

## EarthComm Earth System Evolution: Astronomy and Your Community Activity 3

### This investigation will help you to:

- Eccentricity
- Axial Tilt (Obliquity)
- Precession
- Inclination
- To learn more about the gravitational "slingshot" effect, visit the following web sites:
- To learn more about the orbits of comets and asteroids, visit the following web sites:

#### Eccentricity

- Kepler's Laws, HyperPhysics  
Check out these diagrams and charts to help understand Kepler's Second Law.

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#### Axial Tilt (Obliquity)

- Ask a High Energy Astronomer, NASA  
How does the earth's tilt affect the changing of the seasons, and what different angles cause those different seasons?
- Milankovitch Cycles and Glaciation, Montana State University  
Learn about the connection between eccentricity, axial tilt, and precession in relation to past glaciations.

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#### Precession

- Precession, NASA  
This article describes the development and background behind the idea of precession.
- Precession, University of Oregon  
Did you know that the north star can change as the Earth wobbles on its axis?

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#### Inclination

- Solar System Exploration - The Planets  
A profile of various statistics for each planet

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To learn more about the gravitational "slingshot" effect, visit the following web sites:

- [Galileo Overview, Project Galileo](#)

Learn a little more about how Galileo used the gravitational fields of Earth and Venus to propel itself into space towards Jupiter. There is also a helpful diagram of its path over time.

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To learn more about the orbits of comets and asteroids, visit the following web sites:

- [Comet Orbits, National Air and Space Museum](#)

[How Are Orbits Determined? What Affects a Comet's Orbit? How Do We Know a Comet is in Its Predicted Orbit?](#)

- [Orbits, Near Earth Object Program - NASA](#)

Enter the name of any asteroid or comet, and a 3D orbit visualization tool will appear for that object. You can also select from the list of Potentially Hazardous Asteroids to see the asteroids orbit in relation the orbits of Earth and other planets in the solar system.

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