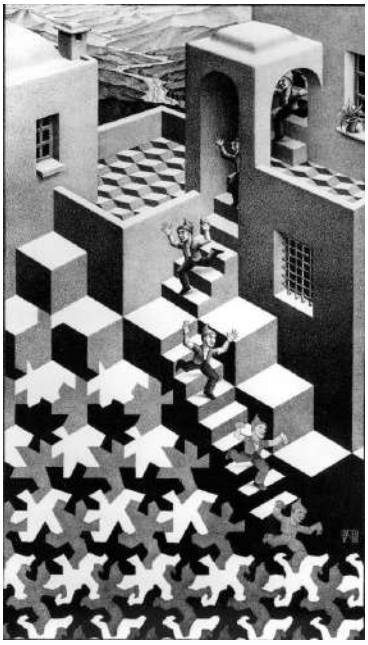
Masterpiece: *Cycle*, 1938 by M.C. Escher



Pronounced: ESH-ER
Keywords: Graphic Art, Tessellations, Metamorphosis
Grade: 6th Grade
Month: December/January
Activity: Tessellation Puzzle
TIME: 1.25 hours

Meet the Artist:

- Escher was born in 1898 in Holland.
  The MC stands for Maurits Cornelius.
- He did not do very well in school, but he continued through the college, eventually studying graphic arts.
- Escher was considered the foremost authority on graphic art. **Graphic art** is the art or the science of drawing 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; they had three children and settled just outside of Rome.
- In 1935, he and his family moved to Switzerland. Unhappy in Switzerland, he returned to Belgium and finally to The Netherlands.
- Influenced by the intricate floor tiles he saw in Italian and Spanish architecture, he became very interested in Mosaics. Mosaics are wall or floor art created by placing small tiles in patterns using repetition.
- Escher expanded his study of Mosaics into a mathematical art technique called 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.

Discussion:
What is Tessellations in art? 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. According to M. C. Escher, a tessellation is "a regular division of the plane".

Possible Questions:

- Have you seen tessellations before?
- Where? (floor tiles, rugs, mosaics, quilts, ceiling panels in ornate buildings)
- Where would you see them, any in the room?
- What kind of lines do you see?
- What kind of shapes do you see?
- What would you title the painting?
- Do you like it? Why or Why not?
- Do you see a story in it or is it just nonsense?

Activity: Tessellation Puzzle

Note to Bin Coordinator: Cut 3" squares for each student using the FOUZ card stock.

Explain activity – students will transform a 3"square into an unusual shaped template that they will tessellate onto a sheet of white construction paper, color and give their piece a title. Students may follow the directions for the "Nesting Hens" described at the end of lesson or come up with another simple shape.

Materials Needed:

1. 9"x 12" white construction paper
2. 3" squares FOUZ card stock (one for each student)
3. Pencils
4. Scissors
5. Masking tape
6. Colored pencils
7. Sharpies, Black, fine-tip

THE SECRET TO MAKING A TESSELLATION TEMPLATE….is having one side **directly** equal to the opposite side with no leftover paper. Whatever line squiggle, angle or bump configured on one side is cut out from that side and taped to the opposite side.

Process:

1. Show students the tessellation examples at end of lesson for ideas.
2. Give each student the following materials: 3" square of FOUZ, white construction paper, scissors, masking tape, pencils. Place on each workstation the following materials: colored pencils and black fine tipped markers

For students designing their own tessellation.

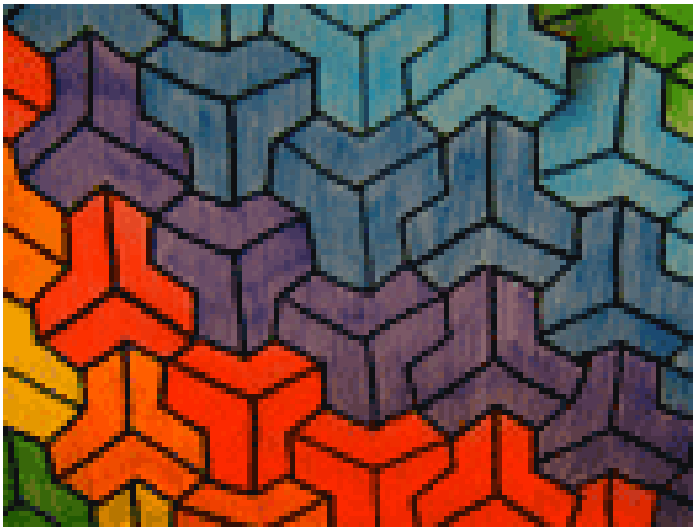
3. Using the 3" square.
   a. Lightly draw a line design on the RIGHT side. Use ONE continuous line—no holes cut in the middle. The line must be simple enough for the student to cut the piece out. Write "A" inside the design.
   b. Cut out and tape anywhere along the LEFT side with the "A" reading right and the STRAIGHT edges "kissing" and NOT overlapping, tape in place.
   c. Lightly draw another line design from the bottom up and write "B" inside the design.
   d. Cut out and tape along the opposite side with the number reading right and STRAIGHT edges "kissing". Note: if student is designing a fish, this piece will need to be flipped. You now have a template for tracing the tessellation.
4. Using the tracing template, align it with a right or left side of the drawing paper (Some students may want to stack their design from corner to corner) and trace the design in one stacking column with "kissing" edges.
5. Move the template to the right or left and interlock the fitting shapes to make a second column that interlocks with the first column. Continue tracing all columns until the paper is filled.
6. Color the shapes with the colored pencils or markers using black/white or light/dark or alternating complimentary colors. Add details such as eyes, scales, feathers, etc.
7. Outline the shape and details in black marker.
8. Sign the back with student name.

For students using the "Nesting Hen" tessellation.

3. Make a diagram on the board that follows the steps illustrated below.
   a. Number the corners as shown;
   b. Cut the bottom two corners off and move up to the top. With the edges "kissing" and NOT overlapping, tape in place. The numbers should stay right reading (i.e. don't flip the pieces).
   c. Have the students draw a triangle on the left (back) side, label "H" for head, and move to the right and tape in place to make a bird shape.
4. Continue process as defined in #4-9 above.

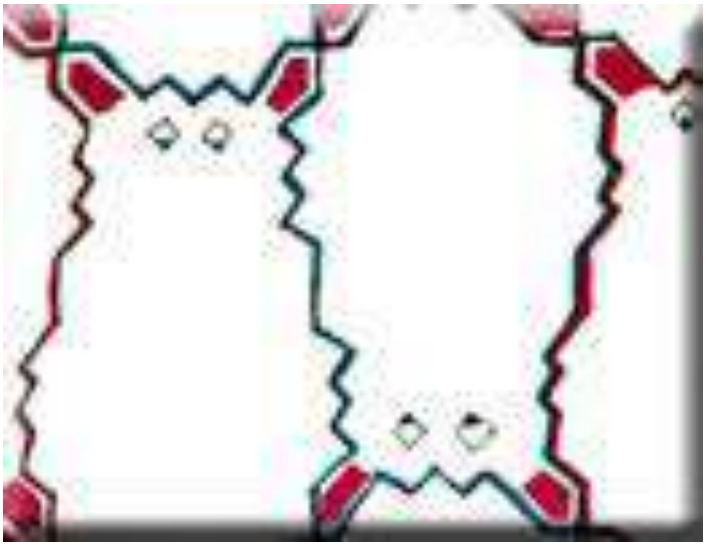
Tessellation Ideas

Gators and Crocs



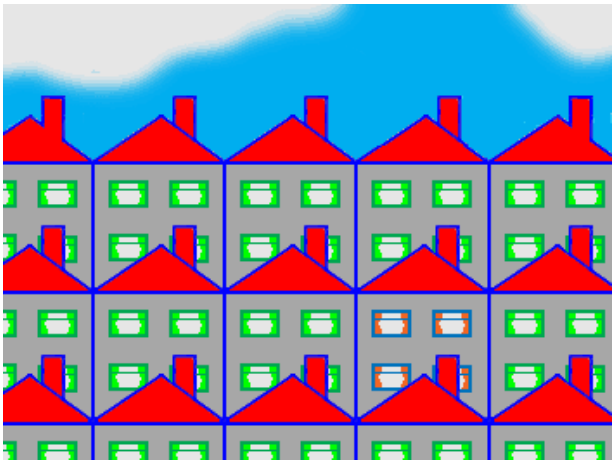
Geometric Rainbow

Geometric Spectrum



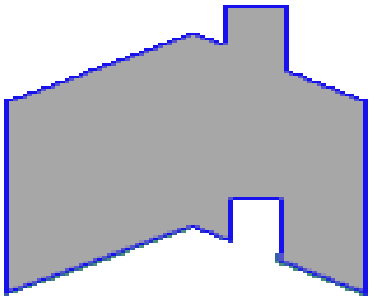
Funny Bunnies

Colored Dragons

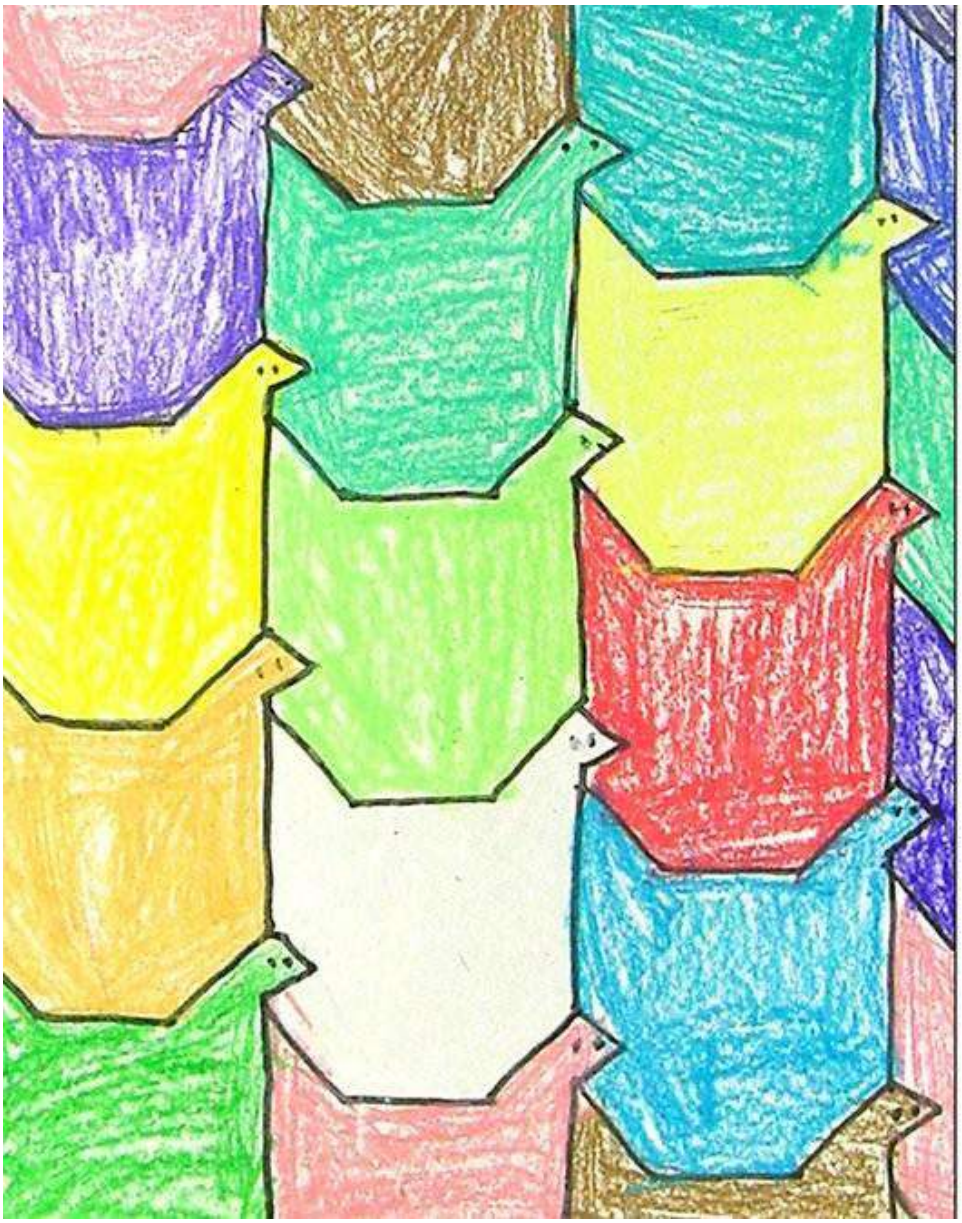


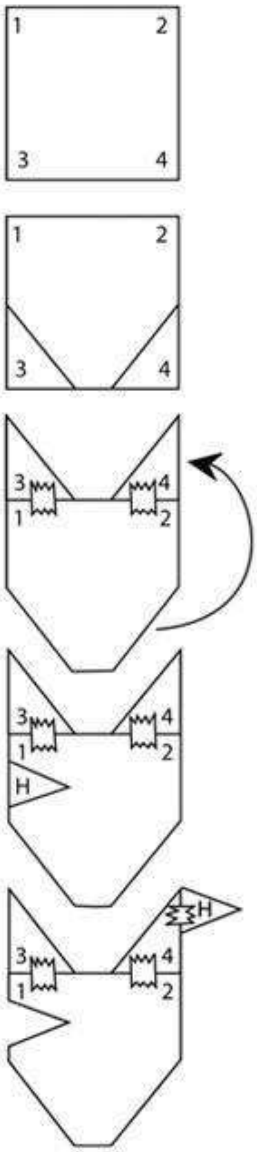
Template

City Block



Here's Nemo





Nesting Hens

Self Portrait of MC Escher and Other works