

What are Star Clusters?

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About Star Clusters:

- A Star cluster is either of two general types of **stellar assemblages held together by the mutual gravitational attraction** of its members, which are physically related through **common origin**.
- They are particularly useful to astronomers as they **provide a way to study** and model **stellar evolution and ages**.
- The **two basic categories** of stellar clusters are **open clusters**, also known as galactic clusters, and **globular clusters**.
- **Open (Galactic) Clusters:**
 - Open clusters are so named due to the fact that the **individual component stars are easily resolved through a telescope**.

- They are sometimes **called galactic clusters** due to their **location on the dusty spiral arms on the plane of spiral galaxies**.
 - **Stars** in an open cluster have a **common origin**: they formed from the same initial giant molecular cloud.
 - Open clusters contain from a **dozen to many hundreds of stars**, usually in an **unsymmetrical arrangement**.
 - **Globular Clusters:**
 - Globular clusters contain several **thousand to one million stars** in a **spherical, gravitationally-bound system**.
 - **Located mostly in the halo surrounding the galactic plane**, they comprise the oldest stars in the galaxy.
 - There is **little free dust or gas** found in globular clusters, so **no new star formation** is taking place in them.
 - **Stellar densities within the inner regions** of a globular cluster are **very high** compared with regions such as those around the Sun.
 - **In addition, groups called associations**, made up of a few dozen to hundreds of stars of **similar type and common origin** whose **density in space** is **less than that of the surrounding field**, are also recognized.
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Q1: What is a Spiral Galaxy?

Spiral galaxies are twisted collections of stars and gas that often have beautiful shapes and are made up of hot, young stars. Most of the galaxies that scientists have discovered so far are spiral galaxies, as opposed to the other two main categories of galaxy shapes—elliptical and irregular. Approximately 60% of all galaxies are thought to be spiral galaxies. The Milky Way, the galaxy that includes Earth and our solar system, is an example of a spiral galaxy.

Source: Massive 5 star clusters discovered from the era when Universe was infant

Source: <https://vajiramandravi.com/current-affairs/star-clusters/>

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