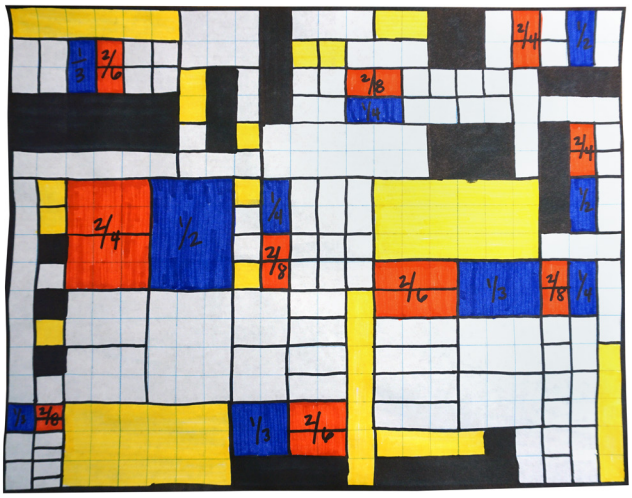
LEARN IT BY ART

Mondrian Fractions



Lesson adapted from Susan Riley's Lesson Seeds, EducationCloset

Grade Level

4th-5th grade

Key Vocabulary

- Numerator
- Denominator
- Equivalent Fraction

Materials

- Piet Mondrian artwork examples
- Pacon® Ruled Cross Section Drawing Paper, ½ inch ruling, item #2863
- Pencil
- Markers

Resources

- Piet Mondrian artwork
- Fraction Bars (optional)

Objective

Students will generate equivalent fraction models and use visual fraction models to explain equivalent fractions, with attention to how the number and size of the parts differ even though the two fractions are the same size.

Standards

4.NF.A.1

Extend understanding of fraction equivalence and ordering.

VA:Re7-4a.

Compare responses to a work of art before and after working in similar media.

Engagement

Study some examples of Piet Mondrian's artwork. Notice how he uses different shapes and colors to create fractions in his artwork. Explore how the use of line can show same and different sizes. Use fraction bars to show students a visual example of equivalent fractions. For example:

Activity

1. Ask students how they could write the two fractions (above) numerically (⅔ and ⅘).

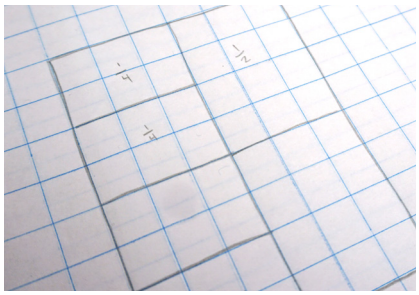
2. Ask students if the two fractions take up the same amount of space (yes). Explain fractions that take up the same amount of space are called equivalent fractions.

3. Look back at Piet Mondrian's artwork again and have students identify areas of equivalent fractions.

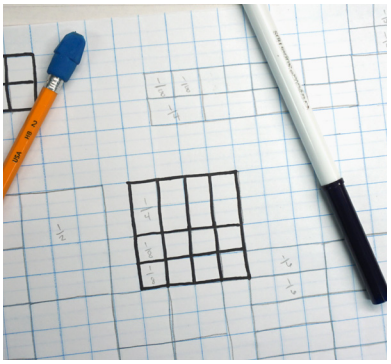
4. Give students materials to create their own Mondrian inspired art that uses at least 3 areas of equivalent fractions.

Activity continued on next page...

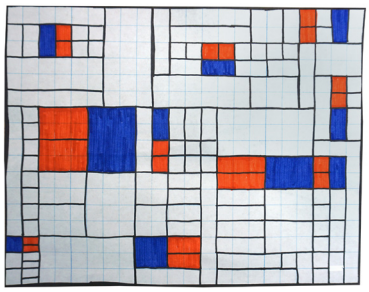
Step 7



Step 8



Step 9



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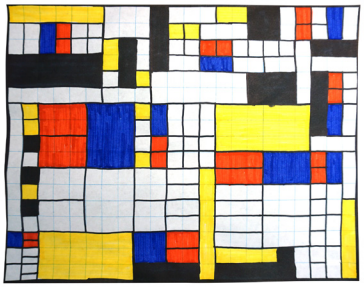
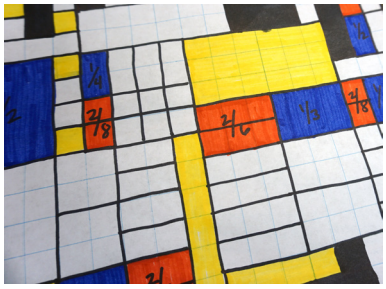


Step 11



Activity, continued...

5. On a piece of scrap paper, have students pick three sets of equivalent fractions, encouraging them to keep their denominators to 8 or below.

6. Using a piece of grid paper, have students use pencil to draw equivalent fraction bars of their chosen fractions.

7. Using unit fractions, label only the boxes that will be colored in later (make sure this is done in pencil, since the unit fractions will be erased). Encourage students to model their chosen fractions in different ways. Modeling a few ways to draw $\frac{2}{3}$ and $\frac{4}{6}$ fraction bars (the fractions used in the engagement section) on the graph paper might be helpful.

8. Using a black marker, trace the equivalent fraction bars that are drawn in pencil.

9. Prepare to color in the equivalent fraction sections by erasing the unit fractions and using blue markers to create the fractions with the larger denominators, and red markers to create the equivalent fractions with smaller denominators.

10. After at least three areas of equivalent fractions have been created, add blocks of yellow and black throughout, leaving some blocks white.

11. Finally, have students label each blue and red area with the correct fraction it represents.

Assessment

Have students peer-review each other's artwork to check that equivalent fraction representation is correct. Students can also review each other's work for the use of primary colors and patterns to show the fractions in relationship with each other.

Extension

Students can create equivalent fraction quilts by connecting their artwork by their common denominators. Have students look for peers whose work is related to theirs and tape together their artwork to form an equivalent fraction quilt.