
Art Masterpiece: *Cycle*, 1938 by M.C. Escher

Pronounced: Esh-er

Keywords: Tessellations, Mosaic

Grade: 6th Grade

Activity: Making a Tessellation



A variety of Escher art prints can be used for this lesson. Use whatever your school has available. A video will be shown during this lesson. See below in the discussion portion of this lesson for the link to the video.

Meet the Artist:

- M.C. Escher was born in 1898 in Holland. The “M.C.” stands for Maurits Cornelius.
- Escher didn’t do very well in school, but he continued on through the university level, eventually studying graphic arts.
- Escher was considered the foremost authority on graphic art. Graphic art is the art or the science of drawing, especially according to mathematical rules. His work was a sort of bridge between the scientific world and artistic imagination.
- Escher was Dutch but as a young man moved to Italy and traveled across Europe. While traveling, he met his wife, had three children and settled down outside of Rome. In 1935, he and his family moved to Switzerland. Unhappy in Switzerland, he returned to Belgium and finally to The Netherlands.

- He was especially taken with the floor tile in Spain. He became very interested in Mosaic, pattern and repetition and began to include it in his own art. Eventually he came to use a mathematical art technique called tessellations. Tessellations are mosaic patterns where the pieces fit together like a visual jigsaw puzzle. There is no background and foreground and the outline of one figure becomes the boundary of another. They are mostly seen in quilts, fabrics and wallpaper. Escher was one of the first to put a recognizable image into tessellations.
- He also liked to use the theme of metamorphosis or the complete change of an object, in his work. Birds transform to fish, fish to frogs and night turns into day.
- Escher was not a fan of modern art, and his art did not receive much attention until he was about 52 years old. Although the key to Escher's art is geometry: spheres, cubes and spirals he did not claim any ability to understand mathematics. His original fans were physicists and mathematicians.
- He died in his home in 1973 of cancer.

Start today's Discussion time with the following 4 minute video:

Play VIDEO: The video will demonstrate the relationship between math and art. It can be found on the CUSD Art Masterpiece website. This video will also introduce the project that follows discussion.

Questions to follow Video:

- Have you seen tessellations before? Where? (floor tiles, rugs, , quilts, wall paper, ceiling panels in ornate buildings)
- Have you heard of a mosaic pattern?
Define **Mosaic** as a picture or design made by fitting small pieces of colored stone, glass, paper or tile together. Mosaics are the patterns made by Tessellations.
- Have you talked about tessellations in your math class?
- Math and ART are both important in this world.

Activity: Making a Tessellation/ Mosaic

Materials Needed: Index cards cut into 3" x 3" squares (1 per student), white drawing paper (9 x 12), masking tape, pencils, crayons, black fine tipped markers, rulers, scissors, and stapler. Black paper for mounting/ display.

Optional: Construction paper cut into squares to mount tessellations for keeping. Or, you can staple tessellation directly to artwork.

BEFORE you teach: In advance of your lesson make a 3-step tessellation out of a 3" square. (see image below). Practice walking through these steps and how you will instruct the students to follow along with you. It can be a complicated project but with a bit of pre-thought you can do a great job!

IN the classroom use the document camera to demonstrate. (your class room teacher can assist with the camera)

Process: Explain to the students that they will transform a 3" square template into an unusual shape that they will tessellate onto a sheet of white construction paper to create their own original mosaic.

1. Hand out a 3" square to each student.
2. Have the students draw a simple design along the top edge cut out of the square. Then slide the cutout piece to the bottom edge of the square and tape it.
3. Next, have the students cut out a simple shape along one side edge of the square. Then slide it to the opposite edge and tape it.
4. Make sure they do not rotate the piece as they move it to the other side. They need to tape is directly across from the side it was cut.

**The more precise the students can be at lining up and taping these two sections the more successful their tessellation will be.

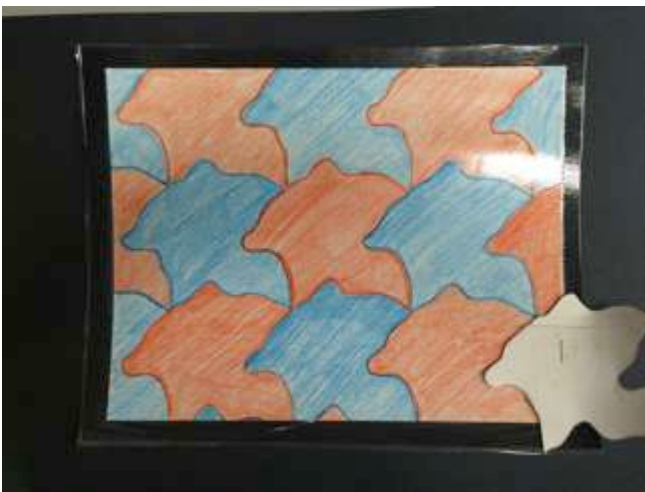
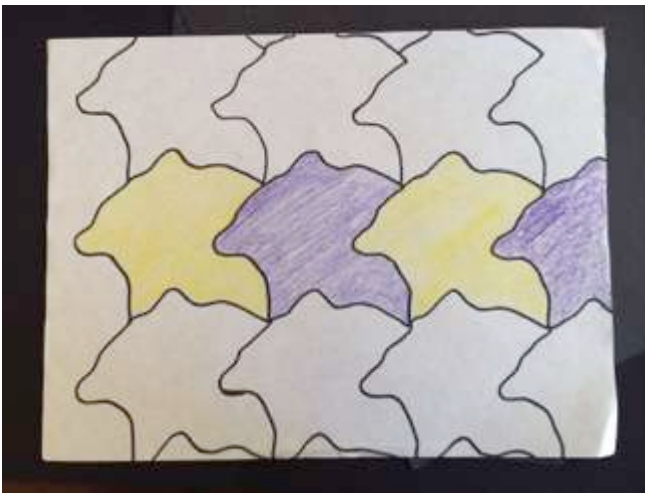


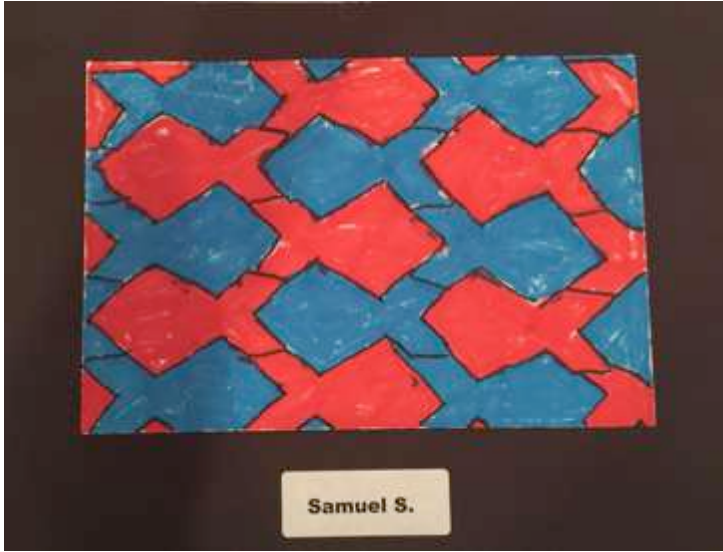
5. Begin with your paper oriented horizontally on the desk.
6. Place the template in the very center of the paper being careful to have it sit squarely. Demonstrate this under doc-camera. Trace the outline of the template with pencil.
7. Moving it across the page horizontally, repeat the tracing of the template so the end result looks like a puzzle. Do NOT rotate the puzzle piece. Slide and Trace! Repeat until the page is full.

8. Remind students there should be no gaps or spaces.
9. Like in math, accuracy matters. Stress neatness!
10. Color in the shapes alternating between two different colored crayons or the same color applied in a light and dark pattern.
11. Students may outline their shapes so they pop off the paper. Optional.
12. IMPORTANT: The tessellation square that the students created should be kept. You can staple it to the corner of the artwork or mount it separately onto a piece of construction paper. Somehow this needs to be kept with the artwork.

Optional: Mount your paper onto a larger piece of black construction paper.

GOOD WORK ART-GUIDES!!! This is a tough project but the 6th Grade teachers' love how this lesson fits so well with the Math curriculum. ☺





Student Sample. Please be sure to attach the student's tessellation to the artwork.

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Today in Art Masterpiece, students created their own tessellations.



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