

What is a galaxy? The Earth belongs to which galaxy?

Answer

Galaxy

"A galaxy is a gravitationally bound system. It contains blackholes in the center, Planets, vast clusters of gas and dust, satellites etc."

Galaxies are of different age. Most of them are between 10 billion years and 13.6 billion years old. Some galaxies are as old as universe itself - 13.8 billion years. (NASA)

The Galaxies are of different shapes - Elliptical, spiral, lenticular and irregular.

The Earth belongs to ~~Milky~~ Milkyway galaxy. It is ~~in~~ the Solar System which is located in the Orion Cygnus arm of milkyway. The shape of milkyway is spiral.

Q Briefly describe What is big bang theory?

ANSWER:

Big Bang Theory

"Have not those who disbelieve known that heavens and earth were joined together as one United piece."
(Al-Quran: 21: 30)

Concept: The whole universe came out from a hot, tiny, dense and singular point - Expanding & stretching. This theory is about (how) scientists think that how Universe began.

The idea of big bang was given by George Lamétre in 1927.

The big bang and the expansion of Universe was confirmed and proved by the Edwin Hubble two years later.

The Edwin Hubble said galaxies are moving away from each other and from us meaning that Universe is still expanding.

A tiny, hot beginning:

When the universe began, it was tiny, hot particles mixed with energy and light. It cooled down and particles grouped together forming atoms and their groups from which stars, planets, galaxies, comets, asteroids and black holes are formed.

The Universe is 13.8 billion years old.

Q Differentiate between a star and a planet. Briefly describe the life cycle of a star from a Nebula to a Black Hole. (5)

Answer

Planet

Star

- ⇒ "A celestial body that orbits a star and dominates its orbit by displacing similarly sized objects nearby."
- ⇒ It does not produce heat and light, it is visible when the light of stars reach on it.
- ⇒ It is formed from the left over material remained from formation of stars.
- ⇒ It has stable long-term existence.
- ⇒ It is composed of rocks like Earth and Mars, and gases like Jupiter and Saturn.
- ⇒ "A luminous, hot and massive body composed of gases - specially hydrogen and helium tightly compressed due to huge amount of gravity."
- ⇒ It does not produces light and heat with help of nuclear fusion in the core.
- ⇒ It is formed from the clouds of gases and dust.
- ⇒ It has a well-defined life cycle from birth to death.
- ⇒ It is composed of gases specially gases ~~on~~ hydrogen and helium.

Life Cycle of a Star

(Nebula - Black Hole)

The life cycle of a star starts from the clouds of gas and dust which is known as Molecular clouds which collapse due to gravity and attract further to collapse and form a Stellar Nebula from which a high mass star appears which turns into a red supergiant which turns into a Supernova then into Neutron star and finally a Black Hole.

This life cycle takes millions of years to form a black hole while stellar nebula turns into black dwarf passing through the different phases in billions of years.

Life cycle of star from Nebula - Black Hole

