

Stained Glass and Math Activities

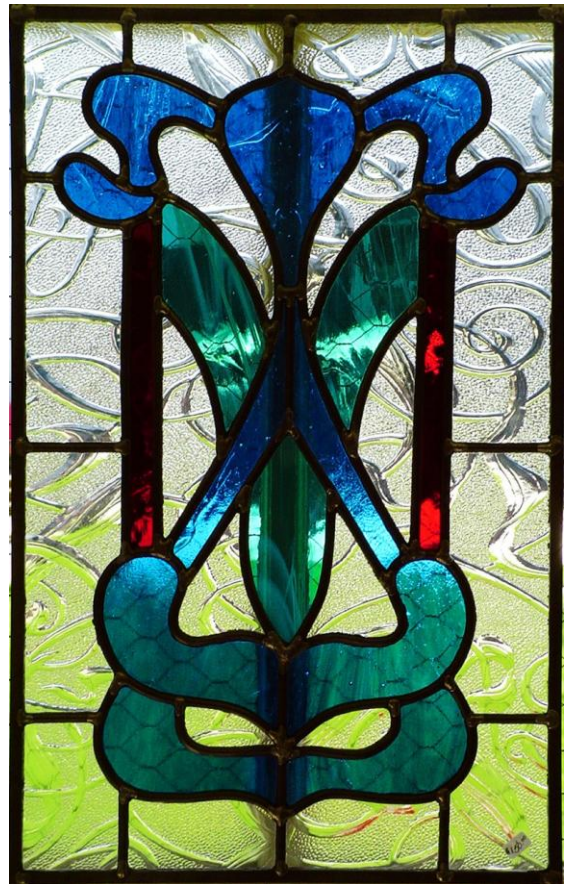
1. From the photo gallery, project “Anna’s Window.” Ask students to identify the line of symmetry and the congruent shapes that appear on each side of the line. Explain that both geometric and organic shapes can be used in creating symmetry. It is possible to construct a symmetrical design composed of geometric shapes by using graph paper, a ruler, a protractor, a square, or other measuring devices, but to create a symmetrical design of organic shapes, artists must create patterns to allow them to duplicate the shapes on each side of the line of symmetry.

Provide grade appropriate materials and ask students to create a symmetrical design with both geometric and organic shapes.

Math

From the photo gallery, print black and white copies of Baker’s Blue Window, one per student. Ask them to identify all the shapes that are congruent with one another and to color each set of congruent shapes a particular color. How many different congruent shapes can they identify and how many times does each congruent shape occur? Depending on grade level, ask them to identify slides, reflections, translations, and rotations. Are there any shapes that do not have a congruent match?

Provide grade appropriate materials and ask students to create a design using congruent shapes. For high school students, provide an additional challenge. They should first create their design within a 4” x 4” grid and



then enlarge it to 8" x 8".

Math

Project "Lamp, Top View #1" from the photo gallery. Lead students in analyzing the two dimensional shapes that were created and how they were joined to create the three-dimensional lamp shade. Model how to experiment creating and combining shapes cut from stiff paper (like oaktag).



Divide students into small groups and provide them with oaktag paper, rulers, scissors, and markers. Ask them to create a three-dimensional form that includes the same shapes that Gilliam used in "Table Lamp, Top View # 1."



For an additional challenge, ask them to create a three-dimensional form that includes the same shapes that Gilliam used in "Table Lamp, Top View # 2."