

# How to Lay Out a Cone Template

by Annie Pennington

You're working on a piece of jewelry, and you need to make a cone out of metal sheet. You know its height and top and bottom diameters, but how do you translate those dimensions into a usable template? Well, with a few simple measurements, you can make a pattern for a cone sized to your specifications.

**1.** Draw the profile of the segmented cone, or frustum, you want to make (see "What is a Frustum?" *right*). Label the corners ABCD, as shown (**Figure 1**).

**NOTE:** Lay out your cone directly on metal with a pair of dividers and a scribe, or use a compass to lay out your design on paper and transfer it to metal.

**2.** Extend lines AB and CD upward until they intersect. This is the center point. Mark it E.

**3.** Set the dividers to the distance between E and B. Place one leg of the dividers at E, and draw a long arc that intersects B and D and extends to the right.

**4.** Set the dividers to the distance between E and A. Place one leg of the dividers at E, and draw a long arc intersecting A and C and extending to the right (**Figure 2**).

**5.** Measure the distance between B and D. Multiply this by pi (3.14). Mark this length on a flexible ruler, string, or wire.

**6.** Curve the string or wire around the large arc, starting at D. Mark the arc at the mark on the string or wire. Mark this F (**Figure 3**).

**NOTE:** The string or wire is flexible and may not conform exactly to the outer arc. For more precision, measure the distance between B and D, and set your dividers to that measurement. Set one leg of your dividers at D, and mark the outer arc with the other leg. Repeat for a total of three times, using the prior mark as the starting point. Next, calculate 14% of the distance between B and D, set the dividers to this measurement, and make a fourth mark on the outer arc (this point will be F).

**7.** Connect F to E. Mark the point where this line intersects the small arc G. The shaded section, from line CD to GF, is the template for your frustum.

**NOTE:** You may want to add a little extra length to allow for the metal's thickness and for filing, to true up the ends.

## what is a frustum?

A frustum is a truncated cone or pyramid in which the top edge is cut parallel to its base. In jewelry making, a good example of this is a tapered collet for a faceted stone (such as a coronet setting), tapered bezels, bead cones, and other decorative and functional applications.

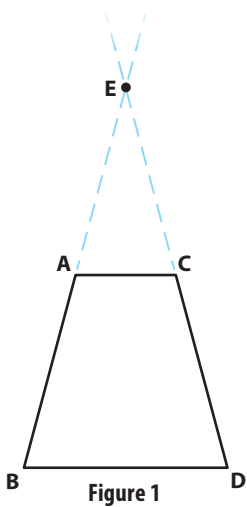


Figure 1

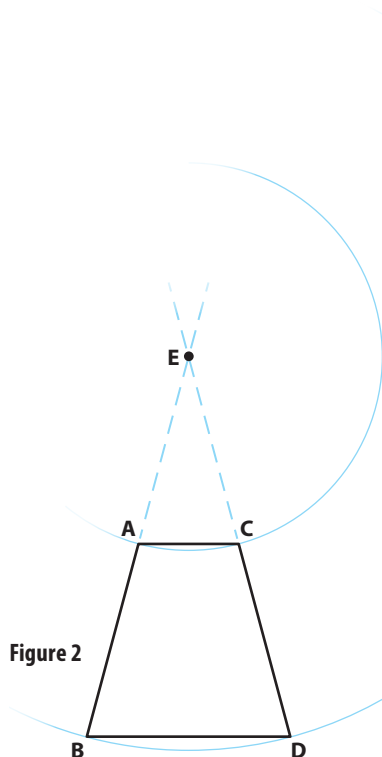


Figure 2

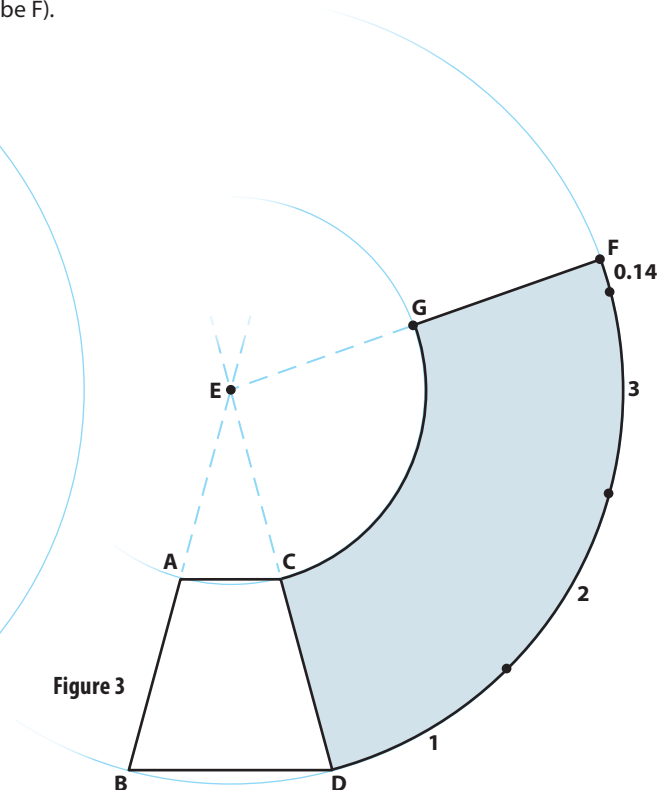


Figure 3