This demonstration is a new alterative to the small wooden conic section desnonstrator we have had for a long time; it may be more useful in larger classrooms.  Conic sections are relevant to the discussions of motion of a particle acted upon by an inverse square law force, such as Keplerian orbits under gravity in mechanics and astronomy or Rutherford scattering of charged particles in electricity and modern physics.

The small, bright light bulb inside the opaque cyclinder casts a cone of light upward; the cyclinder can be set at an angle to facilitate viewing the cone's intercept on a white board held across it at various angles.  If the board is held perpendicular to the axis of the cone, a bright area bounded by a circle is shown (the cyclinder will have to be tipped back in order for the students to see this). As the angle is decreased ellipses of various eccentricities will be seen, until the parabola is approached as the board becomes parallel to a generator of the cone.  Beyond the parabola, various hyperbolae will be viewed as the board approaches parallelism with the cone's axis (but not containing the cone).

Practice with this apparatus is suggested perhaps with the help of another viewer, in order to find the most effective ways to orient cyclinder and board.