

Elliptical Galaxies

I. Physical Characteristics

1. Define the term elliptical galaxy.

Elliptical Galaxy - galaxy that appears as a round or flattened ball

2. List four characteristics of Elliptical Galaxies.

1. Possess older, low-mass stars (Very little gas or dust)
2. Surrounded by globular clusters
3. Typically found at the center of galaxy clusters
4. Usually yellow-red in appearance

3. The most common type of galaxies in the universe are elliptical galaxies.

Circle One : True False

4. How do Elliptical Galaxies form?

- ① Two spiral galaxies merge together
- ② Sudden burst of star formation
- ③ Gas + dust used up rapidly

5. What is the closest Elliptical Galaxy and largest discovered Elliptical Galaxy?

Closest : Sagittarius Dwarf Galaxy

Largest : IC-1101

II. Types Of Elliptical Galaxies

1. Identify the locations of each the following Elliptical Galaxies.

M49 Galaxy : Virgo (The Maiden)

M87 (NGC 4486) Galaxy : Virgo (The Maiden)

ESO 383-76 Galaxy : Centaurus (The Centaur)

IC 1101 Galaxy : Virgo (The Maiden)

Hercules A Galaxy : Hercules

Maffei 1 Galaxy : Cassiopeia (The Queen)

Centaurus A Galaxy : Centaurus (The Centaur)

NeVe 1 Galaxy : Ophiuchus (The Serpent Bearer)

2. Identify the locations of each of the following Open Clusters.

Hyades : Taurus (The Bull)

Pleiades : Taurus (The Bull)

Beehive Cluster : Cancer (The Crab)

Butterfly Cluster : Scorpius (The Scorpion)

Hodge 301 : Dorado (The Flying Fish)

Trapezium Cluster : Orion (The Hunter)

Wild Duck Cluster : Scutum (The Shield)

III. Elliptical Galaxy Discovery

1. How did each of the following advance the understanding of elliptical galaxies?

Charles Messier : Developed the Messier Catalogue (1781)

(M1 to M103) (Identified Planetary Nebulae, Clusters, Galaxies)

John Dreyer : Developed the New General Catalogue (1888)

(Contains 7,840 objects; All types of space objects)

Henrietta Leavitt : Developed technique of using Cepheid Variables (1912)

Far away stars → (Changes in star brightness used to determine distances)

Edwin Hubble : Developed the Tuning Fork Diagram (1936)

(Shows progression of galaxies)

Event Horizon Telescope : Large array of global radio telescopes

(2009) - Observes black holes at centers of supergiant elliptical galaxies (M87)

IV. Elliptical Galaxy Existence

1. In what stage of galaxy evolution are Elliptical Galaxies?

- End stage of galaxy formation

2. What is the eventual fate of Elliptical Galaxies?

- Unknown (Could develop into Irregular Galaxy)