

# Meteoroids / Meteorites

Meteoroids are tiny bodies that orbit the sun on their own orbits.

They are between one millimetre and several metres in size.

The luminous phenomenon that occurs when they enter the Earth's atmosphere is called a meteor.

Meteoroids that reach the Earth's surface are called meteorites.

There are also meteoroids from the Moon and Mars that have been catapulted out by impacts from larger bodies.

Small meteoroids can burn up completely in the Earth's atmosphere (shooting stars).

Sponsored by: Fam. Thieme-Symonowicz, Müllrose

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Picture: The 60-tonne, 2.7 m-long (8.9 ft) long Hoba meteorite in Namibia is the largest known intact meteorite

Author: No machine-readable author provided. Calips assumed (based on copyright claims).  
[https://en.wikipedia.org/wiki/Meteorite#/media/File:Namibie\\_Hoba\\_Meteorite\\_05.JPG](https://en.wikipedia.org/wiki/Meteorite#/media/File:Namibie_Hoba_Meteorite_05.JPG)

Besides the large objects, there are a large number of small to very small objects orbiting the sun or planets. The size of these objects is in the order of magnitude of some centimetres and up to some tens of meters. With this size, these smallest objects, the so-called meteoroids, lie between the asteroids and the particles of the interplanetary dust (interplanetary medium). The meteoroids can change their orbit data by gravitational disturbances of the planets. Meteoroids are called the originating body while it is still in interplanetary space. When it enters the Earth's atmosphere, it produces a luminous phenomenon called a meteor. The meteoroid burns up either as a shooting star or, in the case of the larger objects, as a fireball visible from afar in the Earth's atmosphere. In the case of larger meteorites, chunks of rock can also reach the earth without burning up completely, this object be named meteorite. In doing so, meteors can cause considerable damage when they hit the earth. The damage is not caused by the direct impact of the rock, but by the sound wave, which is triggered by the fireball and can reach values similar to those of larger explosions. Mostly, however, such events go off smoothly. The encountered stones of the meteorites are then often tracked down and examined by so-called meteorite hunters. There are also meteorites, which come from the moon or Mars. These are ejected pieces caused by impacts of asteroids. Apollo 14 brought back a piece of rock from the moon that came from Earth.

Meteoroids originating from the solar system have a maximum heliocentric (relative to the Sun) velocity of about 42 km/s (third cosmic velocity) near the Earth's orbit. Since the orbital velocity of the Earth is about 30 km/s, relative velocities of maximum 72 km/s or 260,000 km/h are possible.



Picture: Murnpeowie meteorite, an iron meteorite with regmaglypts resembling thumbprints

Author: Flickr: Murnpeowie Meteorite  
[https://en.wikipedia.org/wiki/Meteorite#/media/File:Murnpeowie\\_meteorite.jpg](https://en.wikipedia.org/wiki/Meteorite#/media/File:Murnpeowie_meteorite.jpg)



Picture: A cut and polished slice of the Esquel meteorite, a stony-iron

pallasite. Yellow-green olivine crystals are encased in the iron-nickel matrix.

Auhtor: User:Captmondo

<https://en.wikipedia.org/wiki/Meteorite#/media/File:Pallasite-Esquel-RoyalOntarioMuseum-Jan18-09.jpg>

The meteorites are divided into two classes according to their internal structure:

- Undifferentiated meteorites (chondrites) are remnants from the prehistory of the formation of the solar system. They belong to the stone meteorites and are the most frequent meteorites.
- Differentiated meteorites are fragments from asteroids and partly also from Mars and from the earth moon. They can be divided into three subclasses: Stony meteorites (Achondrites), Iron meteorites and Stony-iron meteorites.

Link: <https://en.wikipedia.org/wiki/Meteorite>

Link: [https://en.wikipedia.org/wiki/List\\_of\\_largest\\_meteorites\\_on\\_Earth](https://en.wikipedia.org/wiki/List_of_largest_meteorites_on_Earth)

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