

# Learn with MoMA



B.P. Grenache

1920r.

## Step 1

### Look closely

1. How many different shapes can you identify?
2. Are any of the shapes repeated? If so, how many times?
3. What do you notice about how the shapes are arranged?

## Step 2

### Learn more

Varvara Stepanova was a Russian artist who was a part of the Constructivist movement. The Constructivist movement developed after the Russian Revolution. Constructivist artists were less interested in expression and more interested in activity and production. Constructivist art often features simple geometric shapes that were created with utilitarian instruments such as compasses and rulers.

## Step 3

### Look again: math connections

Elementary School:

1. What are the names of the shapes that you can find in this artwork?
2. Many of the shapes in this artwork are repeated:
  - a. How many circles do you see?
  - b. How many rectangles?
  - c. How many diamonds?
3. Find a shape inside another shape.

Middle School:

1. If the diameter of the person's head on the far right is 1 unit, what is the radius? What is the area of the circle?
2. If the base of the artwork is 8 units long and the height is  $x$  units long, what is the total perimeter of this piece of art? Using the same measurements, what is the area?
3. If the base of the artwork is 8 units long and the height is 6 units, what is the length of the diagonal from corner to corner?

High School:

1. How would you classify the different kinds of triangles in this image? How would you classify the different kinds of quadrilaterals?
2. Find the rectangle in the top left corner. If the base of this rectangle is  $x+4$  units long and the height is  $x$ , what is the total area of that rectangle?
3. Find an equilateral triangle in the painting. If you know one side of the triangle is 8 units long, what is the area?

## Step 4

### Activity: Shape collage

Materials: colored paper, ruler, compass, protractor, scissors, a blank piece of paper, glue (optional)

1. Cut out different geometric shapes from the colored paper. Use a ruler, compass, and protractor to cut different kinds of triangles and different sizes of squares, rectangles, and circles.
2. Think of how these shapes can come together to represent a figure. Consider who this figure is, what they look like, and what they are doing.
3. Arrange the shapes on a blank piece of paper. Keep experimenting with different arrangements until you are happy with the way your figure looks.
4. When you are done with your composition, you can glue it down. Or, you can keep arranging the shapes into different compositions that represent different kinds of figures.

## Step 5

### Share!

Share your collage with a friend or classmate. Or you can email photos of the images to us at MoMA:

[schoolprograms@moma.org](mailto:schoolprograms@moma.org).



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