

Advanced Algebra
Conics – Parabolas Activity

Materials Required: Paper, Ruler, Pencil
Technology Required: Computer With Internet Access

This lesson *demonstrates* the definition of a **parabola**:

A **parabola** is the set of all points where each point is equidistant to a fixed point, the *focus*, and to a fixed line, the *directrix*.

1. Place a piece of blank paper with landscape orientation in front of you (wider than it is tall). Draw a point about 2 inches from the bottom (long) edge, centered left and right, and label it F. Point F is the **focus** of our parabola. The bottom edge of the paper is the **directrix**.

Measure the shortest distance from F to the bottom edge of the paper (the directrix). If you were going to plot a point equidistant from the line and F, where would it be? Halfway between the two? Make a dot halfway between the point and the line. Now, move away from point F and find and plot other points that are equidistant from the line and F.

** When you measure the distance from a point to a line you should be measuring the perpendicular distance, not along any other angle.*

Repeat until you have found at least 20 points - look at the curve that has formed. It should be a parabola, because each point you plotted is the same distance from the directrix as it is from the focus.

2. Go to the Advanced Algebra and Trigonometry web site. Choose the Conics Unit and then choose the Parabola Lesson. There is a link to a movie file that shows you how a parabola was generated using geometry software.
How does this activity compare to what you did on your paper? Does it meet the definition for a parabola? How does the creator of the movie make sure that each point is the same distance from the focus as it is from the directrix?