

Q

Explain Dark energy and Dark matter?

Overview about Dark energy and Dark matter.

in 1990 scientist explain that the certain thing / Force that stop expanding of universe. But this energy is no enough to completely stop the expanding of universe. it slow the expansion till first day in 1997 after the

Hubble telescope it is observed that the force of gravity slow down the expansion. A distance supernova was observed. But it cannot explain how expansion slow.

After Einstein theory expansion of universe is the result of discarded force after that scientist explain it is not gravitational force it is acceleration that stop the expansion. No one know how expansion slow which theory is correct. That's way given its name black energy.

(1) Dark energy

The energy slow down the expansion of energy. it is mystery but a important mystery it is about 68% on universe it is estimated due to its impact on universe. remain 87% dark

matter and 5% remaining matter and stars.

2- what it contain inside in it?

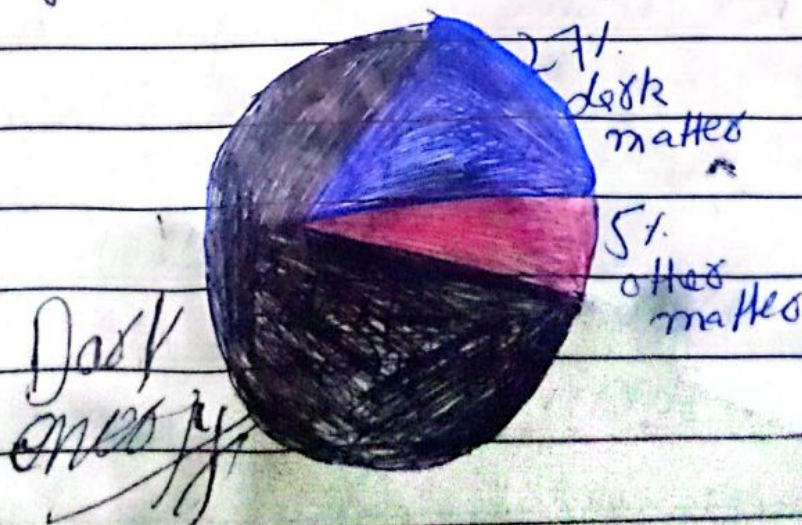
it contain nothing in its center its a singularity.

Dark matter

Dark matter is different from matter like stars, other object. It contain 27% of universe.

1- it is not a baryons because it does not

2) it is not a antimatter. Because antimatter annihilation while produce gamma rays during reaction.



Define Black Hole? what is expected inside in it?

1- Black Hole

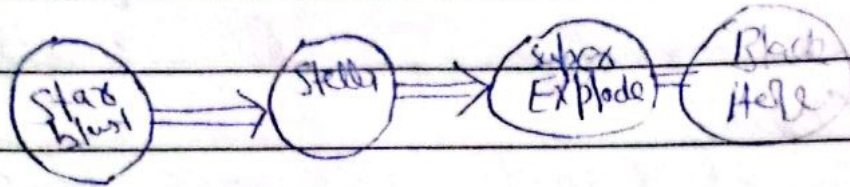
1.1- Definition

Black hole have highly gravitational pull even light cannot pull out from it. it is dark cannot see from naked eye. special telescope and tool are used to observe it. To see the nearest star that feature are different from other stars due to high energy.

ee its name is not black hole because its black but due to it steal everything so badly!

2- How black hole are form?

it is formed when the center of star fall upon itself. it is break the star. the super nova exploded and burst into pieces. that form black hole. it is assume that black holes are form at beghing of universe as the galaxies form.



3- How much Big Black Hole?

its size is like a small atom. But it contains a mass of mountain. The stellar is a black hole which mass is 1 million times greater than sun. A lot of stellar black hole present in each galaxy. it is assume that every galaxy contains a big black hole in its center.

1 (3.1) ~~Sagittarius~~ Sagittarius
 A is the massive black hole
 in milky way center. Its
 size is 4 million times greater
 than the sun.

4. What is inside in it?

it contains nothing inside
 it. It is singularity in its
 center.

5. If Black Hole are black
 How scientist look it?

It is not see through naked
 eye because high pull of gravitation
 force. Scientist observe the
 stars due to high energy its
 nature/feature is different with
 other stars.

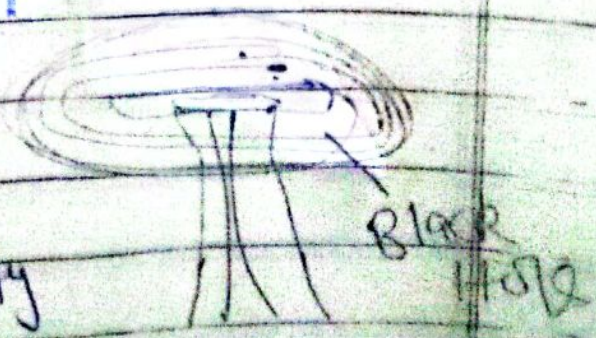
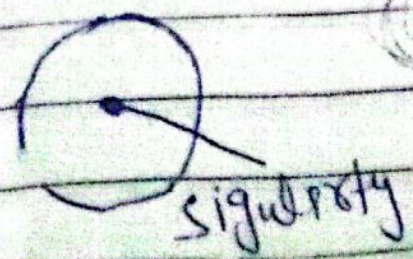
8. If black hole destroy
 Earth

(1) No, Black hole does not destroy Earth. Because Earth not go to space it is far away from black hole. Black hole not come near Earth to eat star or galaxies.

(2) Black hole have same gravity like sun. if it close the earth. Earth and other planets start revolving around it.

(3) Sun is not large mass to convert into black hole.

Structure



Compare the Structure of Sun and Earth?

Structure of Sun

Structure of Earth

(i)

It is largest planet of our Solar system
Its heat of our Solar system

The largest third planet of solar system
fifth largest from Solar system.

Layers of Sun

Layers of Earth

it is composed of three layers

it is composed of three layers.

(3) Name of layer

Name of layer

(1) Radiative Zone

(1) Inner core

(2) Convective Zone

(2) Outer core

(3) Corona

(3) Mantle

(4) Tachosphere

Mantle is further divided into.

Atmosphere of

(3.1) Lithosphere

Sun

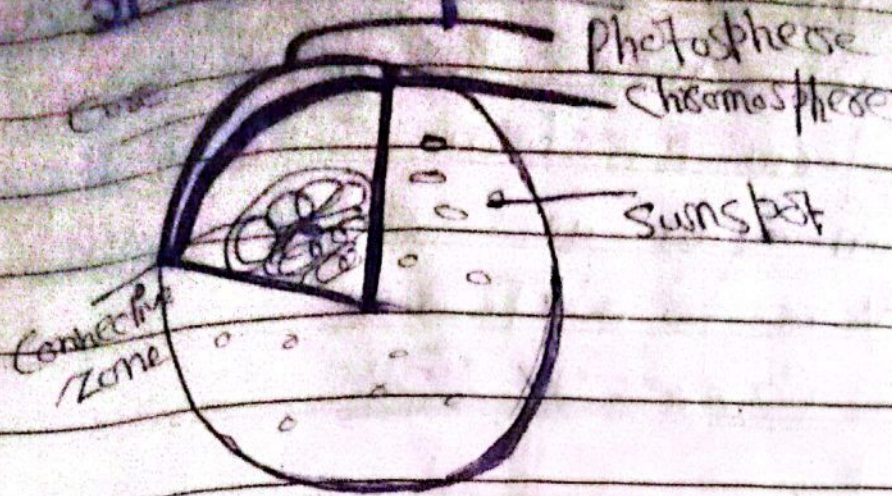
(1) Photosphere

(3.2) Asthenosphere

(2) Chromosphere

(3) Corona

Structure of Sun



(i) Core

It is the layer of sun where all energy power emits from sun. It is long term production. When hydrogen convert into helium. This makes condition extreme severe. Its temperature is 15-6 million Kelvin and pressure is 256 billion atmosphere. Density of 1 million equal to water.

(ii) Radiative Zone.

Radiative zone is the diameter 1 billion. It is the layer surrounding the atmosphere of core. Its temperature is equal to core. The energy produce during

nuclear fusion. Protons are moving through electromagnetic radiation. They are moving through ionization form. Electromagnetic scattered through in gas and required million years to out from it.

(3) Convective Zone

It is the layer surrounding radiative zone. It contains $\frac{2}{3}$ volume of the sun. It brings temperature from radiative zone. Extremely high temperature. It sinks down its temperature and reaches it down again. Its density is less than water.

(2) Atmosphere of sun

The atmosphere of the sun consists of three layers: photosphere, chromosphere, and corona.

(i) Photosphere: visible layer of sun.

(ii) Chromosphere: surrounding the photosphere.

(iii) Corona: outer layer.

Low Photosphere:

its visible layer of photosphere its temperature is 5800K. Sun spots are present in it region it is cooler region 3800K (it is darker compare to other region) it is above Chromosphere layer region 50000 Km

(2.2) Chromosphere :-

Chromosphere above 2000km above photosphere. it is temperature 20000 K in it has not flare of white light like photosphere it has red flashes of that are seen during eclipse

(2.3) Crona :-

its outer layer of the Sun. it extend from 100000 Km it temperature is increase when go near to photosphere.

from surface to 2500 km
layer temperature increase
Density is 1 billion less than
water

Structure of Earth

Earth is third largest planet
of sun and fifth of the solar
system. it consist of different
layers.

- (1) inner core
- (2) outer core
- (3) mantle
- (3.1) Lithosphere
- (3.2) Asthenosphere
- (4) Crust

(1) inner core

it is the solid layer of
nickel and iron. its has high
temperature 5500K. it is
heat engine of earth its
diameter is about 3200 km

3760 km below the earth.
7500 km.
(2) Outer Core

The outer layer is divided into layers of nickel and iron. which diameter is 2800 km which is ocean layer. its temperature is similar to inner layer and below diameter is 1400 km thick.

(3) Mantle

The mantle is ductile layer called magma. it is solid at beginning and then start to melt. it is divided into layers Lithosphere and Asthenosphere. its thickness is start from 8900

(3.1) Lithosphere,

The outer crust it is cooled part of Earth.

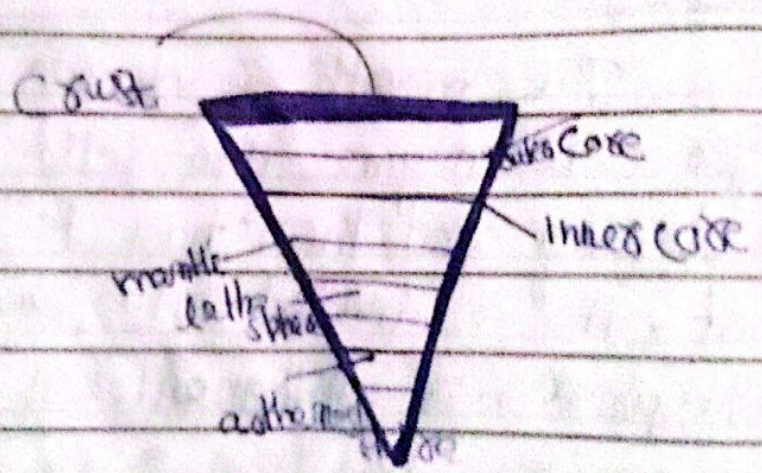
(3.2) Asthenosphere

Asthenosphere is ductile layer

which is a solid layer
contain LAB boundary which
not well define it is soft
at beginning of melt back
start of end

4. CRUST

it is 0-60km thick
it is solid layer of earth
in which living heates are
present



Question

How earthquake occurs? How
many people died in Turkey
earthquake in 2023? what
was the intensity of
earthquake on richter

Scale

Earthquake

(1) Definition

Suddenly shaking or rolling of earth are called earthquake.

It is estimated 8000 earthquake occur every year, in which mostly are so small that are unable to feel.

(2) How many people died in 2023 Turkey earthquake.

About 55,000 people died in 16 Feb 2023 Earthquake

(3) How Earthquake occurs.

It occurs due to movement of tectonic plate. In 1960 Herbert Friedrich gives the theory of elastic rebound energy. In which he says, when elastic band is stretch and break, which

energy stored in it suddenly
release on some energy stored
on earth suddenly release
during earthquake.

4. Anatomy of earthquake

1- Fault. The area of fracture
Earth where earthquake occur

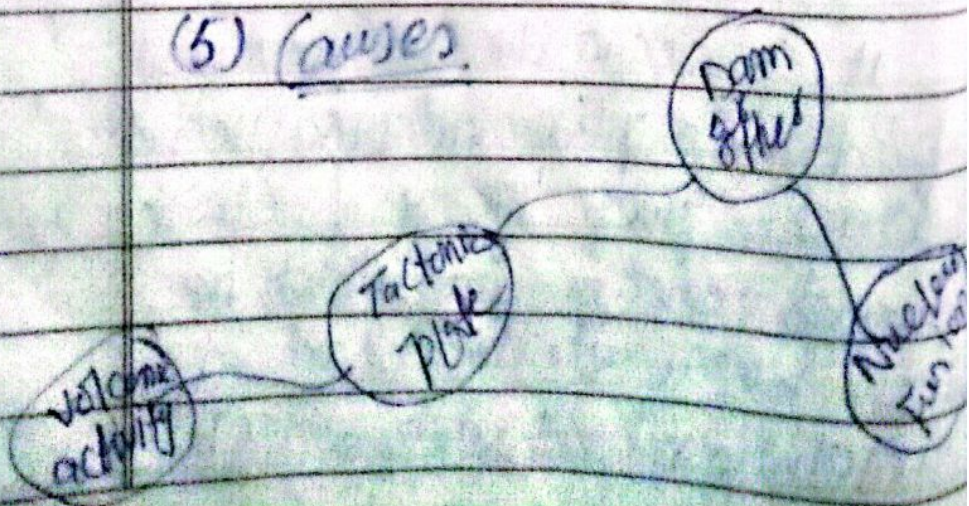
2- Epicenter. Area above the
Focus

3- Plate. The plate convert the
cause earthquake which trigger seismic

4- Seismic wave. The energy
released during earthquake are transform

5- Focus. in which area of cracks
of earthquake start are
called Focus.

(5) Causes



2. intensity of Earthquake
in Turkey?

on 6 Feb 2023 earthquake
occurred on the southeast area
of Turkey which magnitude
was recorded through Richter
Scale it was 7.8. which had
~~serious~~ effects on Turkey
about 55,000 people died in
this horrible incident.

Question:

Difference between the
occurrence of Lunar and
Solar eclipse?

(1) Lunar Eclipse:-

(i) Definition

An eclipse is an astronomical
event in which one celestial

object completely or partially and the other celestial body is called eclipse.

(1) Definition

When the earth between the sun and moon. The rays of sun light does not reaches the moon it called Lunar eclipse.

(2) Another of Lunar Eclipse

The moon orbit around the sun its density is 2160 km it is a rocky space and does not have own light. it is shine when the rays of sun fall on it. The change the position of astronomical object bring changes in movement. The earth comes between sun and moon rays of light does not fall

causes and cause
Eclipse

- (i) when the half portion of moon covered by earth it is called penumbral eclipse
- (ii) when the complete portion is pass through earth it is umbral eclipse.

3- Type of Eclipse

(3.1) Penumbral Lunar Eclipse

The half portion of moon passing through earth it is theoretical concept not occur in real life

(3.2) umbral shadow

When the complete umbral shadow of moon cover by earth it is visible and see few kilometers area.

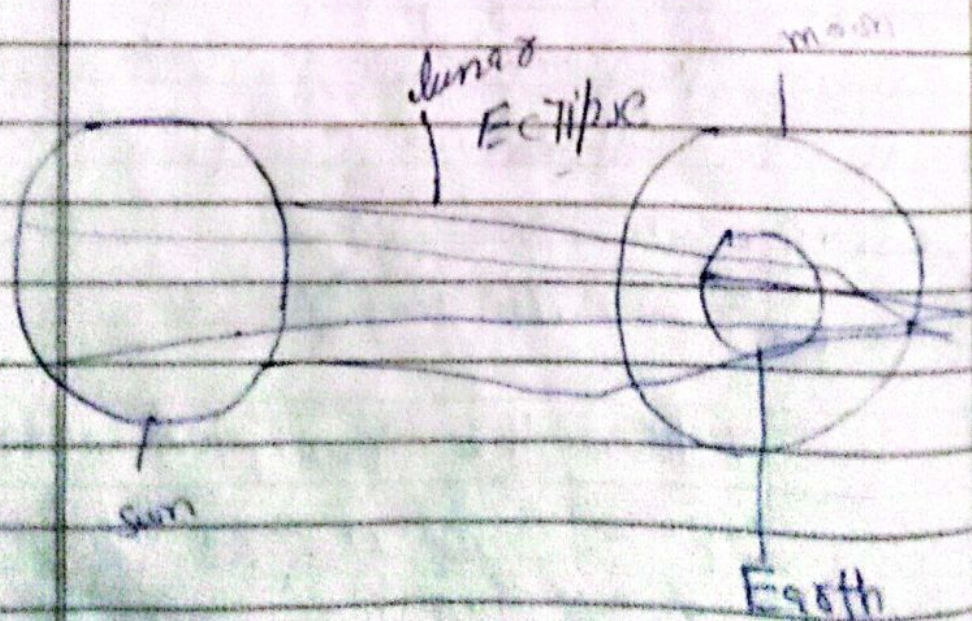
(1) Total Eclipse

completely cover the moon
it is occur twice in a year

(2) Solar Eclipse

(2.1) Definition

When the moon between the
sun and earth the rays of
light not fall on earth
it occur solar Eclipse



(2) Types of Solar Eclipse

(2.1) Partial Eclipse

When the half portion of earth is covered by moon, it is visible in few kilometers areas.

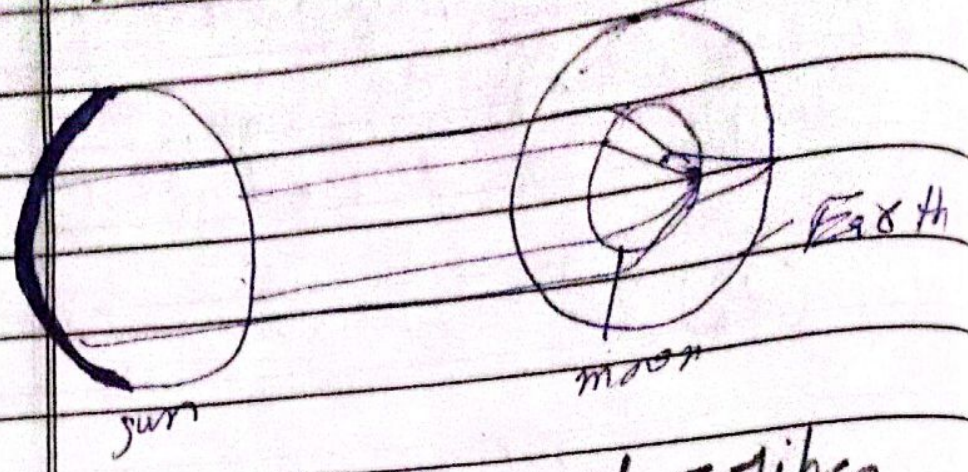
(2.2) Total Eclipse

When total portion of earth passing through moon is called total eclipse. It is visible vibrant red in color.

(2.3) Annular Eclipse

Annular Eclipse occurs twice a year. Every eclipse is not a lunar eclipse. Because some time size of moon is small it is not cover the earth and some time earth is faraway from the moon.

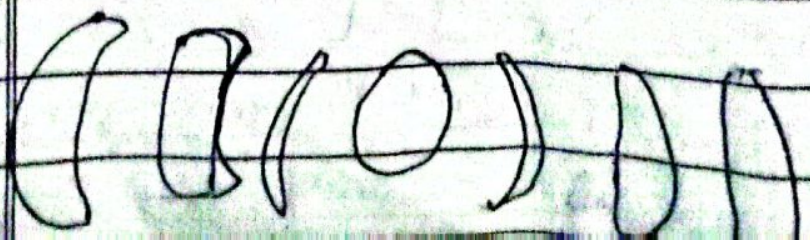
Look down would through space
the umbra shadow do not
reach the earth antumbra
reach



(4) odd Hybrid Eclipse

The total eclipse convert
into annular eclipse. The
are rarely occur. ^{Visible}
seen in 2018. The Hybrid
eclipse occur in 2005 also
in 2018 in Pakistan

Phase to change in Eclipse



3.

Briefly Explain what effects are produced due to rotation and revolution of earth?

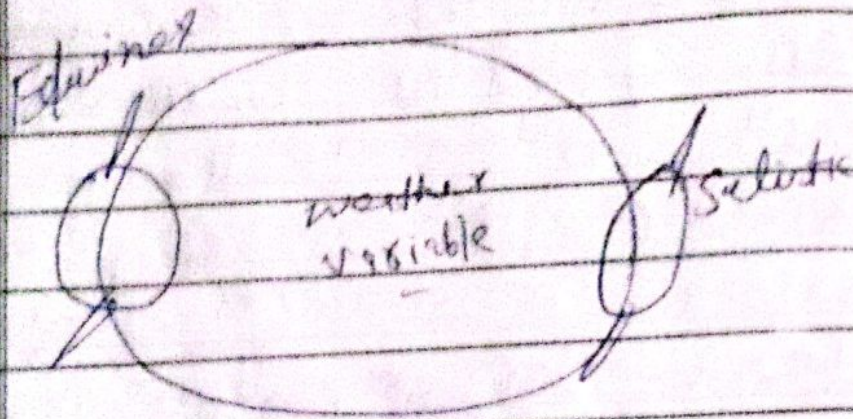
The earth is rotating in the imaginary line called axis of rotation. The earth orbit around the sun and complete its orbit in 365 days. The movement of object due to stars are called sidereal movement that are about 23 hour 59 min. The earth rotate $\frac{1}{365}$. The earth is not elliptical shape. it is rotate 360 degree to change day and night.

(a) Rotation of earth

Spinning of earth brings day and night cycle.

(23) Revolution of Earth

Changing revolution being weather pattern it change summer into winter and winter into summer.



Weather

The short term change of ^{atmosphere} weather is called weather.

Features

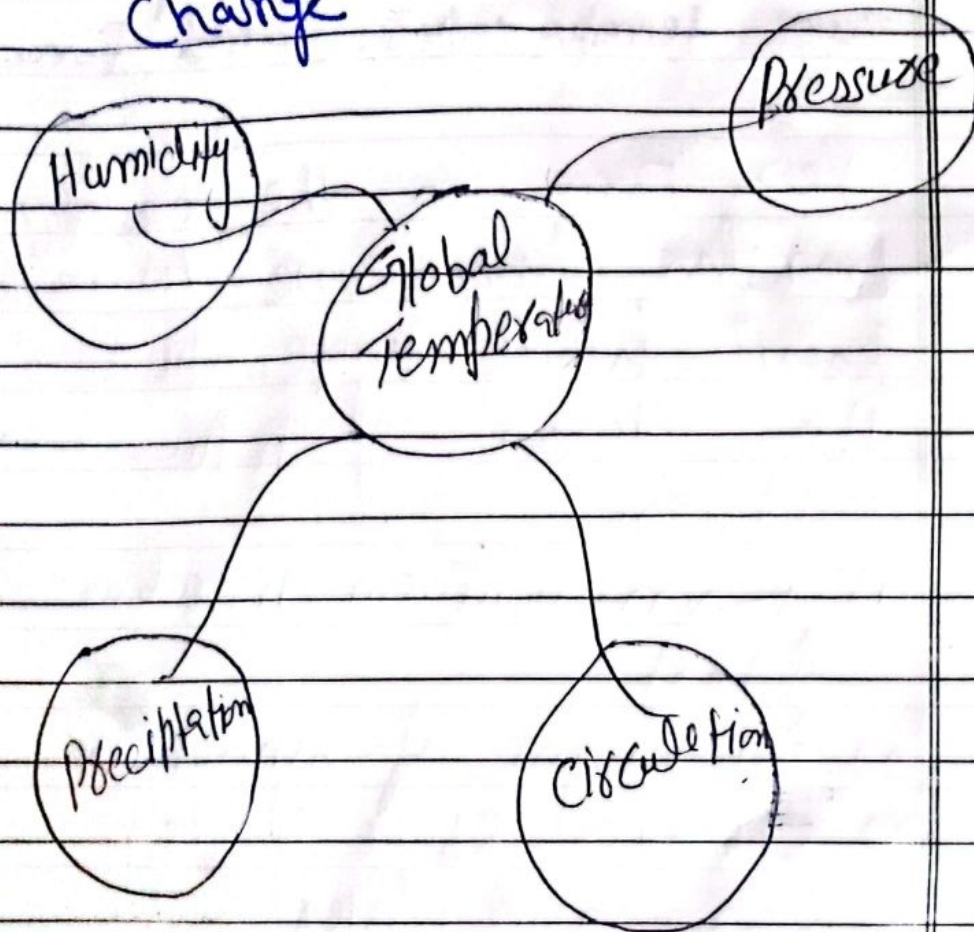
(1) Short term change in atmosphere.

(2) What we get and what want.

Example

50 degree temperature in summer while 5 in winter

3-Variables of weather change



1- Global Temperature

How Heat reach the earth?

The sun only source of energy on earth. 99.8% energy reach through sun. all are not

penetrate into earth to balance the temperature

2- Is there any difference in temperature and force

Yes, Force is the energy transferred from one to another point while temperature is the degree of hotness or coldness

- (1) Non-uniform distribution of heat
- (2) Thickness of atmosphere
- (3) Spherical shape of earth
- (3) Land and water surface
- (5) Nature of surface

(2) Pressure

N/m^2 is the force per meter. It is denoted by Pascal. It is measured due to

- (1) change temperature due height

due to

(3) Circulation

The heat from one point

- (1) Gradient
- (2) Coriolis force
- (3) Frictional force
- (4) Humidity

The air is the humidity

(Coriolis)

The barometric weather clock on

due to temperature.

(3) Circulation

The transfer of circulation from one to another point.

- (1) Gradient force
- (2) Coriolis force
- (3) Frictional Force
- (4) Humidity

The amount of water in air. The water increase
the humidity increase

Conclusion

The earth rotation
bring day night and
weather change. The
clock time also depend
on earth rotation