10.2 Galaxies

- Galaxies are collections of **stars, gas,** and **dust** held together by gravity.
- Scientists believe there are about **125 billion** of these structures in our universe.

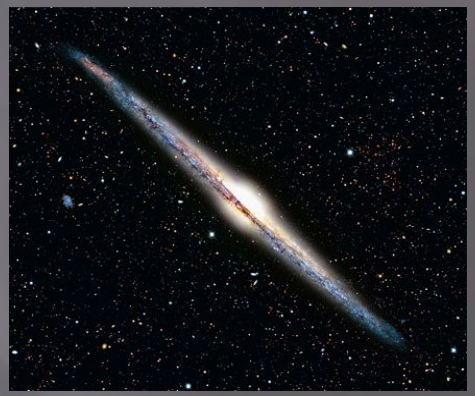
Galaxies

- There are 3 basic shapes of galaxies: a) **spiral,** b) **elliptical,** c) **irregular**.
- The **Milky Way** where our sun is located is a spiral galaxy.

Galaxy Shapes

Spiral

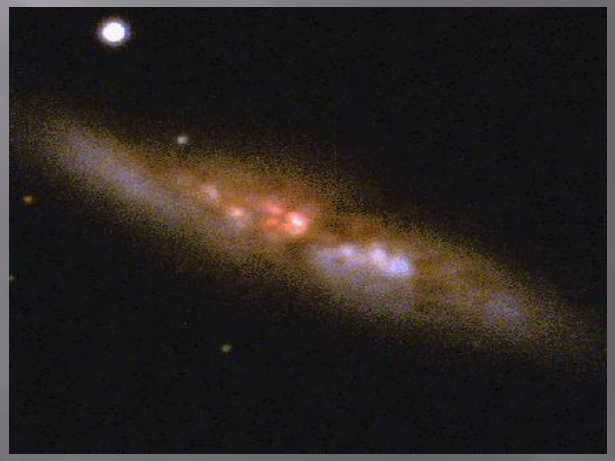
- These appear like **pinwheels** with many long arms spiralling out from the center.
- The center bulge is made up of **stars** formed long ago, while the circling disc is made up of **gasses and dust.** This area is called the **"halo."**



Galaxy Shapes

Eliptical

- These galaxies contain some of the **oldest stars** in the universe. They range in shape from a football field to a cigar.
- Over **half** of the galaxies are elliptical and many are also the **largest.**



Galaxy Shapes

Irregular

- These are made up of a mixture of **new** and **old stars**. They **do not** have distinguishing shapes like the elliptical or spiral galaxies.

Other Differences Between Galaxies

Galaxies can also differ in **size, mass, colour, brightness,** and **speed** they spin.

These differences are determined by;

- ✔ *number of stars*
- ✔ *amount and type of gas*
- ✔ *dust*

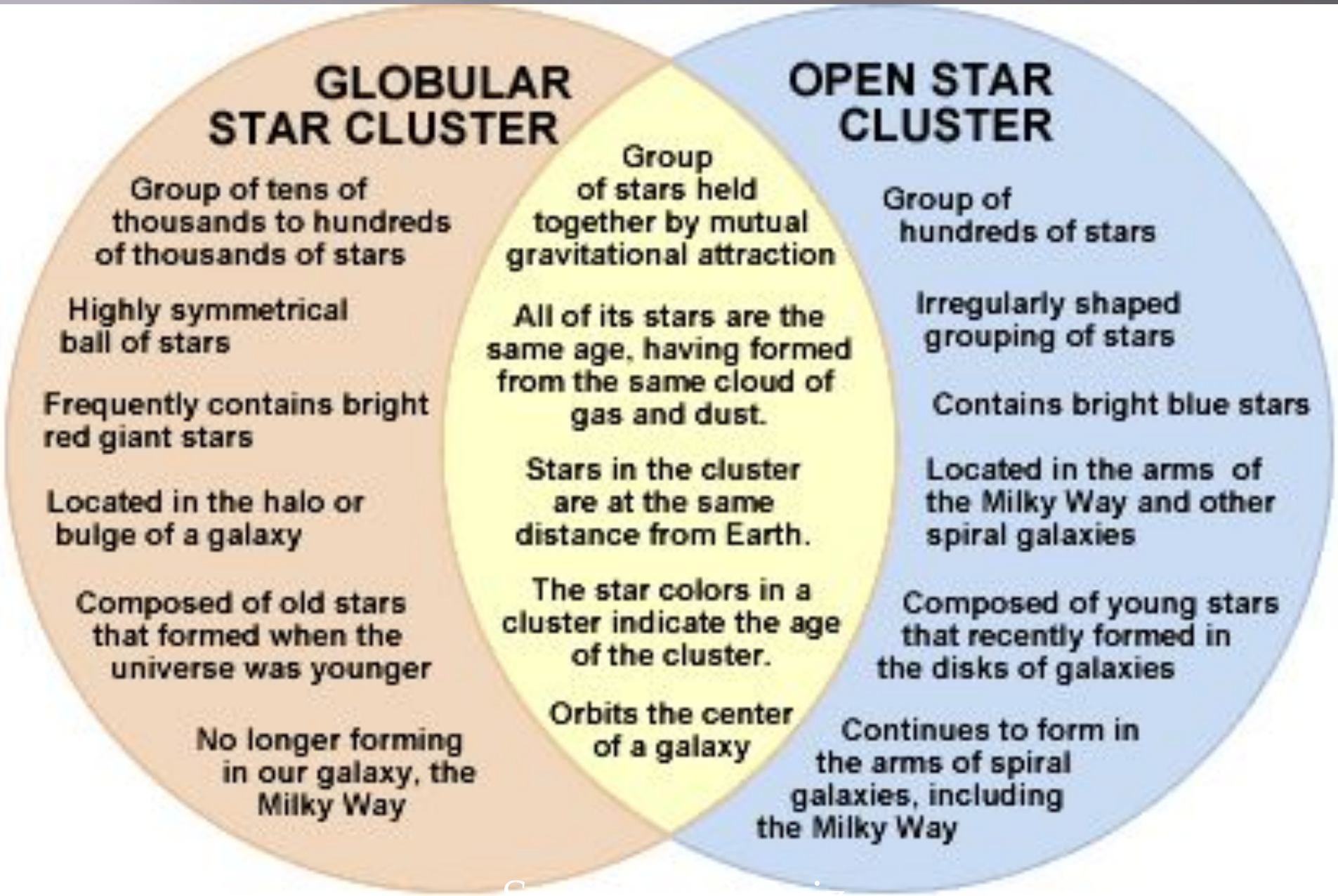
Some galaxies grow into **supergiants** while others remain **dwarf.**

Star Clusters

One type is called a **"globular cluster."** These are composed of as many as **one million stars** held together by their mutual gravity in a **spherical shape.**

Star Clusters

The other type is called an **"open cluster."** These only contain between a **few hundred** and **tens of thousands** **of stars**.



Section 10.2 Quiz