

Products of Art



Essential Question

How is personal preference different from an evaluation?

VOCABULARY

product
interpret
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?

Artful Thinking by Project Zero is licensed under a Creative Commons AttributionNonCommercial 4.0 International License. Routine found here: <http://pzartfulthinking.org/>



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?)



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?



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



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.

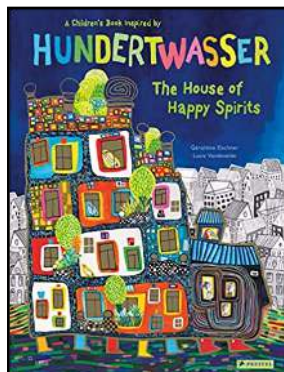
Estimated Time: 60 minutes

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:

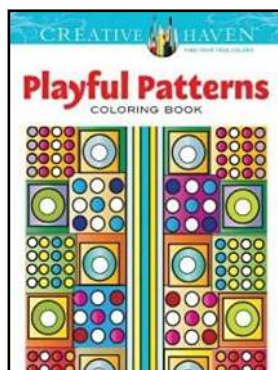
Literature Connections



The House of Happy Spirits

Geraldine Elschner

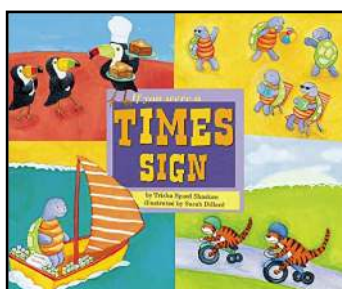
With its fabulous illustrations, this picture book gives you plenty of opportunity to demonstrate the main activity of this lesson if you feel students need more support. A charming story about a tree that is saved and how architecture can take place alongside nature.



Creative Haven Playful Patterns Coloring Book

Susan Bloomenstien

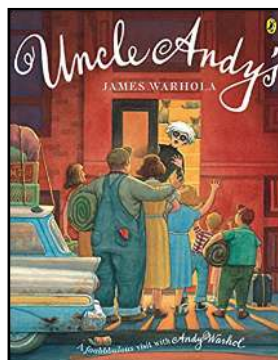
Let your students' imaginations run wild and extend this lesson as they create their own artworks. Then duplicate the lesson with their work.



If You Were a Times Sign

Trisha Sue Speed Shaskan

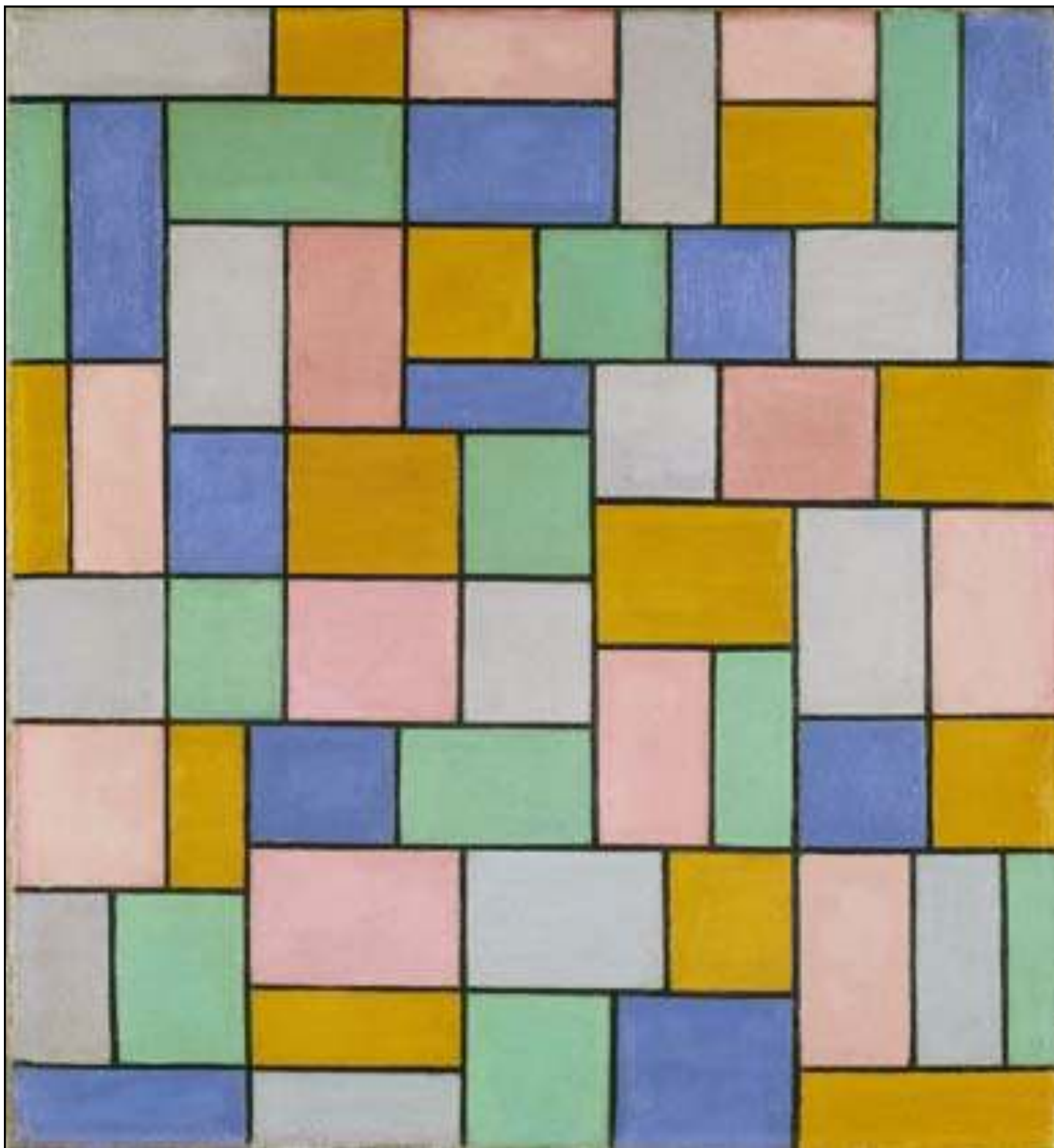
A whimsical and visual look at multiplication and interpreting groups and objects to find products.



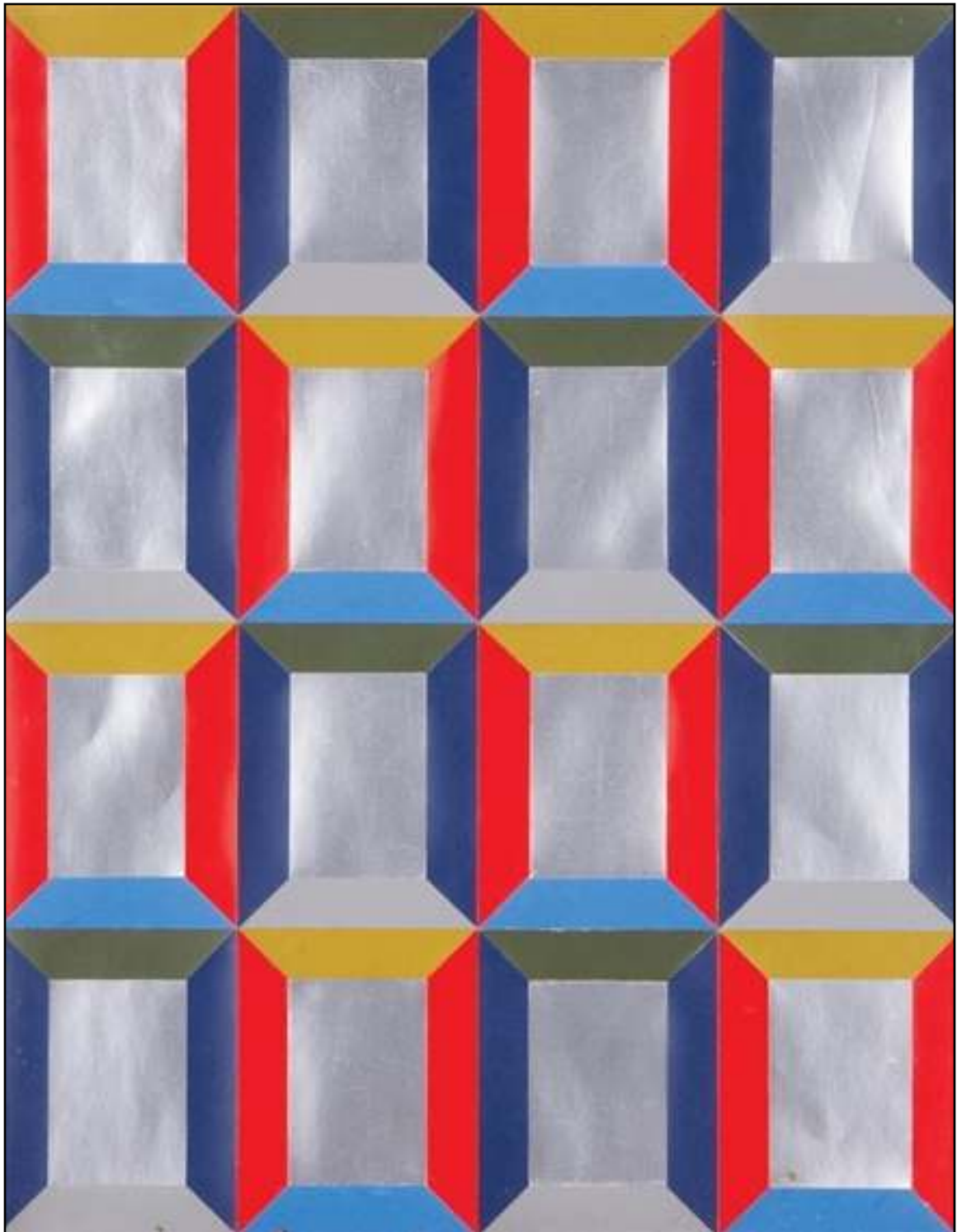
Uncle Andy's: A Fabulous Visit with Andy Warhol

James Warhola

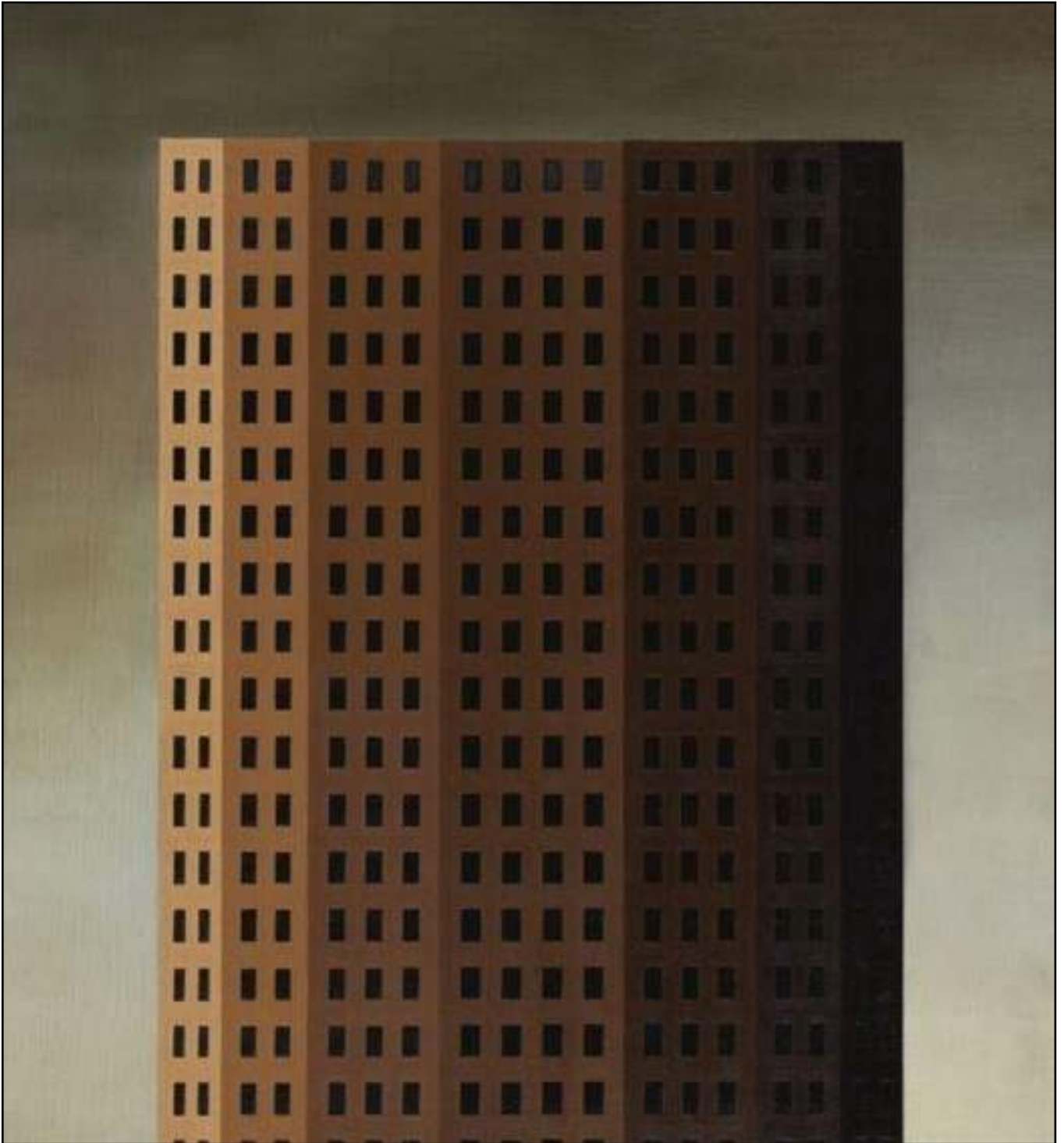
A look into the life of the artist, known for turning junk and every day objects - like soup cans - into amazing and admired art.



Composition in Dissonances, Theo van Doesburg



St. Marks (16 Frames), Miriam Schapiro



Painting, Roberto Aizenberg



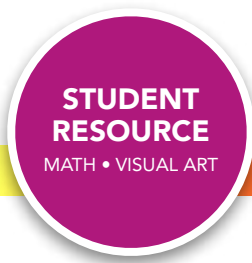
Color Study: Squares with Concentric Circles, Wassily Kandinsky



Color Foil on Alucore, Gerwald Rockenschaub



Campbell's Soup Cans, Andy Warhol



Products in Art

Name: _____ Date: _____

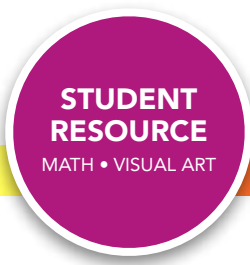
Write the names of the two pieces of art you will be evaluating:

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.

Which piece of art are you evaluating on this page?



Products in Art

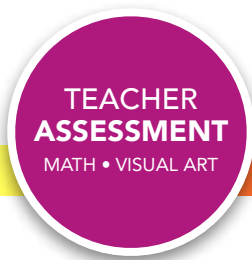
Name: _____ Date: _____

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

Total Score:
____ / 12

Student: _____

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