



# **POLYGONS MAKING ART**

**FUN MATH AND ART WORKS**



# MATERIALS

FOR Paper Quilt Design LESSON

# MATERIALS for Paper Geometric Vase

1-Copy of quilt design in gray tones

2-6 Different Color Sheets of Paper

3-Pre-cut out triangles shapes

(For those who would have a challenge cutting small shapes)

4-Scissors (each student)

5-Ink Pen any color (each student)

6-Color pencils for (each student)

7-Elmer's Glue (each student)

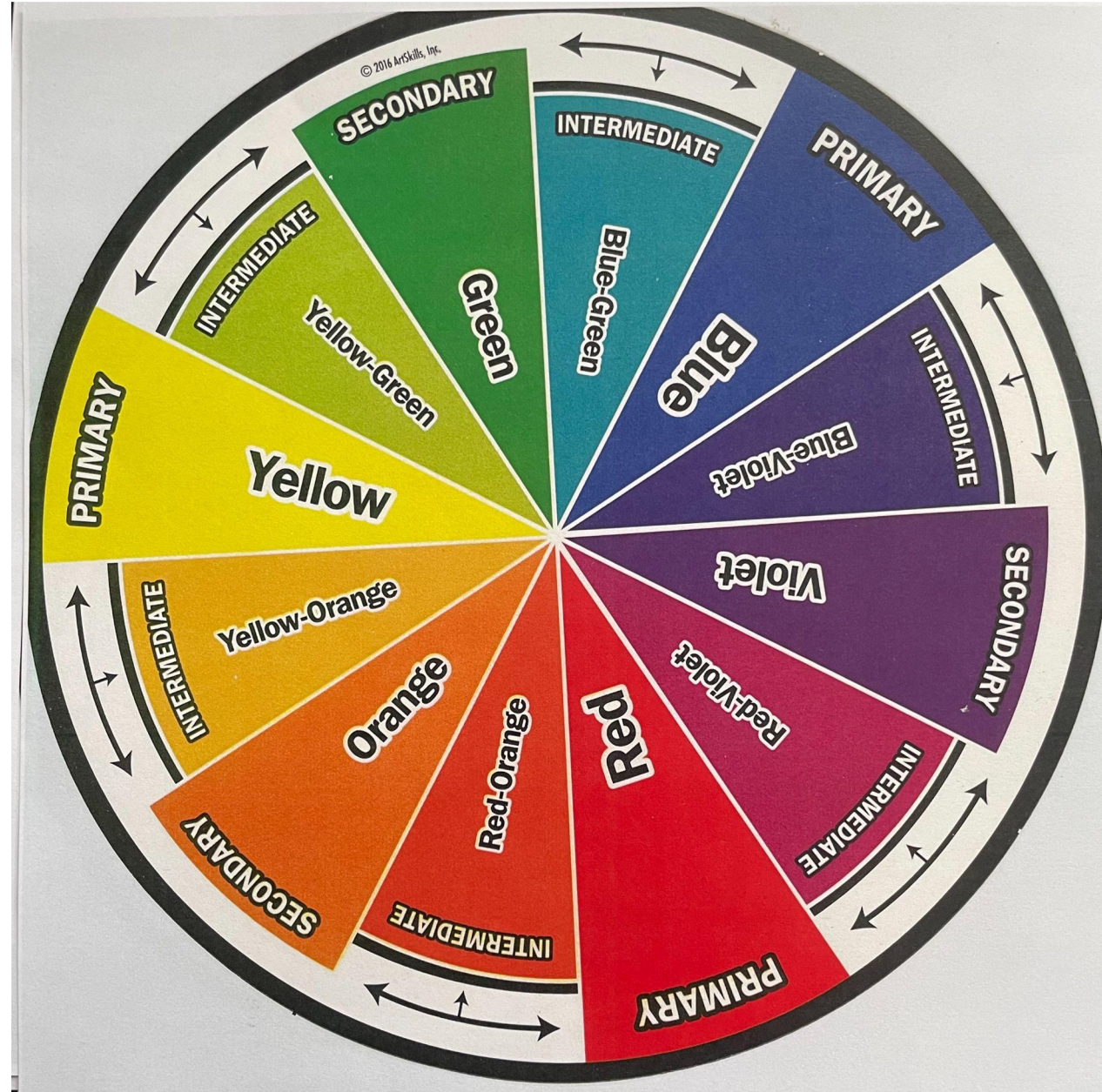
8-Glue Stick ((each student))

9-Video on actual quilts and geometric shapes

10-10 inch Right triangle ruler or regular ruler



# COLOR WHEEL



**T  
E  
M  
P  
L  
A  
T  
E**

**20  
PIECES**



# INSTRUCTIONS

- Look at examples of the  $7\frac{1}{4}$  x  $8\frac{1}{8}$  quilt design
- Point out the different geometric shapes that can be seen and created in the vase pattern
- Describe how the quilt design reference sheet and how it will be used as a template and color guide for the vase
- Hand out  $8\frac{1}{2}$  x 11 (rectangle) colored paper of choice
- Have pre-cut triangles and base shape for those that need assistance
- Have students cut 1 triangle, 1 end piece, 1 flower, 1 leaf
- Have students trace each shape onto colored paper of choice reiterating number equations will give balance to your finished work of art
- Flowers can be traced and cut out from any contrasting color
- Flower stems will be cut freehand
- Have students write or initial all of their shapes

**Finished piece is framable or can be scaled down for a greeting card**

# INSTRUCTIONS

Plan your vase pattern design in number equations or geometric sequence to get a balanced and interesting work of art.

**Example for Vase**

**Cut out: Triangle colors 6 yellow , 8 orange ,4 dark orange,**

**Example for Vase:** Start with bottom **Base**, 2 end rectangular pieces in same color of choice, place at close equal distance shown in the copy Template.

**$4 \times 2 = 8$  triangles in orange**

**$3 \times 2 = 6$  triangles ) OR**

**$6 \times 2 = 12$  and  $4 \times 2 = 8$  OR**

**Create your own**

**3-4 Flowers can be in any color**

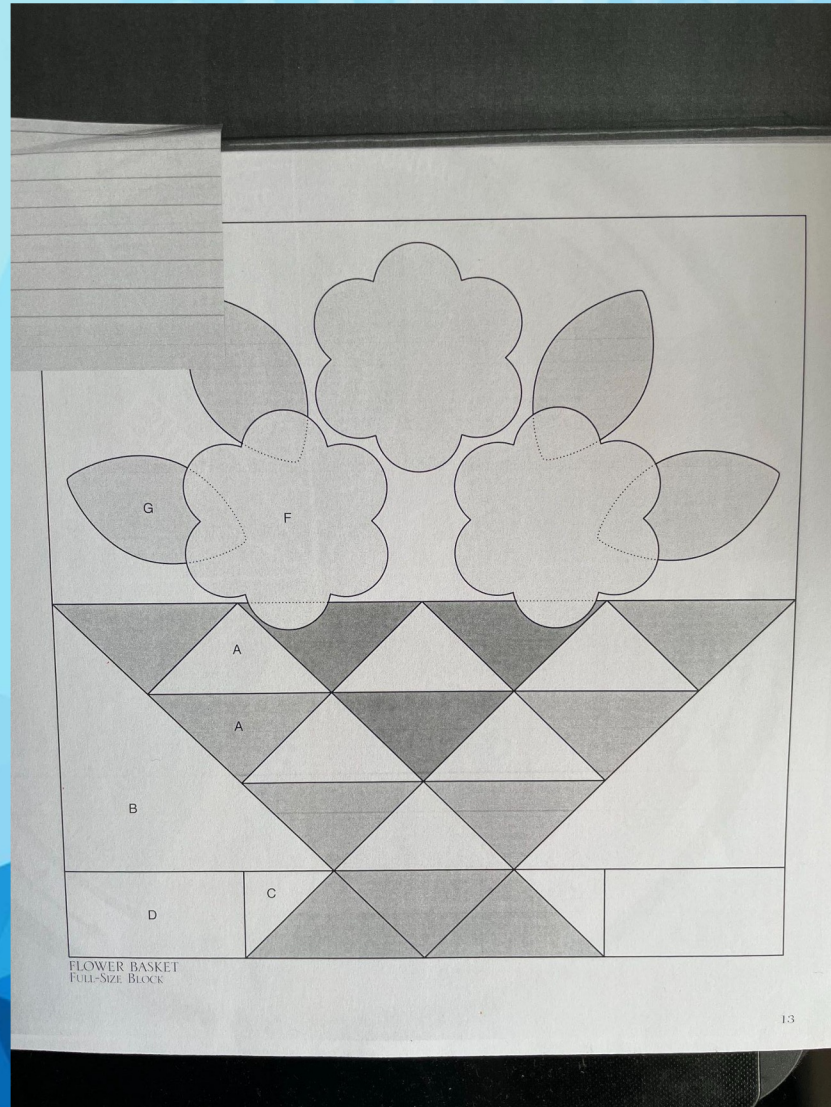
**Stem suggestion is green**

# **OBJECTIVES-Build a Polygon Vase with Triangles**

OF THIS LESSON



# GRAY SCALE TEMPLATE TO FOLLOW



# Step #1 Build Your Vase



# Step #2 Build Your Vase



# Step #3 Build Your Vase



# Step #4 Build Your Vase



# Step #5 Build Your Vase



# INSTRUCTIONS

**Continued: Using gray scale copy of flower vase as template Place**

**Plan your colors using geometric sequence**

**Place 8 ½ X 11 sheet of paper on table for your vase background color**

**Cut and place bottom triangles and 2 end pieces ¼” from bottom edge of the 8½ X 11 sheet of paper. Arrange exactly the way it is shown in picture (Left end piece straight triangle, inverted, triangle, straight, triangle, Right end piece**

**Build design from bottom up, referring to gray-scale copy**

**Place center triangle above base in the middle inverted triangle to sit closely on top of it.**

**Place a inverted left triangle straight and ¼ close to straight triangle in the middle do the same on the right**

**Next row 3rd row up above base row start alternating inverted straight inverted strait trangles**

# PASS OR PLAY!

## Fun Making Art With Math

### How many Vertices do you see on this page?

How can you split shapes into equal parts?

How can you make a triangle from a square or rectangle?

How can shapes be split into halves, fourths and thirds!

How can this knowledge help us share breakfast, snacks and art supplies with our friends

What is a geometric sequence

What does the word equal mean?

What is a balance pattern?

What is a base ?

What is contrast?



# OBJECTIVES

Creating a triangle vase quilt design with 18 triangles and 2 rectangles

Use geometric sequence numbers to create a pattern in color for triangle vase with balanced colors.

Producing a fun and interesting piece of art while focusing on a geometric sequence.

How to create a square, rectangle and triangle polygons with no ruler.

# VOCABULARY

Geometry  
Primary

Secondary

Polygon

Septagon

Triangle

Balance

Vertices

Parallelogram

Contrast  
Geometric Sequence

Pattern

Diagonal  
?

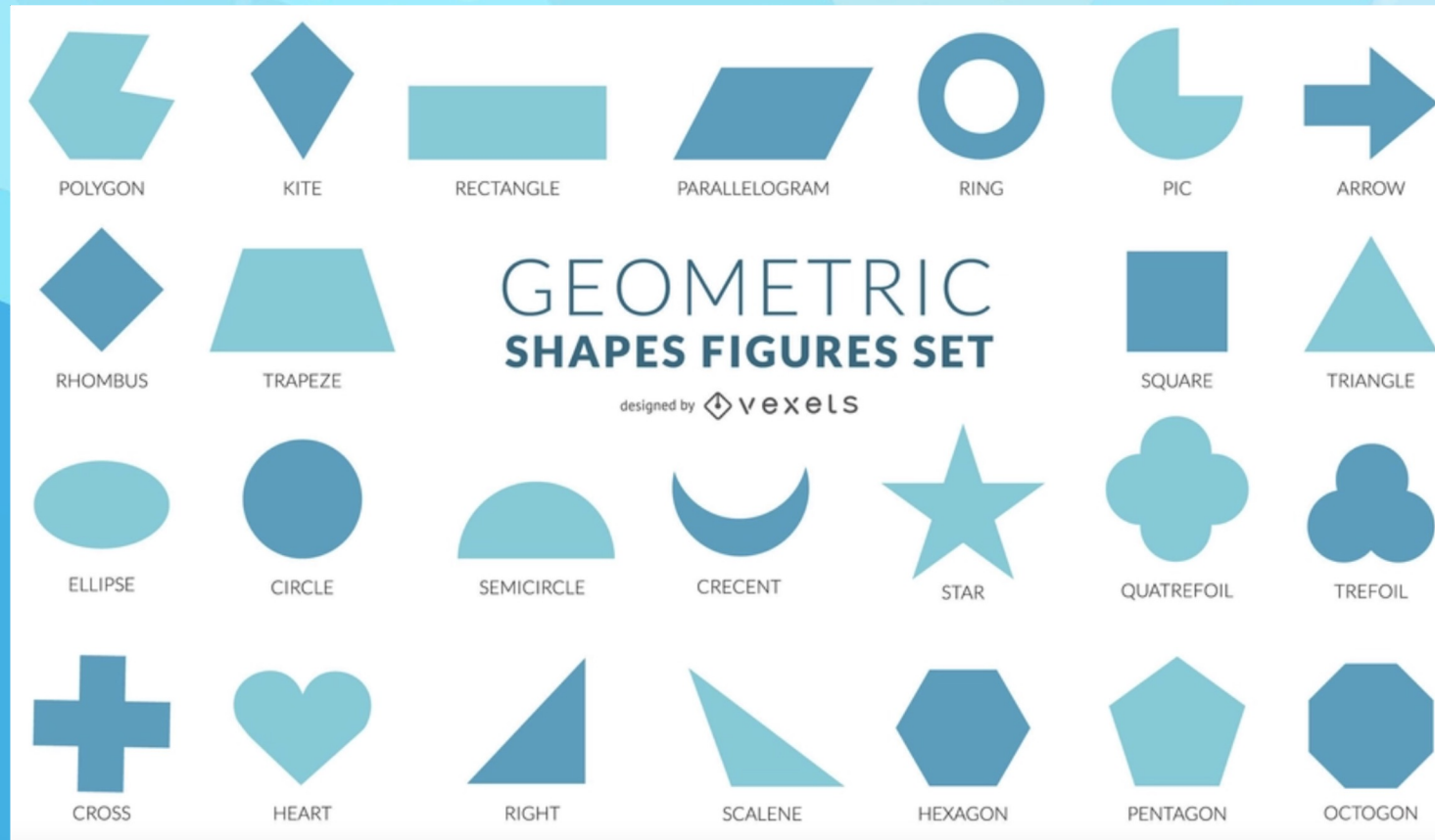
Truncated

Rectangle  
?

Equal

# PASS OR PLAY!

Can you find these shapes in your finished Vase design?



**Southeastern Pennsylvania  
Transportation Authority (SEPTA)**



**SEPTA**

**IRREGULAR POLYGON**  
**SEPTAGON**

**MORE PROJECTS**  
**4TH, 5TH, 6TH Grade Artist**

**ACTUAL PIECE WILL BE SHOWN**

**ARTS LINK LESSON PLAN TEMPLATE**  
2023

School: _____ Classroom Teacher: _____ Teaching Artist: _____	
Grade Level: _____ Project: _____ Stephanie D Young	
Number of classroom sessions for this project: _____ Core content: (Math) / ELA (Circle)	
Date: 6/28/2023	
Core Content Learning Objective: Geometry in Art. How a triangle can be used to create an interesting pattern	Assessment: Did student follow the instructions successfully or not. Art does not have to be perfect.
Arts Learning Objective: Creating a flower Vase with triangles to create balance and interesting work of Art originating from Quilt patterns.	Assessment: Finished or unfinished art
Summary of the Lesson: Students will create a Geometric Flower Vase by using geometric sequence of numbers. When planned students will start with a balance design. Numbers can be multiplied as needed by 2.	
ARTS LESSON STRUCTURE: Attention, Review, Teach and Support	
Attention: How will you prepare the students for the lesson?	
Teacher	Artist There will be a geometric template given in gray scale for students to refer to and plan their sequence of colors Some of the geometric shapes will be pre-cut to maximize the time and for students that may be challenged All supplies will be pre-set and placed on desk or table where students will sit.

Review: What will you review? What is the academic vocabulary for the lesson?	
Teacher	Artist Geometric Geometry Triangle Square Polygon Sequence Balance Pattern Vertices Truncated Tones
Teach: What will you do to teach the content?	
Teacher	Artist Show visual aid samples, show examples, ask questions Demonstrate step by step with students

Support: What will you assign the students to complete and how will you support their learning?	
Teacher	Artist Students will be assigned to create a geometric vase from a gray scale copy and choose colors based on geometric sequence. Its very important for students to learn what balance and design layout means. They will also cut out flowers and place them to show they are in the bowl or standing in the bowl.  I have copies of student's/ peers geometric flower vase art pieces to show.  They will have the opportunity to select 3-4 colors of choice for their vase. I will demonstrate every step for students to work with me. Students can add as many colors as they like.

Date: _____	
Signature: _____	
Title: _____	
Approval: _____	
Date: _____	
Signature: _____	
Title: _____	
Approval: _____	
Date: _____	
Signature: _____	
Title: _____	
Approval: _____	

# REFERENCES

## Polygons

### History Of Triangles

[https://www.amsi.org.au/ESA\\_Senior\\_Years/SeniorTopic1/1c/1c\\_4history\\_2.html#:~: text=The%20triangle%20was%20known%20in,or%20simply%20the%20Khayyam%20triangle.](https://www.amsi.org.au/ESA_Senior_Years/SeniorTopic1/1c/1c_4history_2.html#:~:text=The%20triangle%20was%20known%20in,or%20simply%20the%20Khayyam%20triangle.)

**Septagon**- Irregular polygon used in the design of Philadelphia's Septa Transportation Logo

### BYJUS-Math Quiz Site

<https://byjus.com/maths/>

### Generation Genius

Generate Number Patterns (Sequences That Follow a Given Rule)

[https://www.generationgenius.com/?gclid=CjwKCAjwkeqkBhAnEiwA5U-uM2r9t7rrZ2jV2xuvTRyzAwiDOpCZH6xWjjEQxSqqJYf8ZfhNjE7JIBoCi2gQAvD\\_BwE](https://www.generationgenius.com/?gclid=CjwKCAjwkeqkBhAnEiwA5U-uM2r9t7rrZ2jV2xuvTRyzAwiDOpCZH6xWjjEQxSqqJYf8ZfhNjE7JIBoCi2gQAvD_BwE)