In this small group game, students will examine two copies of the same mural that have been partitioned into equal parts. (For example, one copy will be partitioned into fourths, and one will be partitioned into eighths.) Students will be tasked with putting the puzzle pieces back together to show their original images. The intent is for each student to recognize that some of the partitioned parts are equivalent (1/4=2/8).

Maryland Standards

MARYLAND STATE MATH STANDARDS

- **3.NOS.F.13** - Explain equivalence of fractions and compare fractions by reasoning about their size, recognizing that comparisons are valid only when the two fractions refer to the same whole. a. Represent two fractions as equivalent if they are the same size, or they represent the same point on the number line. b. Identify and generate equivalent fractions, (e.g. ½=2/4, 4/6=2/3) and explain why the fractions are equivalent using concrete materials, drawings, number lines, or equations.

MARYLAND ARTS STANDARDS

- **VA.AS7.I:3-5:1** - Analyze similarities and differences between the elements of art in observed form.
- **VA.AS7.E:3-5:1** - Analyze components in visual imagery that convey messages and compare personal interpretations.

Not in MD? View National Standards in the Digital Guide

Getting Ready

REVEAL MATH: 3rd Grade: 8-2

ARTS INTEGRATED LEARNING OBJECTIVE:
Students will be able to explain why two fractions are equivalent by comparing and contrasting images of murals that have been equally partitioned by fourths and eighths, along with thirds and sixths.

MATH DOMAIN:

Number and Operation Sense	Develop an understanding of fractions as numbers	Equivalent fractions

WHAT'S BEFORE: Partition shapes into equal parts, use models to represent fractions

WHAT'S NEXT: Generate equivalent fractions, compare fractions using number lines

MATERIALS

- Mural Image 1 (printed)
- Mural Image 2 (printed)
- Slides
- Scissors
- Dark marker
- Fraction strips/circles (optional for differentiation)

MATH SKILL: Explain why two fractions are equivalent

ART SKILL: Visually analyze a piece of art to determine similarities and differences

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TEACH

Facilitation Steps

Prepare

- Print images of the murals and cut them into equal sections along the grid lines.
- The mural photographs will be partitioned into two fractional categories:
  - Mural 1: Fourths and Eighths
  - Mural 2: Thirds and Sixths

Teach

- Show students the first mural on slide 2. Ask:
  - "What do you notice in this mural?"
    - Sample student response: *"I notice a blue sky with a lot of clouds behind most of the main figure."*
  - "How does this mural make you feel?"
    - Sample student response: *"This image makes me feel energetic because of the bright colors."*
- Show students the video on slide 4 to provide background information on the artist Kid Balloon and discuss the connection to our community.
- Distribute partitioned images of mural 1 to students. Have one group work on putting the fourths together, and one group work on putting the eighths together.
- When students have successfully reconstructed the murals, ask:
  - "What is the total number of parts in this image?"
    - Sample student response: "*There are four parts to this image.*"
  - "If I take away one part, what does that represent?"
    - Sample student response: *"The part of the mural now shown is ¾."*
  - "How could I represent the parts of this image in a fraction?"
    - Sample student response: "*Each part shows me ¼ of the mural.*"
- Label each part of the mural with a unit fraction using a dark marker (¼ or ⅛). Use slides 6 and 7 as a model for how the unit fractions should be placed on each partitioned section.
- Focus on one section of the mural at a time (bottom fourth with greenery) and discuss why parts are equivalent. Here are a few guiding statements and questions to use:
  - "This ¼ of the mural is the exact same as 2/8 of this copy. Why are they the same? Why is there only ONE fourth and TWO eighths?"
    - Sample student response: *"The eighths are smaller pieces, so there are more of them than the fourths."*
  - Then look at 2/4 and 4/8 and how they are equivalent. Continue reconstructing the murals by working from the bottom up and discussing fraction equivalence.

- Repeat the steps with the second mural (thirds and sixths). When introducing the second mural, be sure to compare and contrast the two murals:
  - "How is this mural similar to the first? How is it different?"
    - Sample student response: *"Both murals seem to show figures made out of balloons because their heads are tied like a balloon, and they do not have necks. They both have bright colors, but the second mural has more warm colors."*
  - "How does this mural make you feel?"
    - Sample student response: *"This mural makes me feel excited because the figures appear to be excited based on their facial expressions."*



SLIDES



MATERIALS
GOOGLE FOLDER

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TEACH

Assessment & Reflection

Reflect: Share how muralists often use the grid method and equally partition sections when creating their murals. The use of grids helps them scale a smaller piece of art onto a large wall because they are able to complete one part at a time (slide 11). Ask:

- What do you wonder about this process?
- How do equal sections help muralists make their artwork larger while keeping the parts in the right places?

Perform informal checks for understanding throughout the activity. **Teachers will know that students have mastered the learning objective when they can explain how they know two fractions are equivalent by looking at two partitioned murals.**

Differentiation

Teachers may use fraction tiles/strips or fraction circles as an additional strategy to help students understand when two fractions are equivalent. These manipulatives allow students to see that equivalent fractions are the same size and have the same size whole.

As an extension, teachers can give students a mural that has not been partitioned and have them partition it into equal parts of their own choosing. Additionally, teachers could use copies of student art instead of Baltimore murals to teach the same concept.