

8.2: Space Vagabonds

Space Vagabonds

Many of us have looked up at night and seen what is commonly called a falling or shooting star. These usually-fast flashes are particles entering the Earth's atmosphere at tremendous speeds. We see the particle ionize as it travels through the atmosphere, leaving the streak of light. During a meteor shower — such as the Perseids in August and the Leonids in November — Earth passes through dust left behind as comets orbit the Sun. These meteor showers can produce around a hundred falling stars an hour, if conditions are just right.

Occasionally, these space vagabonds make it to the surface of Earth (or other Solar System body). They are now called meteorites. As a review of terms:

Comets are best described as snowy dirtballs. They are composed of ices, silicated materials, carbon, and other compounds such as ammonium hydroxide. When a comet approaches the Sun, it can form a tail of gas, dust, or both.



Comet Hale-Bopp [“Comet Hale-Bopp”, [Florida State College at Jacksonville](#) is licensed under [CC BY 4.0](#)]

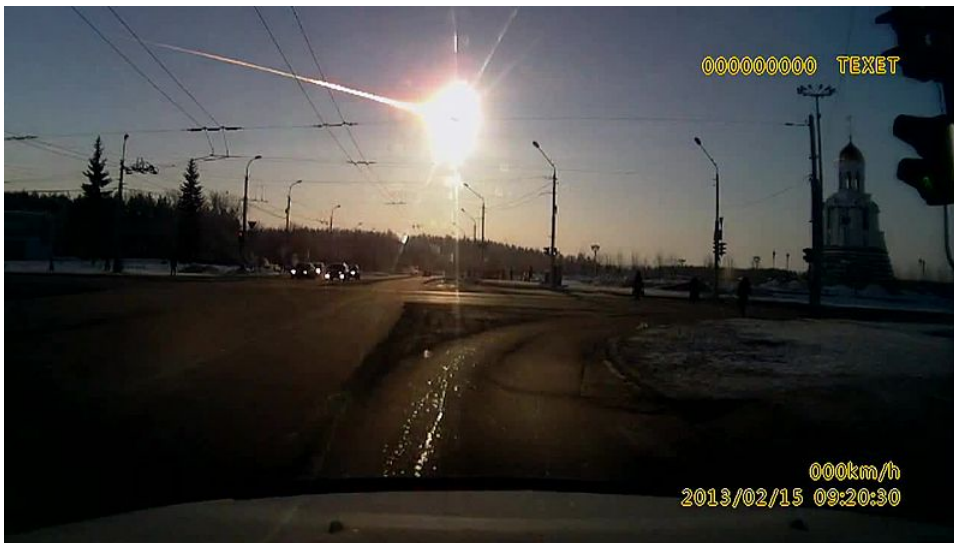
Asteroids are a group of the Solar System's minor bodies that are much like the Rocky Planets in composition: carbon-rich, silicate materials (rock) and/or metal (primarily iron and nickel).



The surface of Asteroid Vesta was taken by NASA's Dawn spacecraft [” Surface of Asteroid Vesta ” by NASA/JPL-Caltech/UCLA/MPS/DLR/IDA is in the [Public Domain](#)]

Meteoroids are also materials orbiting in space, and are smaller than asteroids.

Meteors are the streaks we see in the sky, commonly called shooting or *falling stars* ; also, can be **fireballs** and/or **bolides**. The root word meteor is derived from the Greek word *meteōros* , which means *high in the air* . Most **meteor showers** are comet dust particles left behind as a comet orbits the Sun. Earth runs into this trail of dust as we orbit the Sun.



A very bright Leonid meteor [left]; and the brilliant and totally unexpected Chelyabinsk fireball, February 15, 2013 [right]. [” Leonid Meteor ” by Navicore , licensed under [CC BY 3.0](#) ; ” Взрыв метеорита над Челябинском ” by Daniel Mitchen, licensed under [CC BY 3.0](#)]



Chelyabinsk meteorites. Note the fusion crust on the exteriors of the meteorites. [” Cheljabinsk meteorite fragment” by Didier Descouens , licensed under [CC BY-SA 4.0](#)]

Meteorites are materials that makes it to the surface of a planet, satellite, etc. There are three major groups or classes of meteorites, based on their make-up.

This page titled [8.2: Space Vagabonds](#) is shared under a [CC BY 4.0](#) license and was authored, remixed, and/or curated by [Lumen Learning](#).