

Conic Sections

If you are interested in more of the mathematical underpinnings of conic sections, or would like to see some more real-world examples of conic sections from nature, check out the following links for further reading.

Resources

University of Tennessee Knoxville, Department of Physics & Astronomy:

<http://csep10.phys.utk.edu/astr161/lect/history/newtonkepler.html>

A nice brief synopsis from an old course. Prefaces a summary of possible orbit shapes with a brief discussion of Kepler's and Newton's Laws.

Mathigon.org, an interactive eBook by Philipp Legner

http://world.mathigon.org/Conic_Sections

Works well on mobile devices too. Look for the section "Conic Sections" beginning about halfway down the page. Excellent visuals illustrating the four different shapes, as well as very cool animations of different ways to draw a perfect ellipse. Doesn't get into orbits.

Ohio State University, Department of Astronomy

<http://www.astronomy.ohio-state.edu/~pogge/Ast161/Unit4/orbits.html>

Very brief summary of the shapes under "Conic Section Curves", which are then differentiated by orbit speeds. Be sure to see "Orbit Families" under "Escape Speed".

Lansing Community College, Mathematics and Computer Science Department

<http://www.lansing.cc.mi.us/mathematics/math/handouts/math253/ConicSections/index.htm>

Goes into more detail about the math behind the different conic sections.

Camosun College, Department of Mathematics, by Jill Britton

<http://britton.disted.camosun.bc.ca/jbconics.htm>

Real-world examples of all the conic section shapes, beyond orbits.

Even more information and links here:

<http://britton.disted.camosun.bc.ca/jbfunpatt.htm>

Under "TOPIC 7 (The Conics)", about halfway down.