CSU Math Collaborative Sculpture

Brookstone was approached by the Columbus Museum to create a sculpture that was inspired by a piece in the museum's collection and would integrate math to be used by CSU's Math Collaborative. Here is our design Thinking Process in action!

Stage 1: Empathy and Define

1. Clarify: In this phase, the practitioner narrows down the focus of the design thinking process. They identify the problem that will be explored to ensure the best possible outcome.

We spoke with the museum and looked at various sculptures that we could use as inspiration. Students sketched various sculpture shapes considering promotion of math as a visual interest.

Our Theatre Tech students then built our design using skills and knowledge they had learned in class.

Columbus Museum Inspiration

https://www.youtube.com/watch?v=uUFXKH-pbSw

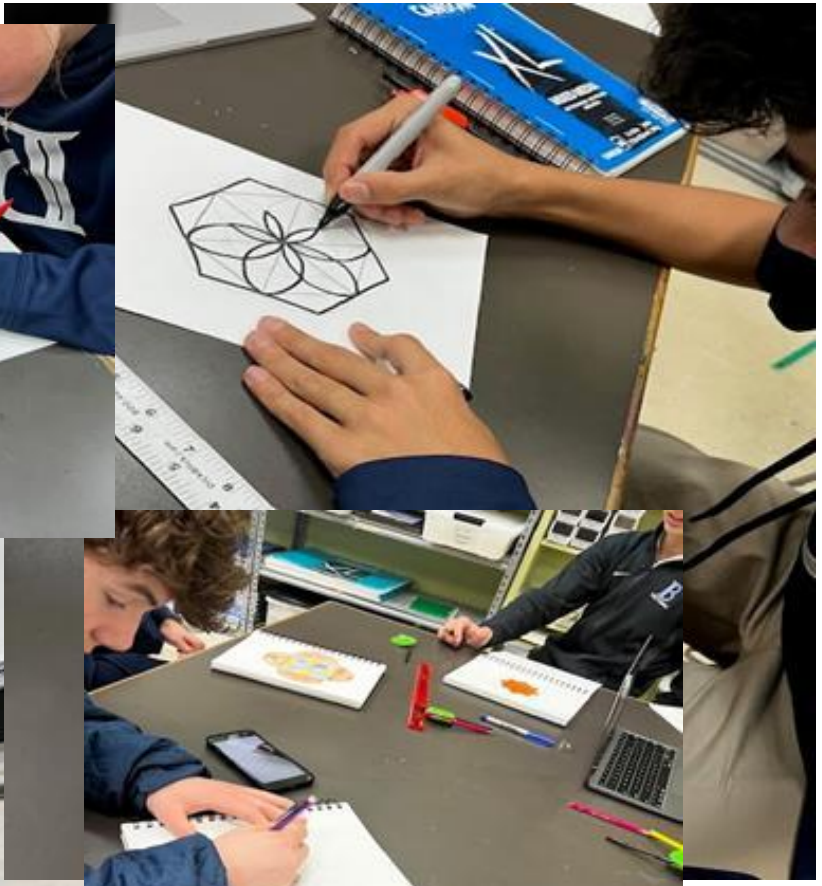
https://columbusmuseum.catalogaccess.com/objects/10922

"Slanted #3" by Ida Kohlmeyer

Stage 2: Ideate

1. Ideate: In this phase, the practitioner generates ideas for solutions. They should regularly challenge their assumptions to overcome biases and think of truly unique and innovative ideas.

We looked at artists for inspiration. Specifically, MC Escher and his use of tessellations and math in his art. We learned that he was inspired by the geometric designs he saw in Islamic tile work when traveling. Students learned to create optical illusions, tessellations and Islamic Geometric tile designs.




DESIGN
REFLECT


Artis Life

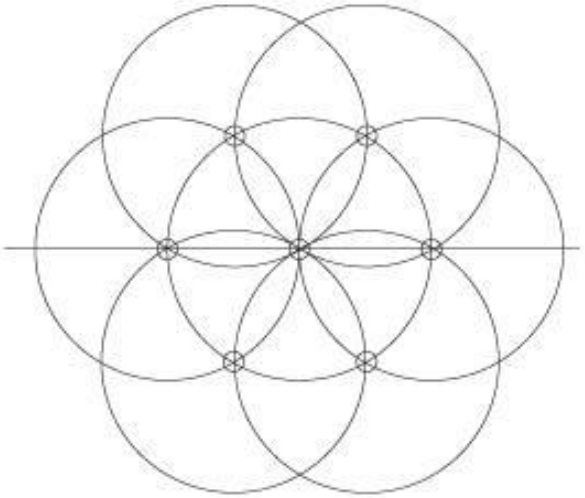
Ideate and Develop

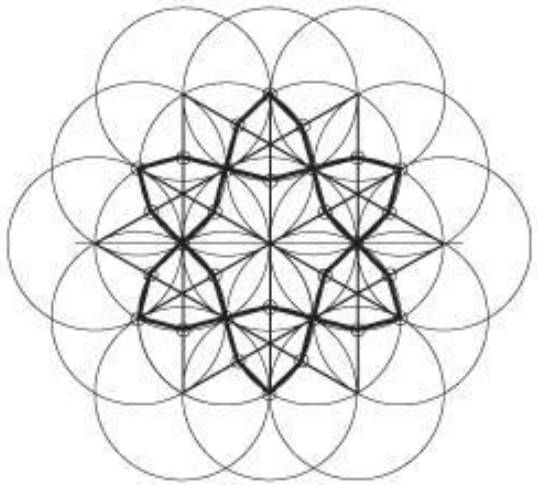
Develop: In this phase, the practitioner experiments with the solutions they conceived in the ideate phase. Prototypes should not be expensive or considered "final," but rather as tools to test and learn from.

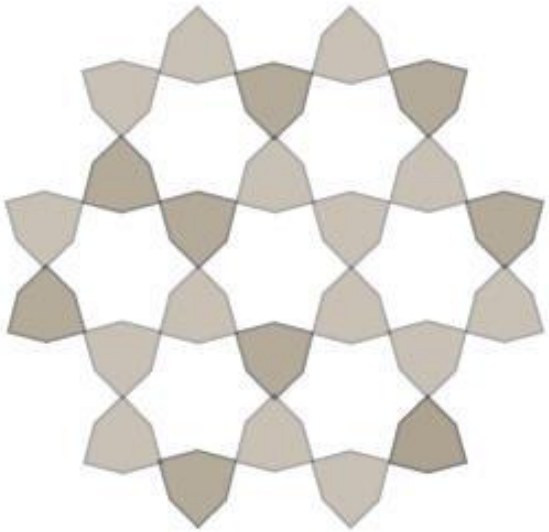
We then are choosing designs to be painted onto the sculpture. Our math classes will be adding string math art. It will take a grid of nails and string patterns creating parabolas. This will add yet another dimension and cross curricular connection.

Islamic Geometric Tile Patterns

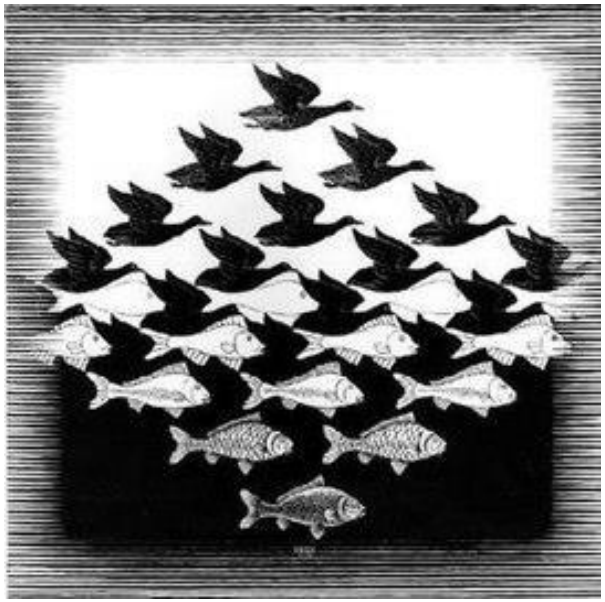
In Islamic art the geometric figure of the circle represents the primordial symbol of unity and the ultimate source of all diversity in creation. The natural division of the circle into regular divisions is the ritual starting point for many traditional Islamic patterns, as demonstrated in the drawings.

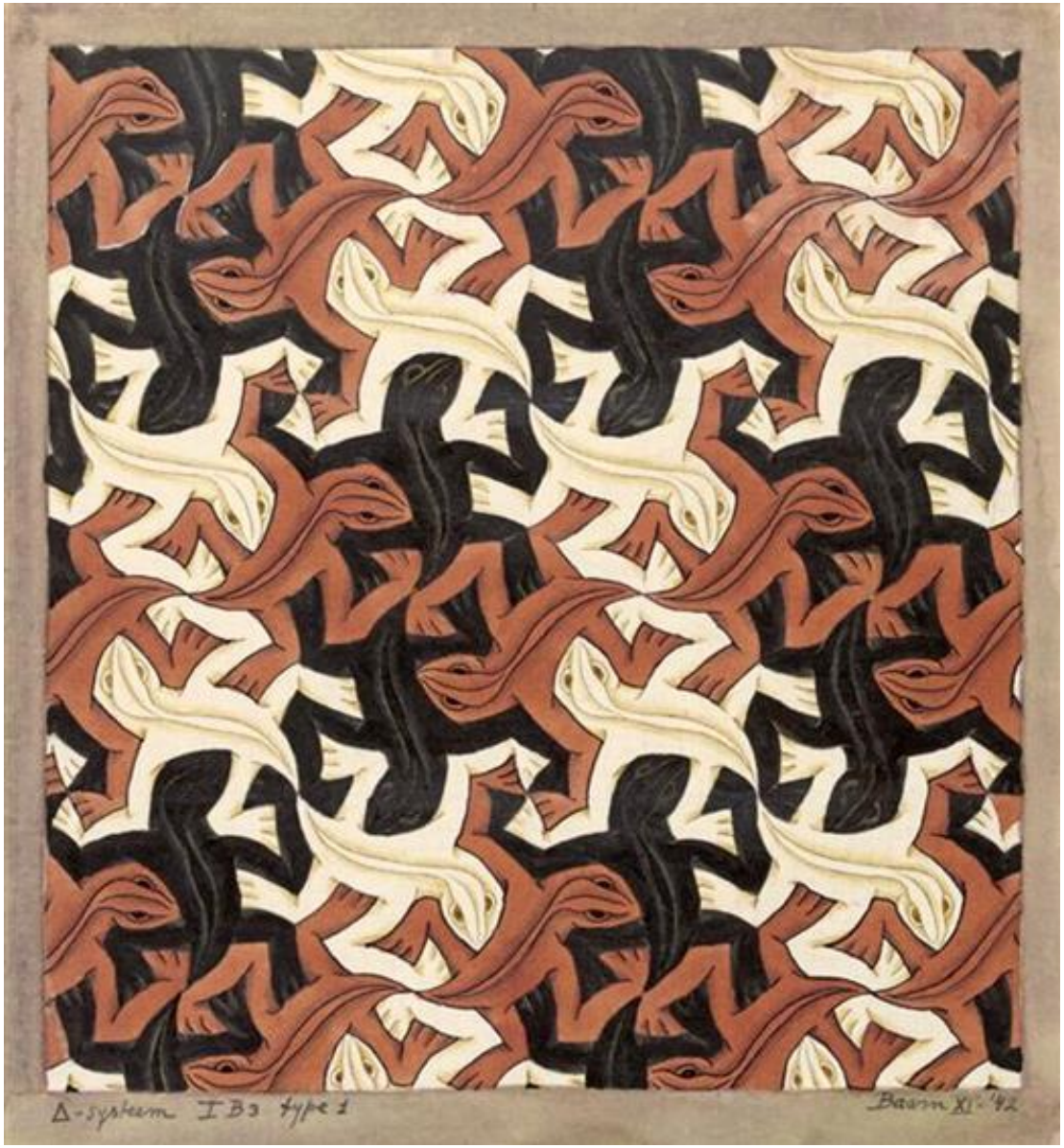






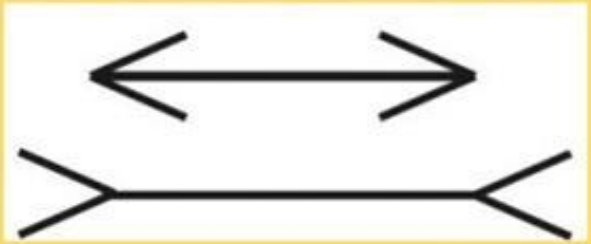
MC ESCHER





Müller-Lyer illusion

Take a close look at these two horizontal lines . Do you think one line is longer than the other?



Well both the lines are of the same length.
If I don't believe me , go ahead and measure it with a ruler.

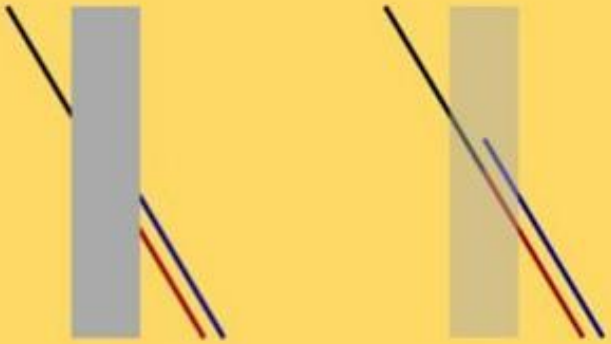
Kanizsa's Triangle

How many triangles are present in this picture ?

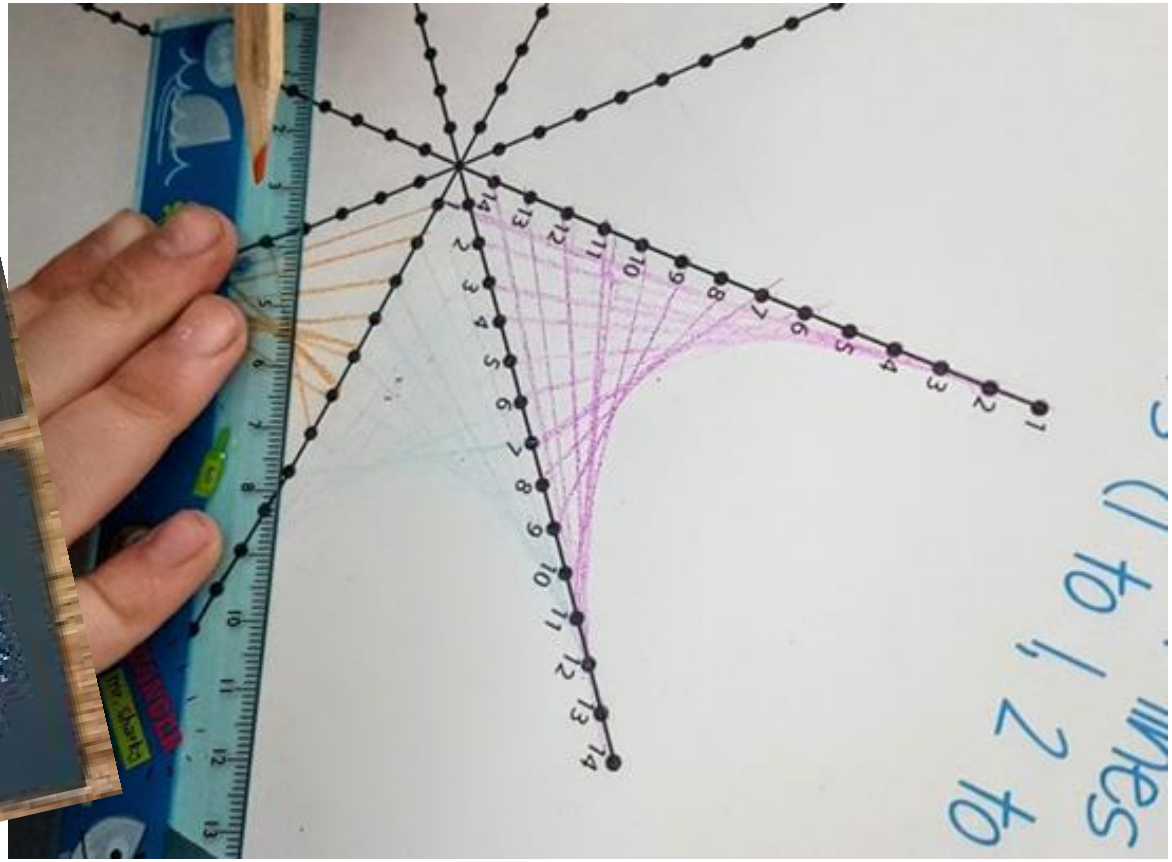
Zero is the correct answer. Because in reality there are 3 shapes of 'V' and 3 major sectors of a circle

Poggendorff illusion

Take a close look at the transverse coloured lines passing through a rectangle block. Which do you think is the continuation of the black line, the blue line or the red line ?



Math String Art



Rachel Voght, Art Education Director at Columbus Museum came to talk about the artist inspiration behind the sculpture

Create/ Prototype

Implement: Finally, the practitioner must test each prototype. The goal is to learn and collect as much data as possible and use it to further iterate on potential solutions.

This is where we are… stay tuned to see our progress!


UNITED STATES
POSTAL SERVICE


DESIGN

3D printed sphere

Alumni George Schley (designs furniture now) Kingfishe Woodworking. He is currently working on the conference room table for the Columbus Museum.


REFLECT
AP Studio
Art is Life
B
ST. MAARTEN

Final build

Led by Lane Brown

Students working on the sculpture:

Build: Ezra Hord, Hank Keirsey, Charlie Halter, Rhett Lane

Designs: Lane Brown, Cailyn Obert, LiLi Kalish, Maggie Yancey, Trish Calhoun, Audrey Bridges

3D : Lane Brown, Maggie Yancey, Melanie McElroy (3D printed sphere) and LiLi Kalish

Final build: alum George Schley came to brainstorm with students of how to best attach and stack pieces together. He then drilled and help us put the sculpture together.