Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
2007 Volume III: The Physics, Astronomy and Mathematics of the Solar System

The Physics of the Planets: How 16th and 17th Century Physicists Helped Us Understand Our Solar System

Guide for Curriculum Unit 07.03.04
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This unit is designed for an eighth-grade Earth Science class. It can be adapted for grades five through seven as well. The concepts related to the movement of the planets are covered. Among topics discussed are: force, gravity, inertia, escape velocity, Newton's laws of motion and gravity, and Kepler's laws of planetary motion. In addition there are brief biographies and brief descriptions of the contributions to the field of astronomy of Tycho Brahe, Johannes Kepler and Isaac Newton. Also included in the unit is a brief overview of the ancient astronomical discoveries of China, Egypt and the Mayans. Drawing ellipses, measuring speed and creating a computer-based slide show with information on the objects in our solar system are some of the activities and lessons in this unit.

The following Connecticut State Education Standards for eighth-grade science are covered:

> 8.1 *Forces and Motion - What makes objects move the way they do?*
> 8.3 *Earth in the solar system - How does the position of Earth in the solar system affect conditions on our planet?*

(Developed for Earth Science, grade 8; recommended for Earth Science, Physical Science, and Astronomy, grades 5-8)