

Unit: Line & Pattern

Lesson: Tessellations

Grade: 6th Grade

STANDARDS COVERED:

A.8.2 Learn appropriate vocabulary related to their study of art

B.8.2 Recognize ways in which form, function, meaning, and expressive qualities of art and design change from culture to culture and artist to artist

C.8.2 Understand what makes quality design

INTRODUCTION

The connections between art and math are strong and frequent, yet few students are aware of them. This Art lesson is integrated with Geometry to engage even the most math resistant students and to enlighten everyone about M. C. Escher's work in tessellations.

OBJECTIVES

Students will be able to:

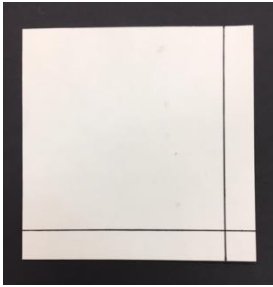
- follow precise, multi-step directions.
- learn about M. C. Escher, his art, or the contributions he made to mathematics.
- be able to understand and define the following terms: *tessellation, plane, vortex, adjacent and repeated pattern*
- create a concrete model of a tessellation (repeated pattern)

MATERIALS

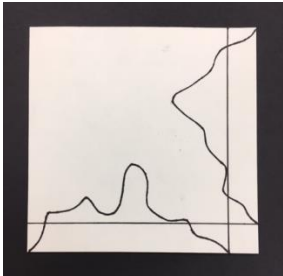
- Scissors
- tape
- 12" x 18" paper
- black fine-tip pen
- 4"x 4" paper
- Colored Markers

PROCEDURE:

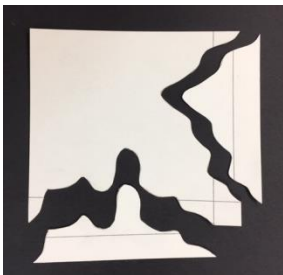
1. With the 4"x 4" square draw two lines that run perpendicular from each other. Draw the first one $\frac{1}{2}$ " from the right of the square and the second one $\frac{1}{2}$ " from the bottom.



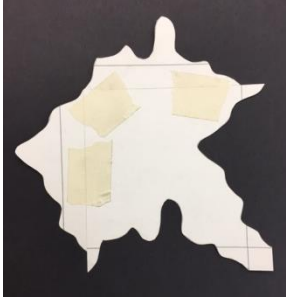
2. Begin at a vertex (corner) on the shape, and draw a line any way you want to as long as you exit from the adjacent vertex created by the line parallel with the bottom.



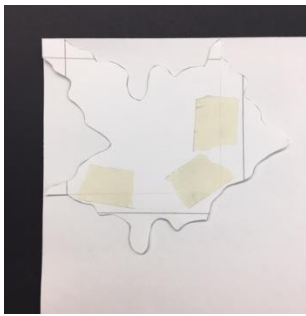
3. Cut out the organic shapes created by the lines drawn. Do not flip over or rotate the shapes.



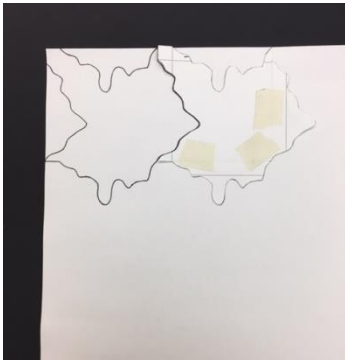
3. Move the piece to the OPPOSITE side of the original shape and tape it flush on the opposite edge. This is your tile.



5. Rotate your tile 180° so that the $\frac{1}{2}$ " square is flush with upper left corner of the piece of 12"x18" of paper and trace your tile.



6. Slide your tile to the right and fit the edge of the shape with the one that was traced and repeat tracing.



7. When all the tiles are traced in a repeated pattern, color the shapes so that the pattern is accented.



Vocabulary words:

Tessellation - a very specific kind of repeated pattern that does not have gaps or overlaps and can continue on a plane forever.

Plane - A flat surface that is infinitely large and with zero thickness

Vertex - A point where two or more straight lines meet, a corner

Repeated pattern – A design for decorating a surface composed of a number of elements (shapes) arranged in a regular or formal manner.