



# Octahedrons

Developed with Shawny Montgomery  
Cheney High School, Cheney, KS  
Grades 6-12



## TIME

3 class periods (45 min. each)

## OBJECTIVES

*Students will...*

- Turn a two-dimensional work of art into a three-dimensional work of art.
- Learn to construct an octahedron, turning a two-dimensional “shape” into a three-dimensional “form.”
- Apply visual problem solving to their project.
- Use prior knowledge of color theory.
- Follow sequential steps.

## NATIONAL VISUAL ARTS STANDARDS

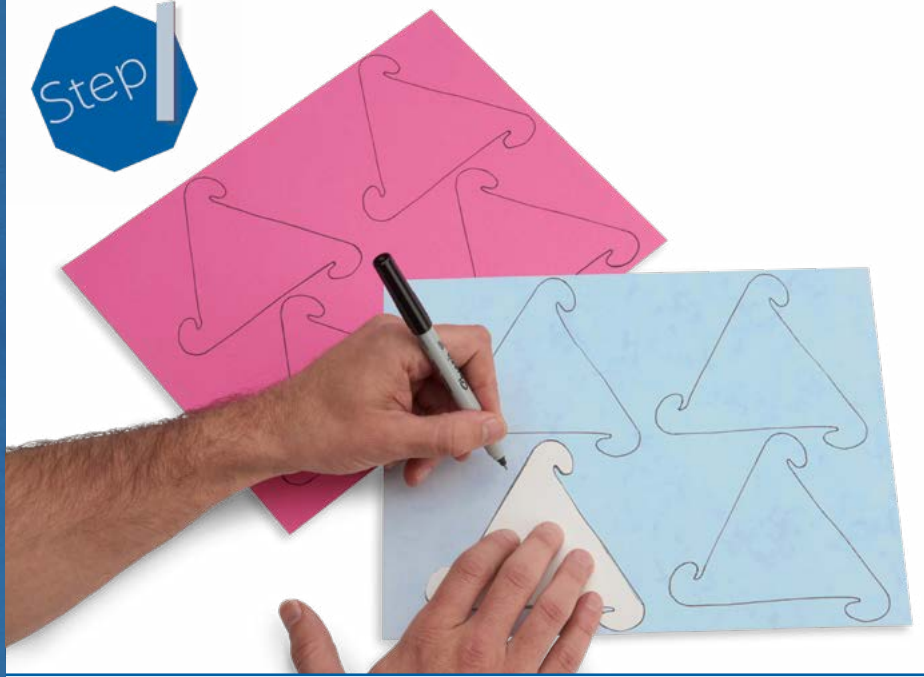
### 1. Understanding and applying media, techniques, and processes.

- A. Students apply media, techniques, and processes with sufficient skill, confidence, and sensitivity that their intentions are carried out in their artworks.

### 2. Using knowledge of structures and functions.

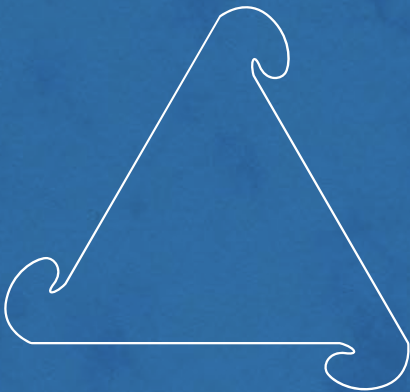
- A. Students demonstrate the ability to form and defend judgments about the characteristics and structures to accomplish commercial, personal, communal, or other purposes of art.
- B. Students evaluate the effectiveness of artworks in terms of organizational structures and functions.
- C. Students create artworks that use organizational principles and functions to solve specific visual arts problems.

Step 1



## PREPARING THE LESSON

- It may be helpful to view the work of Holger Ström and George Hart, who both create polyhedrons.
- Each student will need one of these triangle shapes for tracing. You may want to have extras on hand in case one gets torn.
- Discuss the difference between a shape and a form.



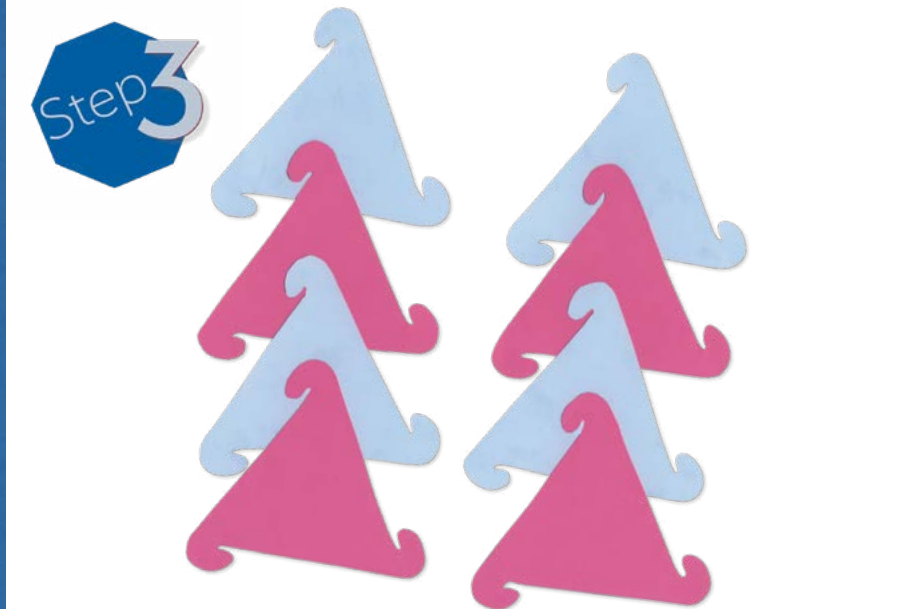
Step 2



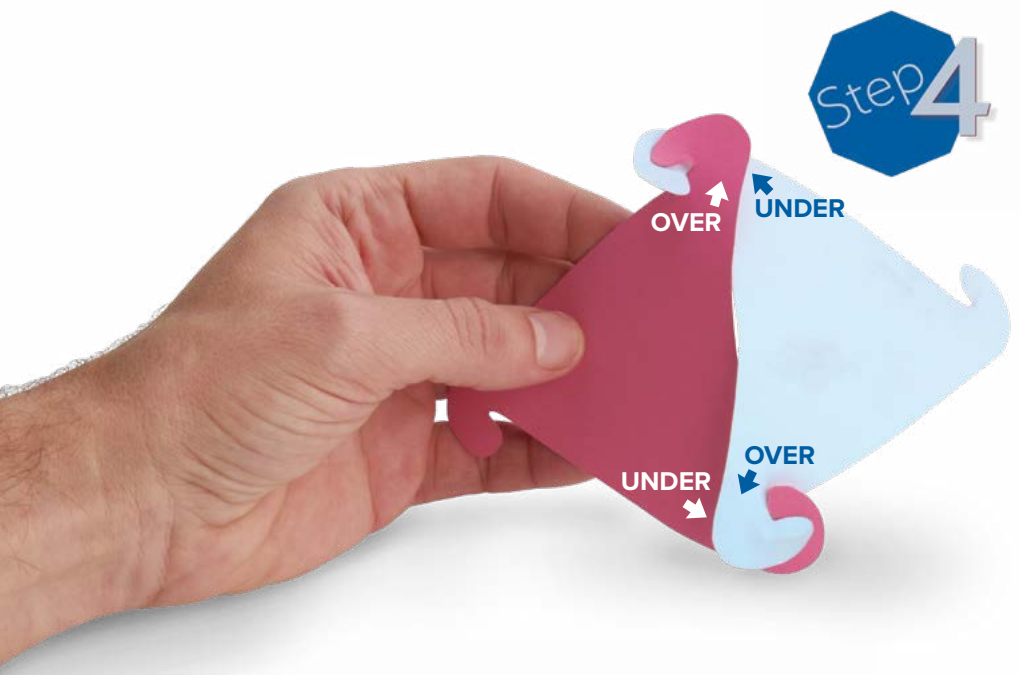
## EXTENSIONS/VARIATIONS

- Create other polyhedrons using the triangular shape pattern.
- Design your own 8½" x 11" sheets of paper for use in creating the triangular shapes and octahedron spheres.

Step 3







Step 4



Step 5



Step 6

Octahedron spheres can be further embellished with beads, string, and sequins.

## INSTRUCTIONS

1. Trace the triangular shape (far left, facing page) on paper eight times with an ultra-fine tip Sharpie®. If the paper has two different-colored sides, the direction the triangular shape is traced will matter. The shapes all need to be facing the same direction when they are cut out.
2. Using scissors or an X-ACTO® knife, cut out the eight traced shapes exactly. Students should be sure to cut the pattern as precisely as possible, because if even a tiny bit extra gets added to each piece, it is more difficult to put the pieces together.
3. After the shapes are all cut out, stack the shapes so that they are going the same direction, giving them a front side and a back side. **THIS IS IMPORTANT!** If the shapes are going different directions, the shapes will not form a sphere. The octahedron will consist of two rows of shapes. Each row will have four triangular shapes. Students may find it easier to lay out their shapes into the two rows.
4. Interlock two triangular shapes together by swirling two hook shapes together. One should go underneath the other. Bring the bottom one up to interlock at the bottom hook shapes. Each piece should be over a triangular shape at the top and tucked under the triangular shape at the bottom so it is an over/under pattern.
5. Keep putting the triangular shapes together in an over/under pattern until the first row is put together. If the triangular shape goes over on the top, it tucks underneath at the bottom, creating interlocking shapes.
6. Continue adding the remainder of the triangular shapes until you have a complete sphere.



## MATERIALS LIST

- Array® Card Stock, 250 sheets, 8½" x 11", 65 lb. (2 sheets per student — 9727114 [Assorted Colors], 9727115 [Marble/Parchment Colors], or 9727116 [Pastel/Bright Colors])
- Sharpie® Ultra-Fine Point Marker, black — 9730243
- Westcott® KleenEarth® 8" Basic Scissors with Bent Handle — 9731295
- X-ACTO® No. 1 Knife — No. 11 Blade with Safety Cap — 9701147

## REFERENCES

[www.iqlight.com](http://www.iqlight.com) (features works of Holger Strøm)

[www.instructables.com/id/Universal-lamp-shade-polygon-building-kit/](http://www.instructables.com/id/Universal-lamp-shade-polygon-building-kit/) (origin of triangular shape)

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