UNIT: ARTFUL EQUATIONS–ADDING AND SUBTRACTING WITH UNLIKE DENOMINATORS
FRACTION SCULPTURES
Grade Band: 5
Content Focus: Visual Arts & Math



LEARNING DESCRIPTION

In this lesson, students will explore fractions through a hands-on, art-integrated math activity inspired by the sculpture "Seven Magic Mountains". This hands-on activity encourages collaboration, creativity, and the application of mathematical concepts.

LEARNING TARGETS

Essential Questions	"I Can" Statements
How do we add and subtract fractions with like and unlike denominators? How can I use fractions to represent different parts of a whole in a piece of art?	I can build a sculpture using colored materials and identify the fraction of each color used in my design. I can compare and contrast fractions from different sculptures created by other groups.

How does comparing fractions help us understand similarities and differences in artworks?	I can work collaboratively with my group to design and build a balanced sculpture inspired by "Seven Magic Mountains".

GEORGIA STANDARDS

Curriculum Standards	Arts Standards
5. NR.3.3 Model and solve problems involving addition and subtraction of fractions and mixed numbers with unlike denominators.	VA5.CR.2 Create works of art based on selected themes. VA5.CR.4 Understand and apply media, techniques, processes, and concepts of three-dimensional works of art.

SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
5.NSF.1 Add and subtract fractions with unlike denominators (including mixed numbers) using a variety of models, including an area model and number line.	**Anchor Standard 1:** I can use the elements and principles of art to create artwork. **Anchor Standard 2:** I can use different materials, techniques, and processes to make art.

KEY VOCABULARY

Content Vocabulary	Arts Vocabulary
• Fraction - A number that represents a part of a whole • Numerator - The number above the line that indicates how many parts of a whole are being counted • Denominator - The number below the line that indicates the total number of equal parts in the whole • Addition - Combining two or more numbers to find a total or sum • Equation - A mathematical sentence that has two equal sides separated by an equal signFractions	• Sculpture - A three-dimensional work of art that can be made from a variety of materials, such as wood, clay, metal, or stone. • Form - An object that is three-dimensional and encloses volume (cubes, spheres, and cylinders are examples of various forms) • Color - An element of art with three properties: 1) Hue: the name of the color, e.g. red, yellow, etc., 2) Intensity: the purity and strength of the color (brightness or dullness), 3) Value: the lightness or darkness of the color (shades

	and tints) • Pattern - Repetition of specific visual elements such as a unit of shape or form

MATERIALS

- Colored corn packing peanuts (https://www.amazon.com/dp/B0BV1LMNSR?ref=ppx_yo2ov_dt_b_fed_asin_title&th=1)
- Small plastic containers
- Sponges cut into squares to fit the containers
- Sculpture fraction chart (1 per group)
- Blank paper
- See, Think, Wonder Artful Thinking Routine
- Video: The Making of Seven Magic Mountains

INSTRUCTIONAL DESIGN

Opening/Activating Strategy

- Introduction to "Seven Magic Mountains": Show images of Ugo Rondinone's sculpture "Seven Magic Mountains" using See, Think, Wonder Artful Thinking Routine.
- Show the following video to students: The Making of Seven Magic Mountains
- Discuss the process of creating a sculpture. How does Rondinone use color and form?
- Discuss how each sculpture can be seen as a “whole”, made up of smaller parts (colors), which represents fractions.

Work Session

- Divide students into small groups. Each group will receive colored corn packing peanuts and a damp sponge.
- Ask students to sketch out their ideas for a sculpture using at least four colors of packing peanuts inspired by “Seven Magic Mountains”.
- Once students have designed their sculptures, they will build their design according to their sketch by pressing each peanut onto the damp sponge and then adhering it to another peanut.

Identifying Fractions:

- After completing their sculptures, groups will count the total number of peanuts used in their design.
- They will then count how many peanuts of each color were used and express this as a fraction of the total sculpture (e.g., if there are 30 peanuts and 10 are blue, then 10/30 or 1/3 of the sculpture is blue).
- Have students complete the first two columns of the chart for their own sculpture.

Comparing and Adding Fractions:

- Review how to compare fractions with like and unlike denominators.
- Each group will compare the fractions of their sculpture’s colors with those of another group recording their findings on the chart

- Then, have students add their fractions of like colors together and record them in the last column of the chart.

Closing/Reflection

- Reflect on how the sculptures are similar or different in their color compositions.
- Highlight how fractions are a way to describe these differences mathematically.
- Students will write a brief reflection on how they used fractions in their sculpture and what they learned about comparing and adding fractions with different denominators.

ASSESSMENTS

Formative

- Observe students during the creation of their sculptures and discussions within groups about fractions.
- Use questioning to assess their understanding of fractions as parts of a whole and their ability to compare fractions.

Summative

- Each group will record the total number of peanuts, the fraction of each color, and the comparison of fractions with another group.
- Completed sculpture fraction chart with correct sums of fractions
- Sculpture reflection: Students will write a brief reflection on how they used fractions in their sculpture and what they learned about comparing and adding fractions with different denominators.

DIFFERENTIATION

Accelerated:

- Set a minimum number of packing peanuts students must use in their sculptures.
- Have students choose a denominator that is not a multiple of ten or five.

Remedial:

- Limit the number of total packing peanuts students can use in their sculptures to a denominator students can manage.
- Pair groups together of differing ability levels when adding and comparing fractions to support students with lower level skills.
- Model the process of converting fractions.
- Have students choose a denominator that is a multiple of ten or five.

ADDITIONAL RESOURCES

- https://sevenmagicmountains.com/

CREDITS

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**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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