

## Objectives

- Students will explore the symmetry of the human body by using measurements to create a correctly proportioned paper sculpture.

## Introduction

Discuss symmetry and have the students identify some things in the classroom that are an example of symmetry.

To test or reinforce their understanding :

- Give each student a piece of copy paper and ask them to create a symmetrical division. (If you word it this way it will be more of a challenge then telling them to fold the paper in half.)
- Using scissors ask them to create a symmetrical image. (Optional: Mention they cannot completely cut away the fold.)
- Show the picture of “Captured, but not Conquered”  
Where could we draw a line or lines on this image to create two symmetrical halves?
- Discuss whether or not the fact that the arms of the image are in different positions changes the symmetry.

Ask the students what they know about the symmetry of the human body. Discuss: length of arms, length of legs, where the vertical division of the body is, where the horizontal division is. See if the students can identify any other symmetrical sections (length of arm from shoulder to elbow, the elbow to finger tips, etc.)

## Learning Activity

Divide the students into groups of three or four:

- One student to be the model
- One student to measure
- One or two students to record measurements on the paper

Explain they are going to create a paper image that has the same symmetrical proportions as the model. Note: Briefly explain or demonstrate the whole procedure before starting.

Have the students fold their pieces of butcher paper in half lengthwise. (hot dog) Then have them measure the model from head to foot and mark that measurement on the paper.



Cyrus E. Dallin, *Captured, but not Conquered*, 1918, Bronze.

## Materials

- Images of Portraits (See Images from the Museum)
- Large Pieces of Butcher Paper (the length of the tallest Tape Measures or Yard Sticks)
- Rulers
- A piece of copy paper for each student
- Pencils
- Erasers
- Black Sharpies
- Scissors
- Paint and paint brushes

## Images from the Museum

- Cyrus E. Dallin, *Captured, but not Conquered*
- Gary Smith, *Youthful Games*

## Utah Core Standards

Mathematics Standard 4.G.3

Recognize a line of symmetry for a 2-D figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line symmetric figures and draw lines of symmetry

Visual Art Standard 1

Objective 1b

Use blocking-in gesture drawing and or stick figures as start-up skills for drawing.

## Learning Activity Cont.

Proceed with the following steps:

1. Measure the length of the head and transfer that measurement to the paper starting from the head mark.
2. Measure the width of the head, divide that in half and transfer to the paper starting from the fold.
3. Measure the length and width of the neck and transfer those measurements to the paper (remembering to divide the width measurement in half and start at the fold).
4. Measure the width of the shoulders, divide in half and follow the above procedures.
5. Measure the torso from the shoulders to the waist and give the students the choice to either measure half of the torso to transfer to the paper or the whole width and divide that measurement in half. (Have them keep track of which way they did the measurements.)
6. The next measurement will be from the waist to the bottom of the hip where the leg bends.
7. Measure from the top of the leg (where it starts to bend) to the knee and record that measurement.

**\*\*Explain:**

The students will continue to follow this procedure, but they must decide on the gesture or stance before they record the leg measurements and measure the distance between the legs and divide it in half to determine how far away from the fold to record the leg width.

**\*\* Also,** explain the width of the leg and arm should not be divided.

8. Measure from the knee to the ankle and the height and length of the foot and record those measurements.
9. Follow this same procedure to create the arm. (The gesture of the arm will also have to be decided before the measurements are taken.)

NOTE: Hopefully at this point the students have caught onto the process.

When all the measurements have been recorded the students will decide as a group how to draw the figure - using their measurement marks- they will draw an outline of the basic shape of the body including ears, fingers, hair outline, etc. clothes and shoes, but not facial features or clothes details such as buttons and hair details, etc.)

The figure will then be cut out while the paper is still folded in half. Then open the paper to reveal the whole figure. At this point facial features and clothes details can be added.

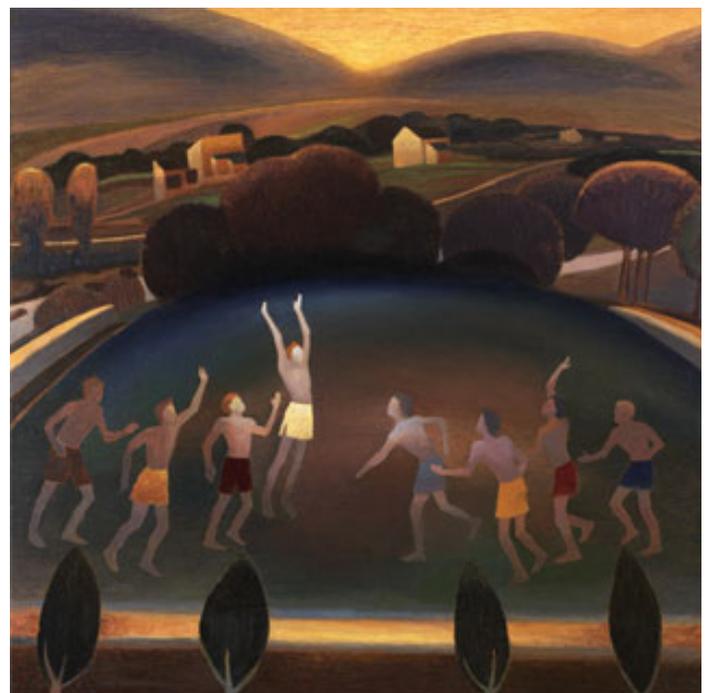
## Assessment

Discuss the process:

- How did this project show the human body is symmetrical?
- What problems have occurred and why?
- Have student identify and discuss all the symmetrical features of the human body.
- Have them fold their paper image in half horizontally and see if the fold is on the waistline. If not discuss why this variation might have occurred.

## Optional Extension Activity

Show students the painting *Youthful Games* by Gary Smith. Look at the different figures. Can you see the symmetry in their bodies? When we pose in different positions, does the symmetry change? How might this help us in drawing the human form?



Gary Smith. *Youthful Games*, 1984, Oil on Canvas.



Cyrus E. Dallin, *Captured, but not Conquered*, 1918, Bronze



Gary Smith, *Youthful Games*, 1984, Oil on Canvas