



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
1996 Volume VI: Selected Topics in Astronomy and Space Studies

Asteroids, Comets, and Meteorites: Their Intimate Relation with Life on Earth

Guide for Curriculum Unit 96.06.03
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The curriculum unit presents an interdisciplinary approach to the study of science, bringing together information from astronomy, earth science and ecology. The unit addresses the question, “how is and how has life on Earth been influenced by events occurring in our Solar System?” Unit objectives include: the integration of three disciplines in science to better understand the natural world; understanding the dynamic nature of the Solar System and its overall composition; considering current scientific thinking, such as possible widespread dissemination of life in the Solar System and asteroid extinction theory; using the resources of a university natural history museum; using current events and computer technology in science instruction; using popular and professional scientific literature in the study of science.

The narrative portion of the unit reviews our current understanding of the “small planets” of the Solar System, the asteroids and comets, including those that reach the surface of the Earth as meteorites. The composition of asteroids and comets and their orbits about the Sun are considered, as is the history of their collision with Earth. We now know that there are trillions of these small bodies in several regions of the outer and inner Solar System and that gravitational interactions and collisions among the planets and asteroids and comets are frequent and on-going events. Topics explored in the unit include: the early Solar System and the Solar System of today; the asteroid belt; the Oort cloud and the Kuiper belt of comets; meteorites and meteor craters; mass extinction events (such as the Late Cretaceous extinctions) due to asteroid or comet impacts; possible life on Mars, and the theory of panspermia. Sample lesson plans include a slide set on Yale Peabody Museum of Natural History meteorite and dinosaur collections, NASA space photographs, a Peabody Museum worksheet, the use of current events in science teaching, and astronomy on the Internet.

(Recommended for Science, Biology, Earth Science, grades 9-12, adaptable to K-8)

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