

First document Title

Krish¹

February 2022

¹funded by the XXX team

An asteroid is a minor planet of the inner Solar System. Historically, these terms have been applied to any astronomical object orbiting the Sun that did not resolve into a disc in a telescope and was not observed to have characteristics of an active comet such as a tail. As minor planets in the outer Solar System were discovered that were found to have volatile-rich surfaces similar to comets, these came to be distinguished from the objects found in the main asteroid belt.[1] Thus the term "asteroid" now generally refers to the minor planets of the inner Solar System, including those co-orbital with Jupiter. Larger asteroids are often called planetoids.

Millions of asteroids exist: many are shattered remnants of planetesimals, bodies within the young Sun's solar nebula that never grew large enough to become planets.[2] The vast majority of known asteroids orbit within the main asteroid belt located between the orbits of Mars and Jupiter, or are co-orbital with Jupiter (the Jupiter trojans). However, other orbital families exist with significant populations, including the near-Earth objects. Individual asteroids are classified by their characteristic spectra, with the majority falling into three main groups: C-type, M-type, and S-type. These were named after and are generally identified with carbon-rich, metallic, and silicate (stony) compositions, respectively. The sizes of asteroids varies greatly; the largest, Ceres, is almost 1,000 km (600 mi) across and massive enough to qualify as a dwarf planet.