

Janessa Pope
5-6: Fifth Grade

Objectives:

- When creating their design, students will learn how to apply symmetry to their art and color it accordingly.
- After completing this activity students will be able to recognize geometric designs in art all around them.
- After completing this assignment students will be able to identify two-dimensional geometric shapes in their art and classify them based on their properties.

Visual Standards Addressed:

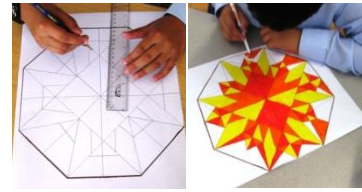
- **Responding:** Identify and analyze cultural associations suggested by visual imagery.
- **Fifth Grade – Visual Arts**
 - **Standard 2:** The student will analyze, reflect on, and apply the structures of art.
 - **Objective 1:** Analyze and reflect on works of art by their elements and principles.
 - D. Classify works of art as realistic, abstract, geometric, or organic
 - **Objective 2:** Create works of art using the elements and principles.
 - B. Create a work of art with symmetry.

Other Standards Addressed:

- **Fifth Grade – Mathematics**
 - **Domain: Geometry**
 - Classify two-dimensional figures into categories based on their properties.
 - 4. Classify two-dimensional figures in a hierarchy based on properties.

Vocabulary:

- **Geometric Shapes:** Two-dimensional shapes that are created by connecting a set of points and straight lines. These shapes can be defined by their mathematical properties.
- **Symmetry:** Created when one shape looks exactly like or similar to another if you flip, slide or turn it.



“Geometric Designs”

5-6: Fifth Grade

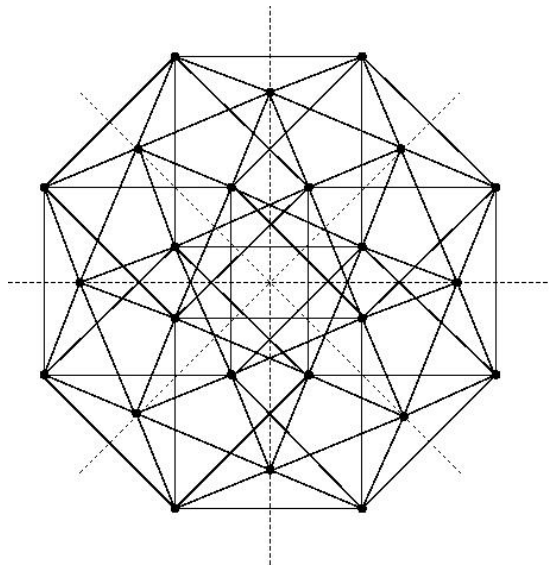
Students will explore the use of symmetry and geometric shapes by creating their own geometric design. Students will then be able to identify geometric shapes in both their own work as well as classmates.

Materials Needed:

- Large Paper (9X12 or larger is desired) with an octagon drawn on it (one per student)
- Rulers
- Pencils
- Erasers
- Markers, Crayons or Colored Pencils
- Scissors
- Glue (Elmer’s or glue sticks)
- Large colored construction paper (larger size than octagon paper)
- Tacks to hang up the design
- A worksheet for every student

Pedagogy:

- The day before this art lesson, I would draw the large octagon shape onto the desired size of paper using a black Sharpie marker and make enough copies for each student in my class.
- Before conducting this lesson, do a lesson in geometry so the kids are familiar with geometric shapes and their properties.
- At the beginning of the day before the art lesson, pull up the examples of symmetrical geometric designs in architecture provided in the links below. Also, draw an octagon on the white board for later use as an example.
- Start the art lesson by showing the students the examples of symmetrical geometric designs in architecture and asking the students what elements of art can be found in them. Hopefully a child will answer with symmetry or shapes, but if not lead them to this answer. For example you can ask “Do these examples have a pattern?” “How is that pattern achieved?” If the answers are still not reached, explain that the examples show balance due to symmetry. Ask the students to define the word symmetry in art (if no one knows the answers, give them the definition above and point out the symmetry in the examples). Challenge the students to look for these designs in architecture around their neighborhood to see if they can find any.
- After talking about symmetry, ask the students to point out the geometric shapes they can find in the design from this image:



- Write the list on the board. We would then discuss the different properties linked to each shape. For example, all quadrilaterals have four sides and four angles. Then ask the students, “What shapes are considered quadrilaterals?” Continue on to discuss triangles including equilateral triangles, isosceles triangles and scalene triangles. This discussion should hopefully take no more than fifteen minutes as we have had a math lesson earlier that day.
- Turn off the examples and pass out the papers with the octagons drawn on them. Explain to the students that we will be creating our own works of geometric designs using symmetry.

- Explain that they will create their own design by drawing straight lines from one side or angle of the octagon to another side or angle. If you start on the angle, you must connect it to another angle and the same goes for starting with a side. Demonstrate this on the white board octagon, but make sure to only do a few lines – enough that the students get the idea but not too many that students copy it without thinking.
- Next, ask for one person from each table group to come and grab enough rulers and markers (or whatever coloring material you have chosen to use) for everyone in the group.
- Explain that it will be easiest if the students draw all of their desired lines first and then start to color. Do not forget to tell the students that they can only color with up to four colors. Any more than that and the design would be too messy.
- As the students draw, walk around and talk to individual students about what they are doing, what kind of design they are hoping to achieve and how they will color symmetrically.
- As students begin to color, remind them that their design should be colored symmetrically. Tell them that if they are unsure how to make it symmetrical, raise their hand and you can help talk them through it. For example, “If you were to cut this design in half, how would you color one side? To make the other side symmetrical what colors would you need to color where?”
- When students are finished coloring, invite them to come to the front and grab a pair of scissors, a glue stick or Elmer’s glue and a piece of colored paper. Explain that they will cut out their octagon along the black Sharpie line and then glue the octagon to a colored piece of paper. When the glue is dry, have the students trim the colored paper down to make a border for their design as seen here:



- When all of the students are finished with their design, instruct them to clean up their mess making sure to pick up and throw away left over pieces of construction paper, put the glue, scissors, etc. back in their place and to wipe down their desks with a wet paper towel if glue has dried on them.
- After clean up, ask the students to tack up their design on the blank bulletin board to create a collage of designs. When all of the students art is on the board, hand out the short worksheet (below) and ask them to look at every students design to fill it out.

Assessment

- Formative: Asking the students before the art class to discuss geometric shapes and symmetry.

- Summative: The filled out worksheet by each student that asks them to find different geometric shapes from other students work and asks them to describe their favorite symmetry.

Examples of Symmetrical Geometric Design in Architecture

- http://en.wikipedia.org/wiki/Girih_tiles (Scroll down to Examples)
- <http://mathforum.org/geometry/rugs/carpets/patterns.html> (Islamic Architecture)

Worksheet:

Name: _____

Date: _____

Directions: Study all of the geometric designs created by your classmates and then answer all of the following questions. When you are finished, turn the worksheet in and then sit quietly at your desk until everyone finishes.

1. Find five different geometric shapes and list all of their properties:

1. _____

2. _____

3. _____

4. _____

5. _____

2. Not including your own, find your favorite design and describe it. What colors did the artist use? Did they create symmetry in their design? How did they do this? Does the art look balanced?
