

# Embossed Rose Window Designs

(art + math; art + history)

Rose windows emerged in western Europe during the Renaissance as part of the Gothic style of elaborate architecture and design. Enormous cathedrals built during this period showcased stained glass that was intended to create a sense of awe and wonder in the viewer. These colorful windows wove images and symbols together with perfect geometry and intricate patterns, and the delicate appearance of the stained glass over shadowed the fact that they were fabricated from iron and stone.

Simplified, a classic rose window design is a circle with perfectly spaced lines radiating from a center point, or what we would probably refer to as a “pie.” The “slices” contain a pattern that simply rotates around the circle on each axis to form a whole design. Rose windows are an artistic way to illustrate the geometric terms “radius” and “symmetry.”

This classroom-friendly tooling project uses ArtEmboss — a soft and flexible metal that is easily manipulated without applying heavy pressure. It cuts easily with student-quality scissors and doesn't form dangerously sharp edges the way that regular tooling foil does. The matte-black surface coats both sides and it won't chip or flake off during embossing. The best feature of ArtEmboss is that it readily accepts drawing media, such as colored pencil, so that students can emboss and draw at the same time.

Grade Levels 5-12

Note: instructions and materials based on a class of 25 students. Adjust as needed.

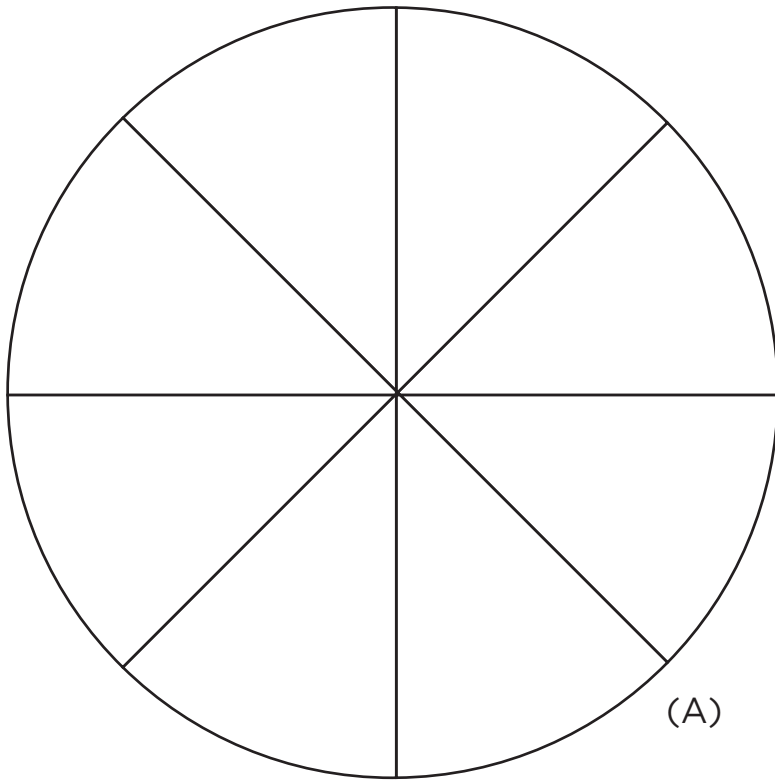
## Objectives

- Students will learn to employ a basic metalworking technique by embossing lines and textures into a soft metal
- Students will apply design elements and principles including line, form, pattern, color, balance, and unity
- Students will understand how geometry principles including diameter, radius, and symmetry work together to make an artistic design
- Students will explore the centuries-old art form of stained glass design and use historical examples as a reference tool for executing their own artwork

## Historical and Cultural Relativity

- Show examples of Gothic rose windows found in the Cathedrals of St.Denis, Notre Dame de Paris, Notre Dame de Reims, Chartres, Westminster Abbey, and Strausburg Cathedral
- If available in your area, take photos to share or visit buildings with rose windows
- View [Universal Stained Glass Slide Set](#) with 25 slides (71907-1509)





### Preparation

1. Have students use drawing paper to create an 8-section, 4" diameter "pie" to use as a template, or use the one shown in illustration (A) above. Use compass and protractor to create precise radius.
2. Students need to keep a magazine or 1/4" stack of newspapers beneath the metal as they work it. Embossing directly on a tabletop will not provide enough cushion to create dimension. ArtEmboss will tear if over-manipulated, so encourage students to draw firmly, but not to poke sharply through the material. You may wish to have small scraps of the material available so that students can test their pressure.

### Process

1. Students should use the "pie" for their preliminary drawings. In one slice, they will create a pattern of simple lines and shapes that will mirror itself. Consider how the pattern will connect by repeating the pattern in the next slice. Use multiple slices if needed. ArtEmboss cannot be reworked once it has been tooled, so careful planning before execution is important.
2. Once it is determined that the pattern will repeat seamlessly, cut the "pie" out and center it on the piece of ArtEmboss. Use the graphite pencil to trace just the "pie" circle and radial lines onto the metal. Use enough pressure to make a gentle embossing. A ruler will be helpful in making sure the radial lines are straight. Remove the pattern and cut out the slice that has the best pattern

### Materials

[ArtEmboss Matte Black](#), 9-1/4" x 12", pkg of 12 sheets (60518-2050). Cut 6 pieces per sheet, size 4" x 4-1/2" to make 72 pieces per package

[Prismacolor Colored Pencils](#), assorted colors (20508-), distribute throughout class

[Black Matboard with black core](#), 32" x 40" (13007-2467), cut into 4" diameter circles, 72 pieces per board

Magazines, newspapers, etc. to provide a soft working surface

[Blick White Sulphite Drawing Paper](#), (10209-1013) for preliminary drawings. Cut 9" x 12" sheets into six 4" x 4-1/2" pieces, one per student

[Fiskars® School Scissors](#) (57011-1005)

[School Pencil Compass](#) (55491-1055)

[4" Semicircular Protractor](#) (55671-1004)

[12" Wooden Ruler](#) (55425-1012)

[Blick Economy Graphite Pencils](#) (20302-2009)

[3M Quick Dry Tacky Adhesive](#) (23861-1004)

### Optional

[X-Acto® Magnetic Circle Cutter](#) (57153-1001), for easy and precise circles

## Process, continued

drawing on it. Place the slice over the metal and trace the pattern onto a slice on the metal. Continue for all slices to fill the circle. Higher grades may prefer to draw the pattern on the metal directly, without using a pattern.

3. Turn the design over to examine the embossing. If embossed lines are too light, use one of the Blick colored pencils to retrace them and deepen them. Since this is the back side, color choice is not important.
4. On the front side, select colors to fill in the “stained glass” between the lines. Use the areas of the foil outside the circle to test colors. Some colors have more opacity than others and will look brighter on the black metal. Other colors are more transparent and look gray.
5. Begin by tracing a line right against the embossed line, but not on top of it. This will push the metal down right against the embossed line and raise it higher. It will also protect the line from being accidentally colored over. Next, fill the areas between the lines with color, embossing the metal down even lower. Work small areas at a time. Blick colored pencils have a soft core that creates very little drag against the metal. Pencils may be sharpened to reach tight areas between the embossed lines.
6. When the rose window design is completed, mount the metal to the matboard using a permanent, craft-quality glue such as [3M Quick Dry Tacky Adhesive](#) (23861-1004).

## Options

If desired, duplicate the rose window design for the other side and hang as an ornament.

## National Standards

**Content Standard #1** — Understanding and applying media, techniques and processes

**5-8** Students intentionally take advantage of the qualities and characteristics of art media, techniques and processes to enhance communication of their experience and ideas

**9-12** Students apply media, techniques and processes with sufficient skill, confidence and sensitivity that their intentions are carried out in their artworks

**Content Standard #4** — Understanding the visual arts in relation to history and cultures

**5-8** Students know and compare the characteristics of artworks in various eras and cultures

**9-12** Students describe the origins of specific images and ideas and explain why they are of value in their artworks and in the work of others

**Content Standard #6** — Making connections between visual arts and other disciplines

**5-8** Students describe ways in which the principles and subject matter of other disciplines taught in the school are interrelated with the visual arts

**9-12 (advanced)** Students synthesize the creative and analytical principles and techniques of the visual arts and selected other arts disciplines, the humanities or the sciences