

# Cubism

## *Sixth Grade + Math and Visual Arts*

Adapted by L. Lang

### CORE SUBJECT AREA

Math

### ART FORM + ELEMENTS

Visual Art

Drawing

Line

Shapes

Form

Color

Balance

Contrast

Cutting

### MSCCR STANDARDS

6.G.A.2 - Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism.

6.G.A.4 - Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures.

### MSCCR CREATIVE ARTS STANDARDS

VA:Cr 2.1.6a - Demonstrate openness in trying new ideas, materials, methods, and approaches in making works of art and design.

### DURATION

45 minutes

### OBJECTIVES

Identify how math is used in the real world. Calculate the area of shapes composed of squares. Understand the concept of volume and calculate the volume of a cube or a structure made of cubes. Make a cube out of cardstock by drawing, cutting, and folding. Make and decorate a series of cubes using the elements of art and the principles of design.

### MATERIALS NEEDED

Cardstock paper tape scissors markers crayons colored pencils "Volume of a Cube" worksheet (in link)

### VOCABULARY

Cube, Volume, Area, Surface Area, Fraction, Rectangular prism, Length, Line, Shape, Color, Multiply, Equation, Square, Formula

### RECOMMENDED RESOURCES

Math in abstract sculptures video on youtube. Videos available in link.

### LESSON SEQUENCE

Begin the lesson by playing a video on math in abstract sculptures. They will then briefly discuss what they saw. The teacher will ask the students to identify and describe cubes that they saw in the video. Then ask them to point out squares and cubes that they see around the room.

While the students watch the video, the teacher will pass out cardstock paper, scissors, and markers/crayons/colored pencils, and their worksheet. Explain that each student will make a series of four or more cubes with edges of different lengths. Demonstrate to the students how to make a cube out of paper.

Have students use rulers to draw out patterns on cardstock for four different size cubes. Have them record the length on the edge of one square. They may choose the length, but remind them that all the sides must have the same length because it is a square. Have students cut out cube patterns (geometric nets) and tape them to create cubes. If the students are confused, show the 11 geometric nets that result in cubes. Remind students that the formula for volume is  $V=L \times W \times H$ . Have the students record their information on the "Cube Calculation Worksheet"

## EXTENDED LEARNING ACTIVITIES

The students can make shapes other than cubes.

## SOURCES

[https://mbp.pbslearningmedia.org/resources/ket-5\\_3dvisualarts/abstract-sculpture-and-cubes](https://mbp.pbslearningmedia.org/resources/ket-5_3dvisualarts/abstract-sculpture-and-cubes)