artsNOW
Integrated learning solutions

UNIT: CREATIVE EXPRESSIONS IN MULTIPLICATION ARRAY SCULPTURES
Grade Band: 3
Content Focus: Visual Arts & Math



LEARNING DESCRIPTION

This lesson combines creativity with math, reinforcing students' multiplication skills while engaging them in hands-on art creation inspired by Ugo Rondinone's sculpture "Seven Magic Mountains".

LEARNING TARGETS

Essential Questions	"I Can" Statements
How do we multiply two two-digit numbers together? How can creating arrays help us understand multiplication? In what ways can art be used to show math concepts?	I can create an array to represent a multiplication problem. I can explain how arrays show the relationship between multiplication and repeated addition. I can design a sculpture using arrays as the foundation of my structure.

How can I apply color and design to build a visually appealing sculpture?	I can apply creativity to build a balanced and colorful sculpture inspired by "Seven Magic Mountains."

GEORGIA STANDARDS

Curriculum Standards	Arts Standards
3.PAR.3.6 Solve practical, relevant problems involving multiplication and division within 100 using part-whole strategies, visual representations, and/or concrete models.	VA3.CR.2 Create works of art based on selected themes. VA3.CR.4 Understand and apply media, techniques, processes, and concepts of three-dimensional art. VA3.CN.3 Develop life skills through the study and production of art (e.g. collaboration, creativity, critical thinking, communication).

SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
3.NSBT.3 Multiply one-digit whole numbers by multiples of 10 in the range 10 – 90, using knowledge of place value and properties of operations.	**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
• Multiplication - A mathematical operation used to calculate the total of one number added repeatedly a specific number of times • Equation - A mathematical sentence that has two equal sides separated by an equal sign • Factor - The numbers that are multiplied	• 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

• Product - The answer to a multiplication problem • Multiplier - The number of groups • Multiplicand - The number of items in each group • Array - A way of organizing objects, numbers, or symbols in rows and columns to visually represent mathematical concepts, especially multiplication and division	(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
- See, Think, Wonder Artful Thinking Routine
- The Making of Seven Magic Mountains

INSTRUCTIONAL DESIGN

Opening/Activating Strategy

- Introduction to arrays:
  - Begin with a mini-lesson on arrays, explaining that arrays are arrangements of objects in rows and columns that help us understand multiplication. Use visual examples and work through simple multiplication problems (e.g., three rows of four equals twelve).
- Introduction to "Seven Magic Mountains":
  - Show images of Ugo Rondinone's sculpture "Seven Magic Mountains" using See, Think, Wonder Artful Thinking Routine.
    - Instruct students to look at the artwork or object for a moment. Ask them:
      - What do you **see**?
      - What do you **think** about what you see?
      - What do you **wonder** about?
  - Show the following video to students: The Making of Seven Magic Mountains.
  - Discuss the process of creating a sculpture. Ask students: How does Rondinone use color and form in his sculpture?

Work Session

- Explain that students will use a similar idea of stacking to build their own sculptures with packing peanuts, but they will arrange their pieces into arrays to represent multiplication facts.
- Tell students that first they will design their sculptures.
    - Have students choose a multiplication fact (e.g., 2 x 4 or 3 x 5).
    - Then, students will sketch out a simple array (e.g., two rows of four peanuts) on paper.
    - Encourage them to think about how they will stack and connect their peanuts to form their sculpture.
    - Encourage students to experiment with color and pattern.
- Once designs are complete, students will begin building their sculptures.
    - Pass out materials to students.
    - Students will press their corn packing peanuts onto the damp sponge and stack them to match the array they designed.
- As they work, circulate the room to ask questions like, "How does your array represent multiplication?" and "How many total pieces are in your sculpture?".

Closing/Reflection

- Gallery Walk and Reflection:
    - After sculptures are built, conduct a gallery walk where students can see each other's creations and solve each array.
    - Ask students to reflect in their math journals by writing about the multiplication fact their sculpture represents and how arrays helped them understand multiplication.

ASSESSMENTS

Formative

Formative Assessment: Monitor students' understanding during the building phase by asking them to explain their arrays and multiplication facts.

Summative

Summative Assessment: Students will complete a written reflection in their math journals, explaining their array and the multiplication fact it represents.

DIFFERENTIATION

Accelerated: Allow students to create more complex arrays or explore multiplication with larger numbers.

Remedial: Allow students to work in smaller groups or provide additional support with simpler multiplication facts.

ADDITIONAL RESOURCES

- https://sevenmagicmountains.com/

CREDITS

U.S. Department of Education- STEM + the Art of Integrated Learning
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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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