

The Meteorite - Asteroid Connection--Bridging the gap between geology and astronomy in the secondary grades.

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The Meteorite-Asteroid Connection is a five-lesson set of hands-on classroom activities for grades 6-13, which makes the link between meteorites and their parent asteroids. In doing this, it illustrates some of the scientific methods of both geology and astronomy and makes the connection between the two sciences. The focus of these lessons is on scientific investigative processes and not specifically on content information. The activities were developed as a collaborative effort among scientists, teachers and college students to meet the needs of secondary school and introductory college classrooms.

The Meteorite - Asteroid Connection consists of five lessons:

1. Orbits in the Inner Solar System
2. Looking at Asteroids
3. Meteorite Sleuths--Observing Meteorites
4. Connecting Meteorites and Asteroids
5. Asteroid Resources: the stepping stone to go beyond!

The "Orbits" lesson shows spatial relationships among the inner planets and asteroids. It also illustrates circular and elliptical orbits and shows how meteorites may come from asteroids. The focus of "Looking at Asteroids" is on reflectance spectroscopy techniques that help students understand how astronomers can distinguish different types of asteroids using remote sensing. In "Meteorite Sleuths", students examine samples and meteorites using techniques that help them experience aspects of scientific research. The "Connecting Meteorites and Asteroids" lesson includes experiments that show how scientists attempt to link certain types of meteorites with certain types of asteroids based on the combination of mineralogy and spectroscopy. The concluding lesson, "Asteroid Resources" focuses on mining asteroids and allows students to plan a future expedition to an asteroid to collect precious resources--like gold, platinum, oxygen, water and carbon. The final activity of this lesson involves making, mapping, mining and eating an "edible asteroid". Several of these lessons are derived from the NASA EG104 Exploring Meteorite Mysteries.

These lessons have been tested in middle school, high school, and college astronomy classes. They have been presented to girl and adult Girl Scouts as part of an Exploring Science Workshop. Some of the lessons are being incorporated in the Houston Natural Science Museum's summer classes.

The Meteorite- Asteroid Connection is a small package of hands-on lessons available to teachers or scientists to provide enrichment for students of astronomy of geology.

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