Products of Art

Essential Question
How is personal preference different from an evaluation?

VOCABULARY
product
interpet
evaluate
criteria

Materials List
- Copies of student resource pages
- Number cubes, bagged by 50 or 100

Pacing	2 sessions

Assessment

SUMMATIVE	Students evaluate two pieces of art in terms of mathematical qualities and justify their thinking

Elements of VISUAL ART

- **Space**
- **Form**

CONTENT Standard

CCSS.MATH.CONTENT.3.OA.A.1

Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each.

Additional Standards Addressed:
CCSS.MATH.CONTENT.3.OA.A.3
CCSS.MATH.CONTENT.3.NBT.A.2

ARTS Standard

VA:Pr6.1.2a

Evaluate an artwork based on given criteria.

Additional Standards Addressed:
VA:Cn11.1.3a
CCSS.ELA-LITERACY.W.3.2

21st Century Skills
- Critical Thinking
- Informational Literacy
- Communication

Lesson Objective
Students will evaluate art with the criteria of finding highest products and interpreting the meaning of said products.

Lesson Overview
Using their understanding and knowledge of multiplication, students will choose two pieces of art. Within the art, they will need to decide how to find products of different groups of objects, to find the artwork with the highest overall product. Students will be analyzing and interpreting, while explaining their choices.

Artful Thinking Routine

The Complexity Scale routine

Have students view the picture of **colored pencils** and complete the analysis.

- Say some broad things you know about the topic – observations, facts, ideas. Think of different kinds of things.
- Place each statement somewhere on the complexity scale.

  Simple —————————- Complex
- Explain why you want to place it there.
- Reflect: What new insights and questions do you have about the topic?

STEP 1 Introduction

Place students in groups of 3 or 4, or in partners, depending on the resources you have. Give each set of students a bag of mixed up colored math cubes or other manipulatives. (Just make sure that the total number is the same in each bag.)

Tell each group that the first group to accurately find the total number of cubes wins.

Ideally, this will happen by grouping the cubes by color, and then perhaps in groups.

Once everyone has been successful (or depending on time after the first group), stop and discuss the method for finding the total. Can they refer to it in multiplication terms? (using groups and numbers?)

STEP 2 Multiplication Review

It is assumed that this lesson is happening once the majority of your students have a solid understanding of multiplication and that it consists of products of numbers, with the numbers being numbers of groups and the number of objects in each group.

Depending on how recently you have been doing this skill and concept with students, do some practice with some quick drawings and finding products of things around the classroom. For example:
- Who can find a product of something that is less than 20?
- Who can find a product of something that has 3 groups?
- Who can find a product that is larger than 50?
- Who can find a product with 5 items in each group?

STEP 3

Criteria

Explain to them that they just found products that were based on *criteria* that you gave them. Teach them the meaning: criteria is a set of rules or guidelines for something that is being decided.

Ask them to think of times when criteria are used. For example:
- Report cards
- Auditions for a play/dance team
- Tryouts for a sports team
- Winning awards or contests
- Earning allowance

STEP 4

Main Activity

Students will evaluate two different pieces of artwork, of their choosing, to decide which one represents a bigger overall product.

Show students the art pieces that are included in the resources, and have them choose two. They will need to start the process by first making a hypothesis as to which one will have the bigger product. Then they will need to evaluate the their chosen pieces within the given criteria, which will be based on finding products within the piece on groups of their selection, then finding the overall product of the piece.

It is important to point out that because students are choosing their own groups to find the products of within the pieces, there are an unlimited amount of "correct" answers. What will be evaluated is the way they choose their groups, interpret the information in the artworks, and their understanding of the mathematical problems.

Estimated Time: 60 minutes

CLOSURE

Have students share their work and discuss their findings. This could be done in a variety of ways which may lead in to further explorations. You could make a chart where students graph which artwork had the bigger product. You could discuss how they choose the groups they would evaluate. You could also analyze why two people who may have chosen the same pieces had different findings, or why one piece varied in answers among different people. This is also a way to connect to science and the idea of controls and variables.
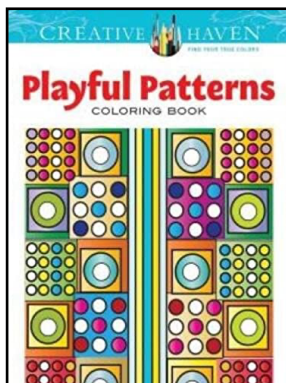
Your other favorites:
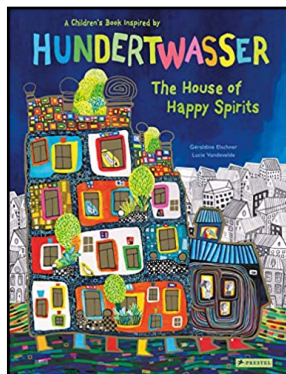
The House of Happy Spirits
Geraldine Elschner

With its fabulous illustrations, this picture book gives you plenty of opportunity to demonstrate the main activity of this lesson if you feel students need more support. A charming story about a tree that is saved and how architecture can take place alongside nature.

Creative Haven Playful Patterns Coloring Book
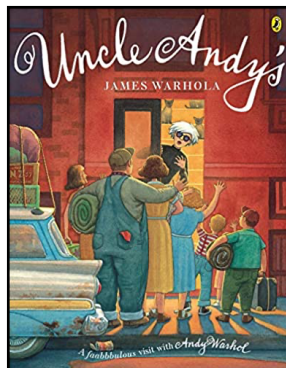*Susan Bloomenstein*

Let your students' imaginations run wild and extend this lesson as they create their own artworks. Then duplicate the lesson with their work.
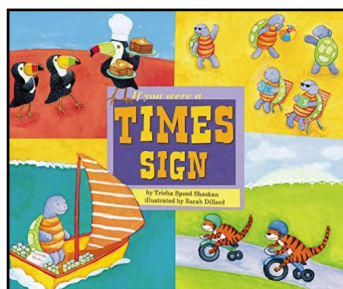
If You Were a Times Sign
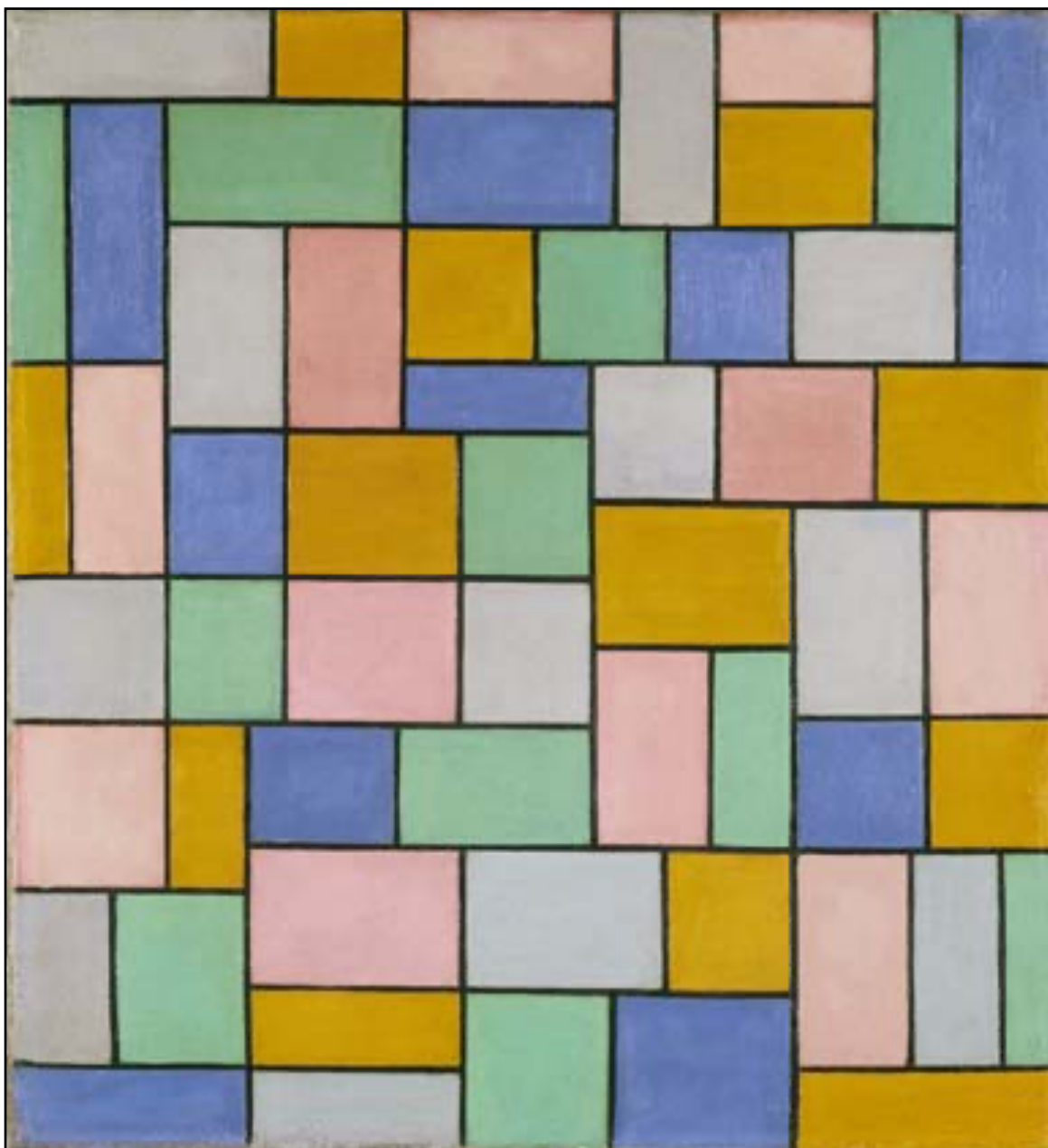*Trisha Sue Speed Shaskan*

A whimsical and visual look at multiplication and interpreting groups and objects to find products.

Uncle Andy's: A Fabulous Visit with Andy Warhol
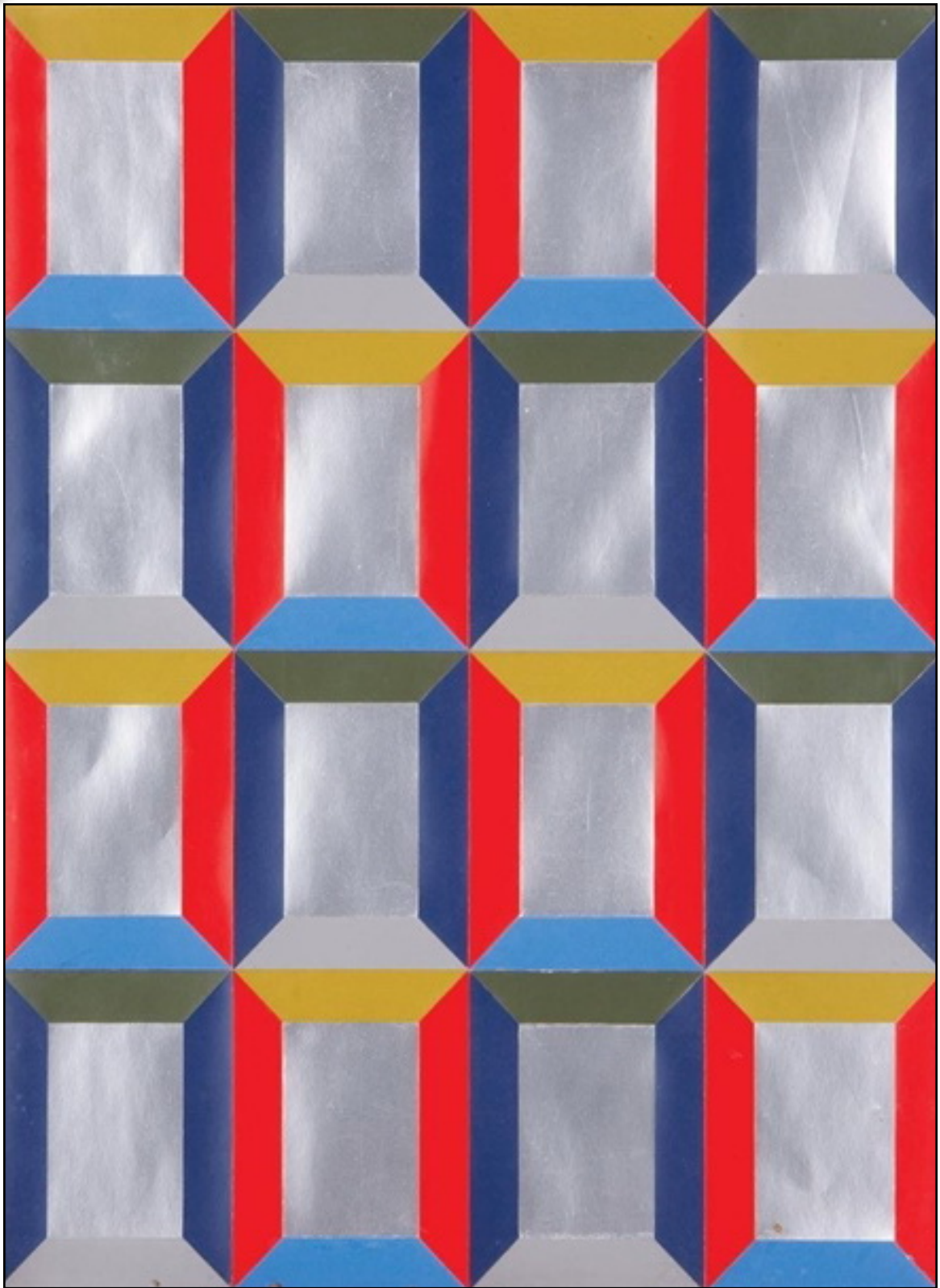*James Warhola*

A look into the life of the artist, known for turning junk and every day objects - like soup cans - into amazing and admired art.

Composition in Dissonances, Theo van Doesburg

St. Marks (16 Frames), Miriam Schapiro
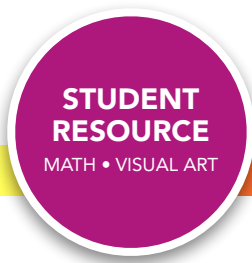
Painting, Roberto Aizenberg

Color Study: Squares with Concentric Circles, Wassily Kandinsky

Color Foil on Alucore, Gerwald Rockenschaub

Campbell's Soup Cans, Andy Warhol

Products in Art

Name: _____ **Date:** _____

Write the names of the two pieces of art you will be evaluating:

_____

_____

Which one do you think will have the greater product? Why?

_____

_____

_____

_____

Now, you will find three math problems inside of each piece of art. The only criteria for your math problems is that they must be multiplication problems. For each art work, you will find three products inside, and explain what each product means.

Explain and show your work for each piece of art on the next pages.

Products in Art

Name: _____ **Date:** _____

Which piece of art are you evaluating on this page?

_____

For each your groups, explain the groups, and then find the total number by using multiplication. (Use another page if you would like to find more than three groups in the art.)

1st group:	2nd group:	3rd group:
Math Equation: _____ x _____ = _____	**Math Equation:** _____ x _____ = _____	**Math Equation:** _____ x _____ = _____

Total Product:

Products of Art

Name: _____ **Date:** _____

Which piece of art are you evaluating on this page?

_____

For each your groups, explain the groups, and then find the total number by using multiplication. (Use another page if you would like to find more than three groups in the art.)

1st group:	2nd group:	3rd group:
Math Equation: _____ x _____ = _____	**Math Equation:** _____ x _____ = _____	**Math Equation:** _____ x _____ = _____

Total Product:

Products in Art

Name: _____   **Date:** _____

Which piece of art had the greater product?

_____

Write a math sentence to prove this:

_____

Was your original prediction correct?   YES   NO

How did you make your original prediction? Compare it to the way you evaluated the art.

_____

_____

_____

_____

_____

_____

_____

_____

_____

Products in Art

Student: _____

Total Score: _____ / _12_

CRITERIA	Distinguished (4 Points)	Excelled (3 Points)	Adequate (2 Points)	Basic (1 Point)
The student is able to interpret products of whole numbers.	☐ The student is able to independently and insightfully interpret products of whole numbers.	☐ The student is able to interpret products of whole numbers.	☐ The student is sometimes able to interpret products of whole numbers, and/or needs adult guidance.	☐ The student is unable to interpret products of whole numbers.
The student is able to evaluate an artwork based on given criteria.	☐ The student is able to evaluate an artwork based on given criteria, finds their own criteria to include, or goes beyond the minimum required.	☐ The student is able to evaluate an artwork based on given criteria.	☐ With support, the student is able to evaluate an artwork based on given criteria, and may be able to do some independently.	☐ The student is unable to evaluate an artwork based on given criteria.
The student is able to use evidence to justify their thinking.	☐ The student is able to use evidence to justify their thinking as well as their own knowledge and insight.	☐ The student is able to use evidence to justify their thinking.	☐ The student is able to use minimal evidence to justify their thinking.	☐ The student is unable to use evidence to justify their thinking.

NOTES: *Consider how the students finds the groups which they interpret. Is this a struggle for students or do they find them easily?*