

Universe

The universe is a huge wide-open space that holds everything from the smallest particle to the biggest galaxy.

Scientists believe that about 13.7 billion years ago, a powerful explosion called the Big Bang happened. This explosion set universe in motion

Theories

There are three main theories which explain about the origin and evolution of the universe. They are,

The Big Bang Theory

The Steady State Theory

The Pulsating Theory

The Big Bang Theory

This theory was given by Le Maitre and George Gamow

According to this Theory, All the matters of the universe were concentrated in extreme dense and very hot. About 20 million years ago explosion occurred, and all the matters in that divided into many small pieces and form stars, galaxies.

On 30 th may 2010, scientist made a Large Hadron Collider (LHC) machine to test Big Bang Theory.

The Steady State Theory

This theory was given by Bondi, Gold and Fred Hoyle

According to this theory, the number of galaxies in the universe is constant

The Pulsating Theory

According to this theory, the universe is expanding and contracting alternately i.e. pulsating. At present universe is expanding, at one time the expanding will stop and contracting will occur. After it has contracted at a certain size, again explosion is occurs.

Galaxies

Galaxies consist of stars, planets, dust particles, and gases which form a galaxy.

There are billions of galaxies in the Universe.

Galaxies are labeled according to the shape of them

Spiral – because of the gaint pinwheel shape (E.g. Milky Way Galaxy)

Elliptical- looks like flat ball

Irregular- does not have a regular shape

Starburst galaxy – in this type the stars are formed quickly by the gases in the galaxy. Compare with other type it has fast rate of star formation.

The Milky Way Galaxy

The Wide of the Milky Way is 100000 light-years.

It is a spiral shape galaxy

Our sun is the one of the star in the Milky Way galaxy

One light-year is the distance travel by the light in one year, that is 9.5 trillion kilometers.

Our Nearest Galaxy is Andromeda Galaxy

Solar system

In our solar system consist of eight planets.

Inner planets:

Mercury

Venus

Earth

Mars

Outer planets:

Jupiter

Saturn

Uranus

Neptune

Inner Planets are also called as Solid Planets and Outer Planets are called as Gaseous Planets.

Densest planet is Earth.

Nearest planet to the Earth is Venus.

Hottest Planet is Venus, Due to the Presence of the CO_2 .

Coldest Planet is Neptune.

All the planets revolve around the sun in elliptical path.

SUN

Sun is the centre of the solar family.

The Diameter of the Sun is 1392000 kilometers.

It is also called as the Yellow Dwarf.

Sun is 109 times bigger than the earth.

The Core temperature of the Sun is 15,000,000 degree Celsius.

It Consist of large amount of the Hydrogen and Helium gases.

The Surface Temperature is 5,778 k or 5504 degree Celsius.

Sunlight takes about 8.3 minutes to reach the Earth from the surface of the Sun

Mercury

The Revolution of the Sun is 224 million years.

Mercury

Mercury

Planet Nearest to the Sun

Smallest Planet in the Solar system

Rotation = 58.6 days and Revolution = 87.87 days (Fastest Revolution)

Distance From sun: 5.79 Crores Km

Venus

Venus

Hottest planet, and called as Earth Twin.

Rotation = (-) 243 days and Revolution = 224.7 days

It Rotates in the anticlockwise Direction (East to West)

Distance From sun: 10.82 Crores Km

Earth

Third Planet and Fifth Largest Planet

Called as Blue Planet and

Rotation = 24 hrs (23 Hours 56 Min and 4 seconds) and Revolution = 365 $\frac{1}{4}$ days

Moon is the Satellite of the Earth

Distance From sun: 15 Crores Km

Mars

Mars

It is called as Red planet

Rotation = 24 hrs 37 min and Revolution = 687 days

Planet has the similar rotation to the earth Rotation time

Distance From sun: 22.79 Crores Km

Highest Mountain in the Mars is Olympus Mons or Nix Olympus. It is three times taller than the Everest. Its Height is nearly 22 Km.

Jupiter

Mars has two moons, they are Phobos and Deimos.

Jupiter

Largest Planet in the solar system, Contain gaseous practicals

Jupiter has 67 satellites

Rotation = 9 Hrs 55 min (Fastest Rotation) and Revolution = 11 years and 9 months

Distance From sun: 77.83 Crores Km

Saturn

Saturn

Second Largest Planet and has 60 satellites

Rotation = 10 Hrs 40 min and Revolution = 29 years and 5 months

Distance From sun: 142.7 Crores Km

Titan is the biggest Satellite of the Saturn and it has atmosphere like as Earth

Neptune

Uranus

Uranus

Uranus has 27 satellites.

Rotation = (-)17 Hrs 39 min and Revolution = 84 years

Distance From sun: 287.1 Crores Km

Uranus rotate in East to West Direction

It Consist of 9 Rings made up of Dust particles.

Neptune

Coldest planet, farthest planet

Neptune has 13 satellites.

Rotation = 16 Hrs and Revolution = 164 years and 9 months

Distance From sun: 449.7 Crores Km

Dwarf Planets

Pluto

Pluto, Charon, Ceres, Eris were newly grouped into a Dwarf Planets on 2006.

Dwarf Planet status is given to the Pluto by The International Astronomical Union (IAU), because it does not fulfill the three criteria of the IAU for a full-sized planet are:

It is in orbit around the Sun.

It has sufficient mass to assume hydrostatic equilibrium (a nearly round shape).

Astroids

It has "cleared the neighborhood" around its orbit.

Astroids

Asteroids

Thousands of Asteroids are found between mars and Jupiter.

Asteroids are cluster of celestial bodies include rocks and stones have size of 300 to 400 km in diameter.

Some Indian names Asteroids

Vynu pappu (astronomer),

Sarabai (Father of atomic energy) and

Moon

Ramanujam (mathematician)

Moon

The Diameter of moon is 3475 km

Only 41% of the Moon is visible.

The Circumference of the Moon is 11,000 Km

The Gravity Ratio of the Earth and Moon is 1:6

Highest Mountain in the Moon is Mount Huygens.

Meteoroids

A meteoroid is a small rocky or metallic body travelling through space. Meteoroids are significantly smaller than asteroids, and range in size from small grains to 1

Meteoroids

meter-wide objects.

Meteoroids

When Meteoroids come and strike the earth atmosphere, heat is generated and its gets burned and shrinks. This phenomenon appears as a bright streak of light.

Around 15,000 tonnes of meteoroids or other dust particles enter earth atmosphere every year.

Comets

Comets

A comet is an icy small Solar System body or rock. When it is goes near to the sun, it melts and reflects the light of the sun.

The Tail of the Comet is seen in the opposite direction of the Sun.

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