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STAR GROUPS

Star Groups: FAQ About Star Clusters

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What's a star cluster?

A star cluster is a group of stars, which not only appear close together in the night sky but are relatively close together in actual space. Typically, one needs a telescope to see the most distant star clusters; however, there are a few star clusters visible to the unaided eye or with a binocular.



Charles Messier



Johann Elert Bode

More recently, astronomers with telescopes have identified numerous star clusters and have given them scientific designations to distinguish them from other features in the night sky. Charles Messier, one of the first astronomers with a telescope to observe star clusters, catalogued a number of them and other night-sky favorites from his observatory near Paris, France, during the 1760s.



John Emil Louis Dreyer

Since that time, other catalogues, assembled by noted astronomers Johann Elert Bode and John Emil Louis Dreyer, contain the identity and positions of many star distant clusters.

Who discovered star clusters?

Star clusters have been known since antiquity. One of the more famous clusters is the Pleiades, a group of stars known as the Seven Sisters (the daughters of the mythic Atlas). Though a total of six stars are readily visible to the unaided eye, a binocular or small telescope will reveal many more individual stars as part of the cluster. Another cluster, nearby as it appears in the sky, is a V-shaped cluster of stars known as the Hyades. Together, the Hyades and Pleiades make up the face and shoulder of Taurus the Bull, a constellation readily seen in clear autumn skies.

Are there different types of star clusters?

Astronomers classify star clusters in two ways: open and globular. Open clusters are seen as irregular and unsymmetrical, generally as a loose, unbounded sprinkling of stars as seen in the field of view in a telescope; globular clusters are fairly symmetrical and tight as a great abundance of stars packed closely together as seen in the field of view in a telescope. In reality, both types of clusters are many light-years across and are bound, to varying degrees, by the gravity from the number of stars found in the cluster.



Open clusters appear as brighter, starry patches in the Milky Way.

Image by Naoyuki Kurita

Where are star clusters located in the night sky?

Star clusters are fairly readily seen with a binocular or small telescope in very nearly any season of the year. In actual outer space, though, open clusters are found toward and within the Milky Way, which represents the edge of our home galaxy as seen from Earth.

Globular clusters are seen most often toward the center of the Milky Way Galaxy, an area of the sky which can best be seen on clear nights in Summer months, near the southern horizon (in the Cleveland area) in the constellation of Sagittarius.

Why do stars appear in clusters?

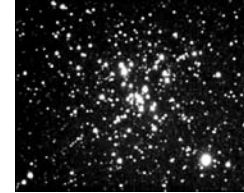


Clusters, such as the Pleiades, move together in space.

Image by Royal Edinburgh Observatory / Anglo-American Observatory

Stars appear in clusters since it is believed that at one time the numerous stars comprising the cluster formed at the same time. Out of a large, primeval cloud of gas and dust, stars can form in large numbers, according to astronomers, and then can be held in relatively close proximity to one another for many millions of years.

Over time, however, the stars in the cluster are likely to drift apart if the combined gravity of the stars in the cluster is somehow disrupted or if the total mass of the stars is insufficient to generate enough gravity to hold the stars together. Astronomers maintain that our own Sun started as one of many stars in an ancient cluster that has long since disbanded.



Open Cluster

Image by David Haworth



Globular Cluster

Robert Lupton and the Sloan Digital Sky Survey Consortium



Globular clusters appear as bright, tight patches toward the center of the Milky Way.

Image by Anglo-American Observatory