

Math in Art

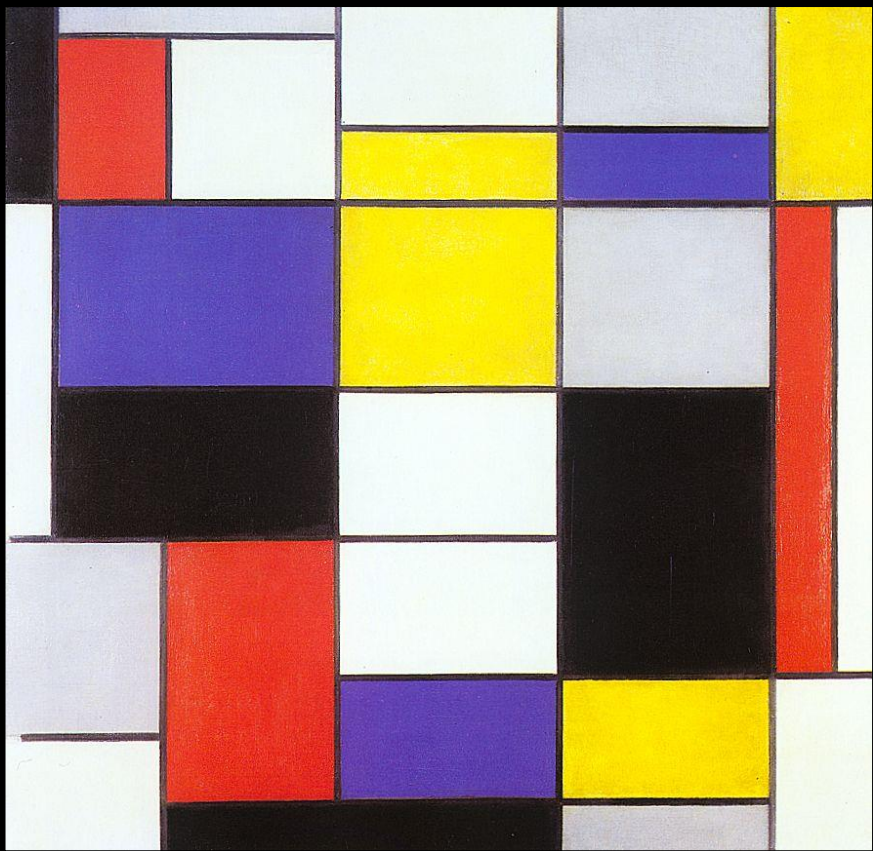
2023 Gold Level Project



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Original Artwork:



For this project, we based our art off of Composition A by Piet Mondrian.

Origin:

Piet Mondrian, (B. March 7, 1872) is a Dutch artist born in the Netherlands. He made many abstract paintings in his life, including this composition. The genre of Composition A is called Neo-Plasticism. Mondrian used thick black lines to divide the many different hues. For his Composition A, he used the colors black, red, yellow, gray, white, and blue.

Materials used

In this piece, we used construction paper for each individual shape, which we then glued on a background of black paper. We used glue to hold everything in place. We used scissors to cut all of the paper out into the specific shapes.



Elements Incorporated & How

We used area and perimeter as our two math elements. We resized and cut out each individual shape in our own artwork to have a specific area or perimeter in either inches or centimeters. The new areas and perimeters spell out a code depending on the shape's position.

Try It Yourself!

We have made a code using area and perimeter and enclosed a secret saying in our replica.

Can you figure it out?

Solve H!

These are the dimensions from our version to solve the code:

1 = 7 x 1 inches in area

2 = 3 x 5 inches in area

3 = 2 x 1 inches in perimeter

4 = 3 x 5 cm in area

5 = 7 x 2 inches in perimeter

6 = 4 x 6 inches in perimeter

7 = 4 x 2 inches in area

8 = 5 x 1 inches in area

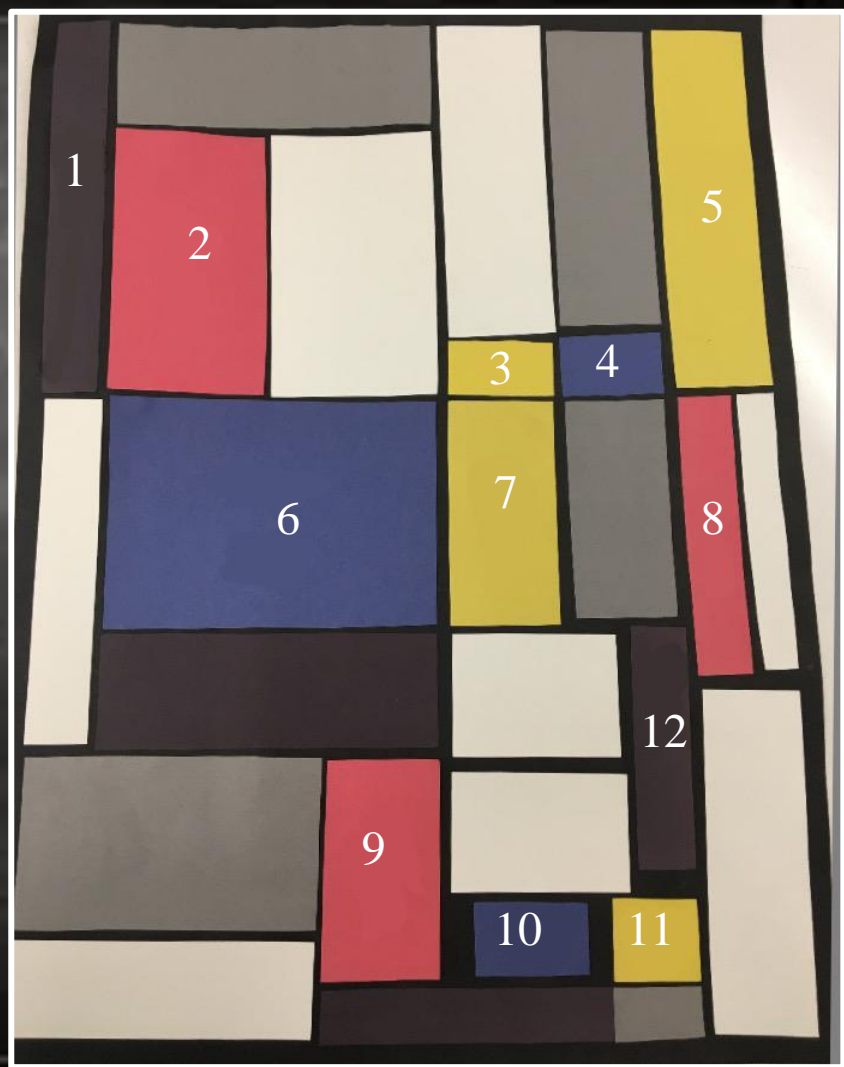
9 = 3.5 x 2 inches in area

10 = 3 x 5 cm in area

11 = 4 x 3 cm in area

12 = 1 x 4 inches in area

Can you find the correlation between the areas/perimeters and the alphabet?



Solution/Explanation

Using *Composition A*, we experimented finding area and perimeter using both inches and centimeters. Each shape's perimeter/area using inches/centimeters has a corresponding letter to the alphabet which spells out a code.

For example, if a shape's dimensions are 13 x 2 in inches, and we indicated that the shape would be represented by area, then the shape's area is 26 in², so that shape represents the 26th letter in the alphabet, "Z".

The next slide has the answer key with the area/perimeter of each shape and their respective corresponding letter. Then, you will find out the secret message.

Answer Key

GO FOR THE GOLD.

This is the code.

These are the dimensions from our version to solve the code:

1 = $1 \times 7 = 7^{\text{th}}$ letter = G

2 = $3 \times 5 = 15^{\text{th}}$ letter = O

3 = $2 + 2 + 1 + 1 = 6^{\text{th}}$ letter = F

4 = $3 \times 5 = 15^{\text{th}}$ letter = O

5 = $7 + 7 + 2 + 2 = 18^{\text{th}}$ letter = R

6 = $4 \times 6 = 24^{\text{th}}$ letter = T

7 = $4 \times 2 = 8^{\text{th}}$ letter = H

8 = $5 \times 1 = 5^{\text{th}}$ letter = E

9 = $3.5 \times 2 = 7^{\text{th}}$ letter = G

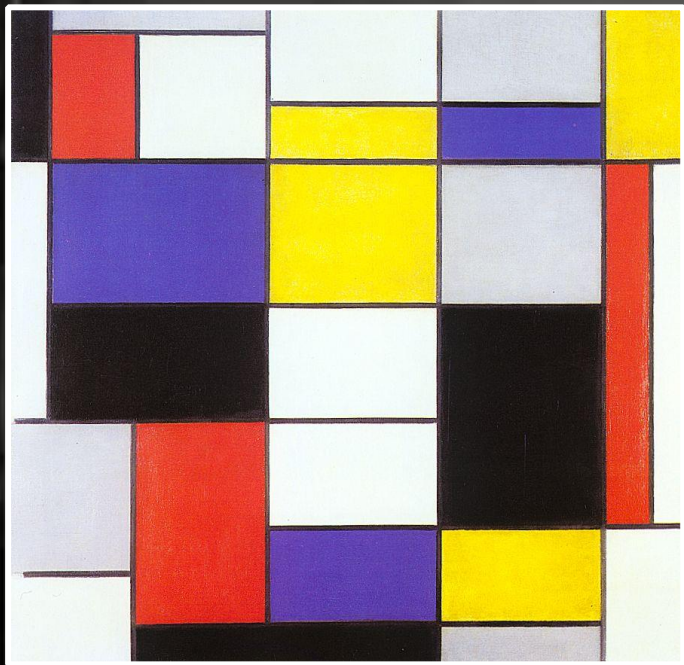
10 = $3 \times 5 = 15^{\text{th}}$ letter = O

11 = $4 \times 3 = 12^{\text{th}}$ letter = L

12 = $1 \times 4 = 4^{\text{th}}$ letter = D



Original
Artwork



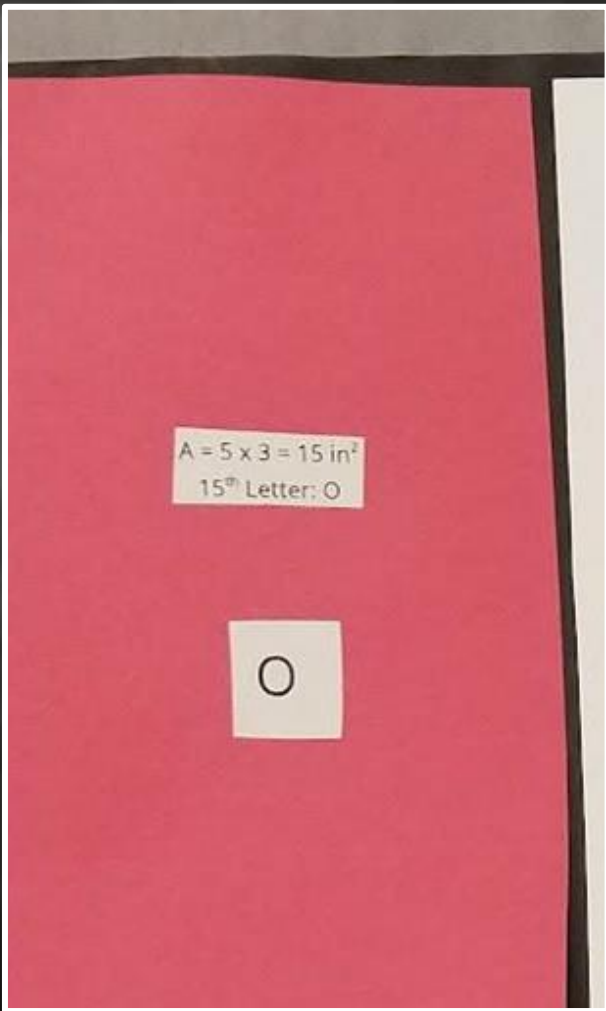
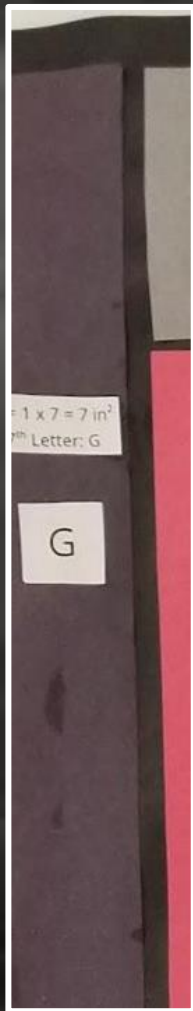
Replica with
Indications



Replica without
Indications



View the next four slides to see close-up images of each shape and their labels.



$P = 1 + 1 + 2 + 2 = 6$ in
6th Letter: F

F

$A = 3 \times 5 = 15$ cm²
15th Letter: O

O

$P = 2 + 2 + 7 + 7 = 18$ in
18th Letter: R

R

$P = 4 + 4 + 6 + 6 = 20 \text{ in}$
20th Letter: T

T

$A = 4 \times 2 = 8 \text{ in}^2$
8th Letter: H

H

$A = 1 \times 5 = 5 \text{ in}^2$
5th Letter: E

E

$A = 3.5 \times 2 = 7 \text{ in}^2$
7th Letter: G

G

$A = 3 \times 5 = 15 \text{ cm}^2$
15th Letter: O


O

$A = 3 \times 4 = 12 \text{ cm}^2$
12th Letter: L

L

$A = 1 \times 4 = 4 \text{ in}^2$
4th Letter: D

D



Thank you for
your time and
consideration.