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## Explain the formation of Lunar Eclipse.

### Introduction

An eclipse is an astronomical event which occurs when a celestial body comes between another body. It usually occurs when a moving object comes between an observer and another moving object. Lunar eclipse is occurs when earth comes between moon and the sun.

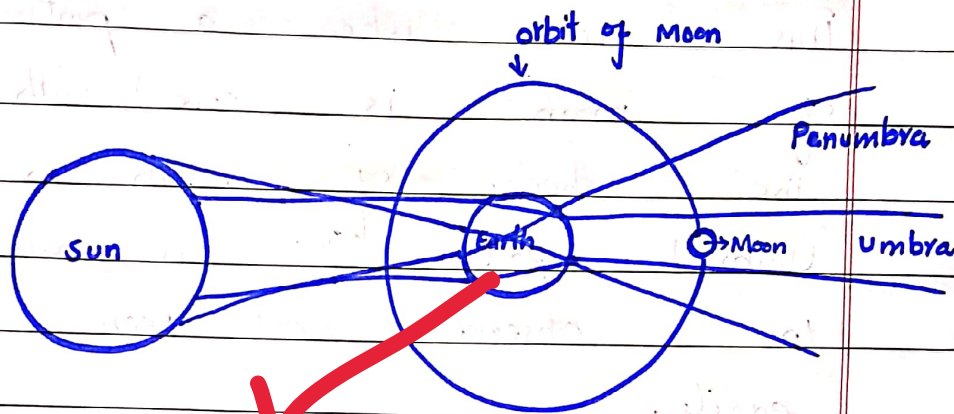
### Formation of Lunar Eclipse

There are basically three types of lunar eclipse. Lunar eclipse occurs when earth is comes between our moon (luna) and the sun. Basically, our moon orbits earth as a natural satellite. It have no light. Moon shines because of the light of the sun when it reflects from the surface of the moon. There are different phases of moon which

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can be seen when moon orbits earth with respect to the sun. So, when earth moves around the sun and moon orbits earth, a phase comes when earth comes between the sun and moon. Then lunar eclipse can be seen.



This diagram shows that the light of the sun reflects through two rays/parts. Penumbra is the part through which moon partially goes from. Umbral part contains the full sun rays. The lunar eclipse is occurs from both parts. But lunar eclipse is occurs only when there is full moon available. Otherwise, it does not occur.

## Penumbral Lunar Eclipse

This occurs when moon goes from penumbral part. The part of moon is behind the shadow of earth. This eclipse is difficult to observe.

## Partial Lunar Eclipse.

This occurs when a portion of moon is covered with the shadow of earth in Umbral part. This is easy to observe and seen easily.

## Full Lunar Eclipse

Full lunar eclipse occurs when full moon is covered with the shadow in the umbral part. This type of eclipse is risky to see.

When full lunar eclipse occurs, then the color of moon becomes red. That's why it is risky to see.

Explain the terms Dark Energy and Dark Matter.

### — (Introduction) —

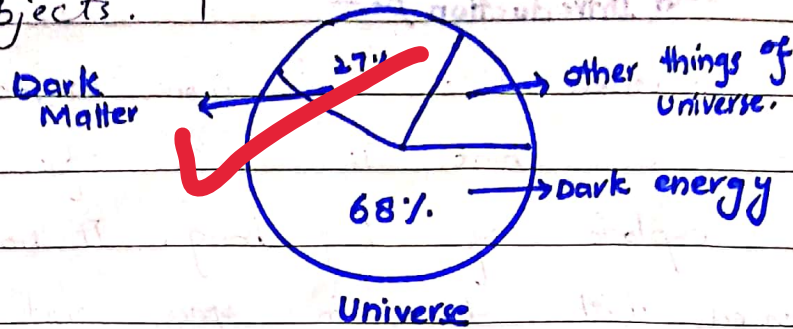
The universe is much more larger than we think. It exists after the explosion of big bang. It has been expanded with time in space and there is some force of gravity existed in space through which all matters stands in the space.

### — (Dark Energy) —

Dark energy is the name given to the force that believes to be making the universe larger. The universe is expanding with time in the space. It was founded when the astronomer saw that the universe, after the explosion of big bang, is expanded. Then, dark energy was found. This energy is a repulsion force which is resulted in expansion of our universe. It cannot be used or

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seen but we observe dark energy because of its effect on objects.



### Dark Matter

There are many things existed in our universe. These things are galaxies, asteroids, dark matter, dark energy and other etc. There is a strong gravitational force existed in the space through which all things are stable. This force of attraction is called dark matter.

Dark matter holds all things of universe. Because there is no strong gravity of the objects available in the space by which all objects including galaxies, remains settle in the space. But it cannot be seen.

Define the term black whole. What is expected inside it?

### Introduction

There are different stars existed in the space. They are bright and provide light to planets. But what happen when a massive star is died? Then black holes are formed in the space with their huge volume.

### Black Hole

When a massive star die, then it is converted into a black hole. A black hole is an object of space which cannot be seen. It is dark in nature with extremely high gravity in its centre. The gravity in the centre of black hole is as much high that nothing can escape from it. When an object comes near to black hole horizon, the boundary of black hole, then it pulls the object into its centre. Even light cannot escape from

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black hole.

How can we find black hole?

Black holes cannot be seen because of their darkness. But there are two things which help to see a black hole in the space. Accretion Disks which form when a black hole is created. It is a disk of gases which can be seen. Another thing is Quasars which is a huge light from centre of black hole.

### What is expected inside it?

The black hole has <sup>have</sup> a strong gravity. That's why it is very difficult to find anything from the centre of black hole. Some astronomer believes that may be another universe or galaxy is existed inside a black hole. But it is very difficult to find what is inside a black hole.

### Example of Black hole:

Sagittarius A is a black hole of Milky way galaxy.

see ... overall good answers!!