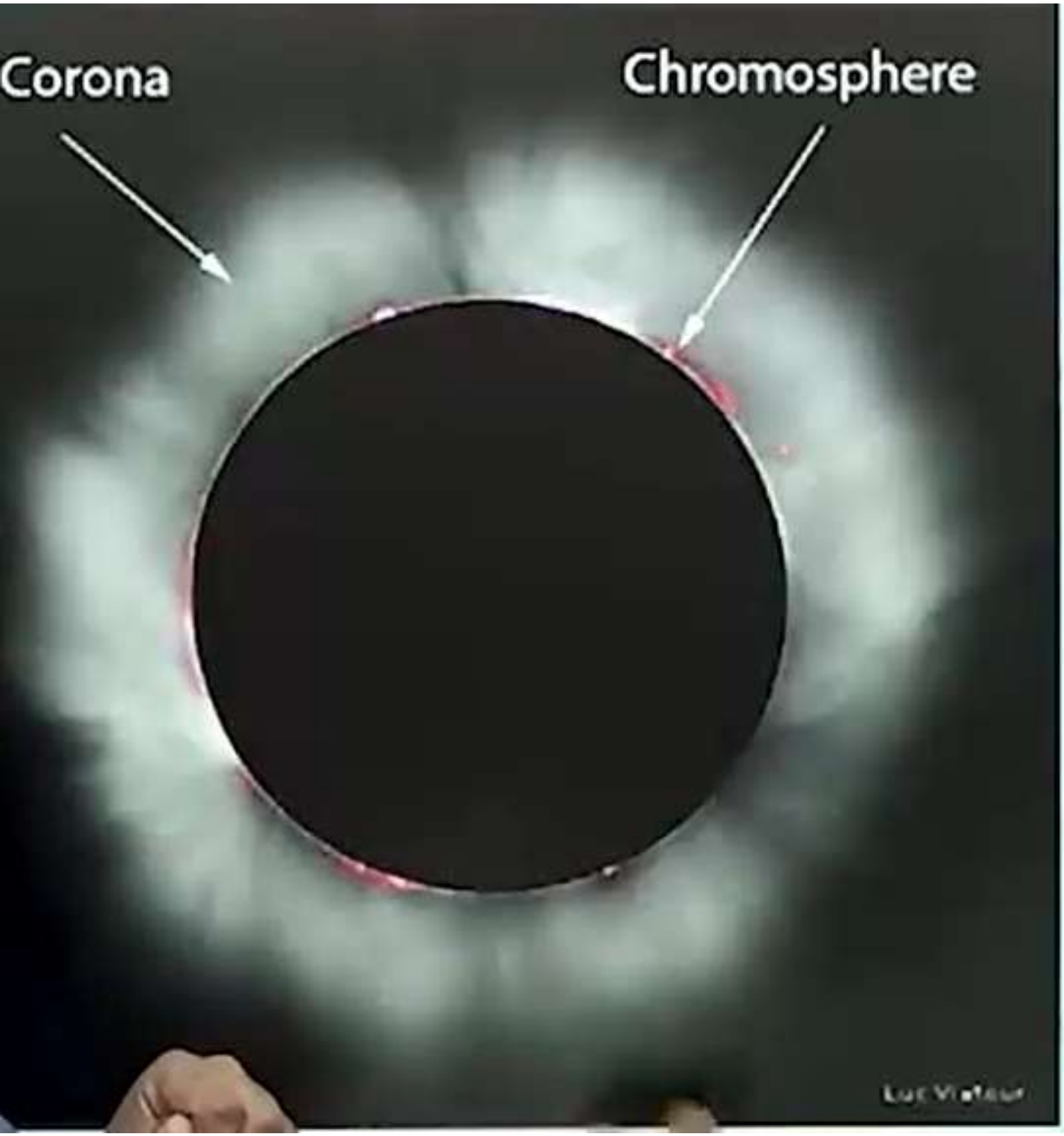
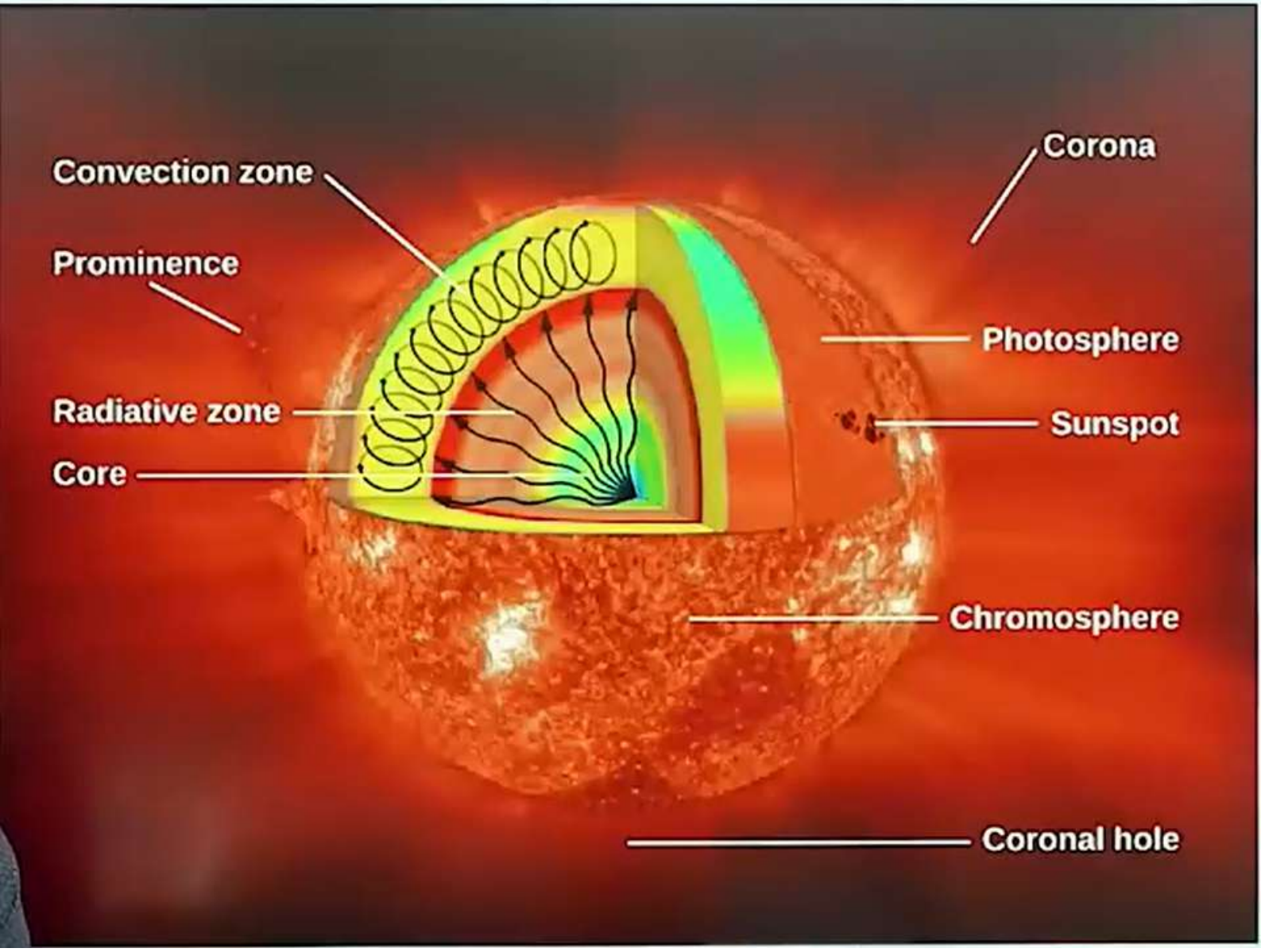

Corona
Chromosphere

Interference in communication with satellite is maximum here


Convection zone
Prominence
Radiative zone
Core
Corona
Photosphere
Sunspot
Chromosphere
Coronal hole

Geography Class 06

REVIEW OF LAST CLASS (09:04 AM)
SUN (09.13 AM)

- Sun is a **dwarf star.**
- Sun is **4.8 billion years** old.
- Different layers are the Core, Radiative Zone, and Convective Zone.
- In Sun's atmosphere layers are: **Photosphere, Chromosphere, and Corona.**
- The temperature of the Core is 15 million degree Celsius.
- A nuclear fusion reaction occurs in the core.
- **Radiative zone:** The heat released from the core radiates outwards, through this zone in the form of radiations.
- **Convective Zone:** Convective current transfer heat to the surface through this zone.
- **Photosphere:** It is the first layer of the sun's atmosphere and visible lights originate from here.
- It is the brightest layer, the temperature is 5500 degrees Celsius.
- **Chromosphere:** It is the second layer of the sun's atmosphere. It appears red in color and emits colorful light.
- **Corona:** It is the uppermost layer of the sun's atmosphere. And is visible only during a total solar eclipse. (see in last slide)
- The temperature is two million degree Celsius.
- **NASA's Parker Solar Probe** is the first man-made object to reach the sun.
- **Solar Flare:** It is a sudden outburst of energy with a storm of hot atoms released into space.
- **Sunspots:** These are the dark spots on Sun's atmosphere i.e. Photosphere.
- The temperature in this region is low, but the magnetic activity is higher.
- The number and position of sunspots vary with time over a cyclical period of 11 years.

- **Solar Maxima** is when the number of sunspots were highest and **Solar Minima** is when the number of sunspots is lowest.
- During Solar Maxima, the Higher release of magnetic energy and charged particles may interact with the earth's magnetic field and cause disturbance in satellite communication.

PLANETS (09:51 AM)

Jovian	Terrestrial
Jupiter Like Planet	Earth-Like Planet
Temperature is low	Temperature is high
Gaseous in nature	Rocky in nature
Low density	High Density
Weaker Solar Winds	Stringer Solar Winds
Thick Atmosphere	Thin Atmosphere
The high number of satellites	The low number of satellites
They have rings	Rings are absent
Faster Rotation	Slower ROtation

(Nearby planets experience higher gravitational force than the planets which at far distance.)

- **Mercury:**
- First and the smallest planet in the Solar System.
- Mercury has no atmosphere or satellite. (Because it is nearest to sun.)
- **Venus:**
- It is the brightest plant.
- It is also called Morning Star, Evening Star.
- Venus is also called Earth's twin.
- It hottest Planet in the solar system due to the presence of CO_2 in the atmosphere.
- **Earth:**
- Blue color because of the water.
- Earth is the densest planet.
- **Mars:**
- It is the red planet.
- Both Mars and Earth are in the Goldilocks Zone.
- **Jupiter:**
- It is the largest planet.
- It is 11 times the size of Earth.
- **Saturn:**
- It has rings.
- It is the lightest planet. Its density is lesser than water.
- **Uranus:**
- Sun rises in the west in Uranus.
- Uranus follows retrograde rotation. i.e. rotates in opposite to most of the planets rotate.
- **Neptune:**
- It is the farthest planet.
- only planet not visible to the naked eye.
- It is also called as Uranus Twin.

Zone around sun where temperature is not too hot and not too cold.

i.e. it should not have a body of big size because if a body of big size exists then it will not remain stable.

IAU: International Astronomical union

If a body is in spherical shape then only their concentric part can pull inside their mass and due to their rotation they want to expand this equilibrium is known as hydrostatic equilibrium

- **Dwarf Planet:**
- In 2006, IAU defined the following conditions for a planet
- An independent orbit around the sun.
- Enough mass to achieve hydrostatic equilibrium.
- Cleared neighborhood with no other body of comparable size.
- There are 5 dwarf planets pluto, ceres, make make, etc.

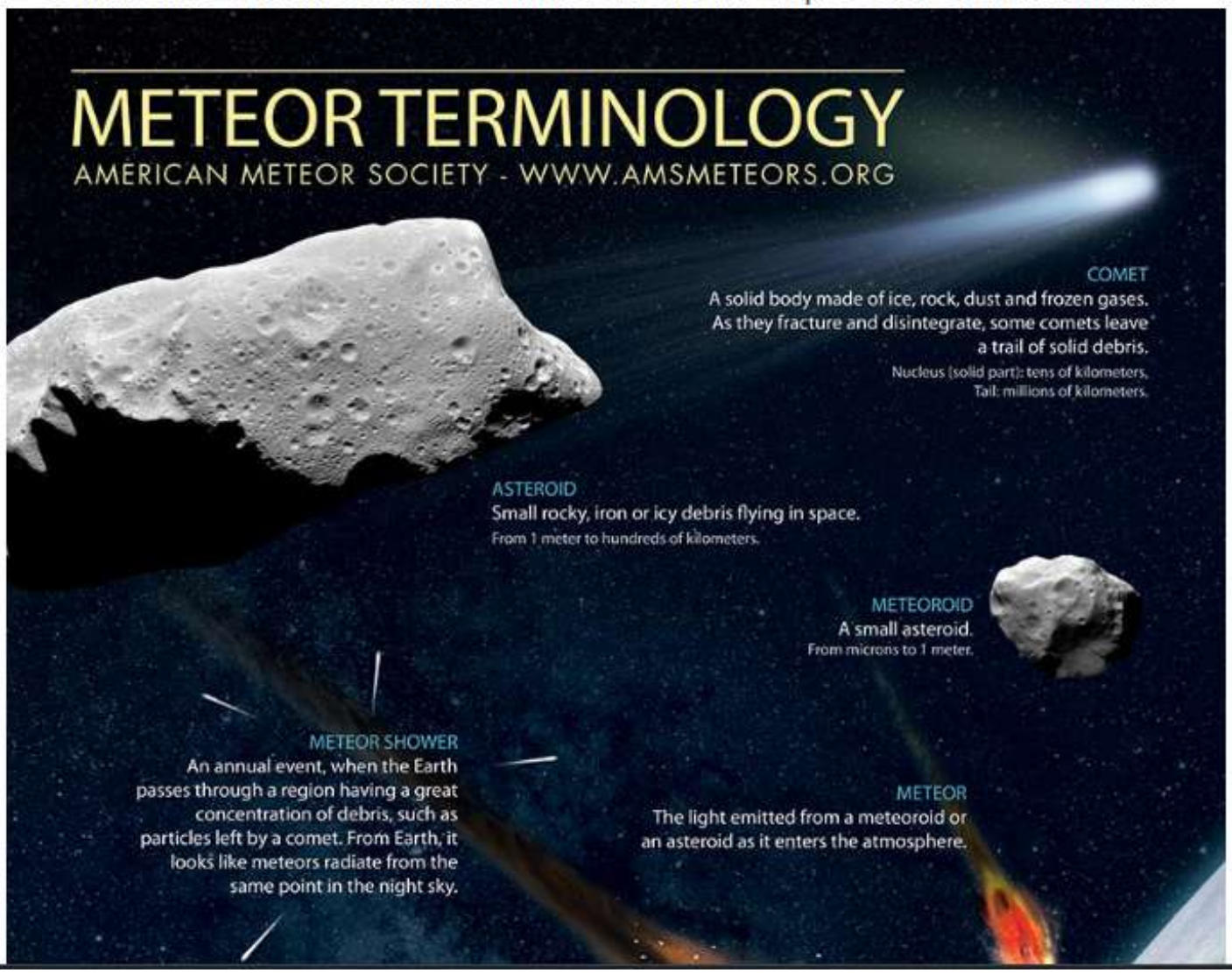
SATELLITES (11:11 AM)

- Mercury and Venus have no satellites.
- Mars has two satellites: **Phobos and Deimos**
- Jupiter has **79** verified and discovered satellites.
- Example: To, Europa, Ganymede (Largest satellite of the Solar System and Jupiter), and Calisto (Galilean Satellites).
- Saturn has **83 satellites.**
- Titan is the largest satellite of Saturn and the largest satellite in the Solar System.
- **Satellite of Uranus:** Miranda, Oberon, etc.
- Neptune has many satellites. The largest one is Triton.
- Triton rotates clockwise and Neptune rotates counter-clockwise as it is not as naturally formed satellite of Neptune
- The satellite of Pluto is Cheron.
- Moon is the satellite of earth
- **Origin of Moon:** From **Big Splat Theory**
- **Phases of the Moon**
- The phase of the moon is due to the relative position of the earth, the moon, and the sun.
- It also decides the duration up to which the moon is visible from the Earth.
- The moon takes equal time for rotation as well as revolution therefore only one side of the moon is visible from the earth
- The other side is called as **Dark Side of the Moon.**

Solar Eclipse: New Moon
Lunar Eclipse: Full Moon

ASTEROID BELT (11:45 AM)

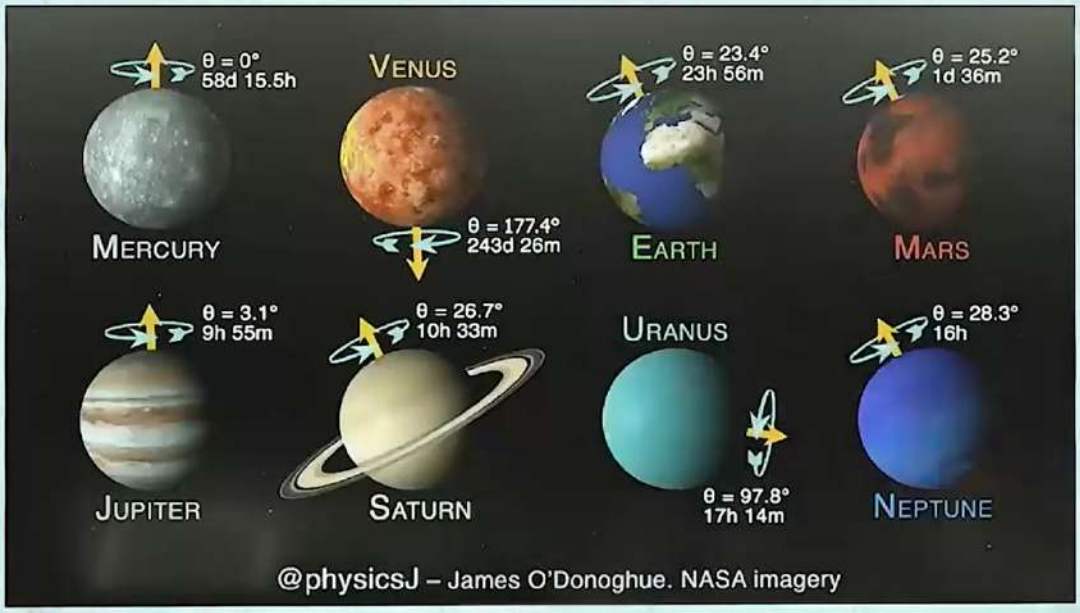
- It is a belt of planetary debris mainly made up of rocky and metallic bodies.
- With a core made up of Nickel and Iron located between Mars and Jupiter.
- **Kuiper Belt and Oort Cloud:**
- It is the outer belt of the solar system which includes the remnants of planets with frozen gases, rocks, debris material, etc.
- Comets originate from here.
- **Meteoroid, Meteor, Meteorite, etc.**
- Lonar Lake in Maharashtra is formed due to the depression of a meteoroid.

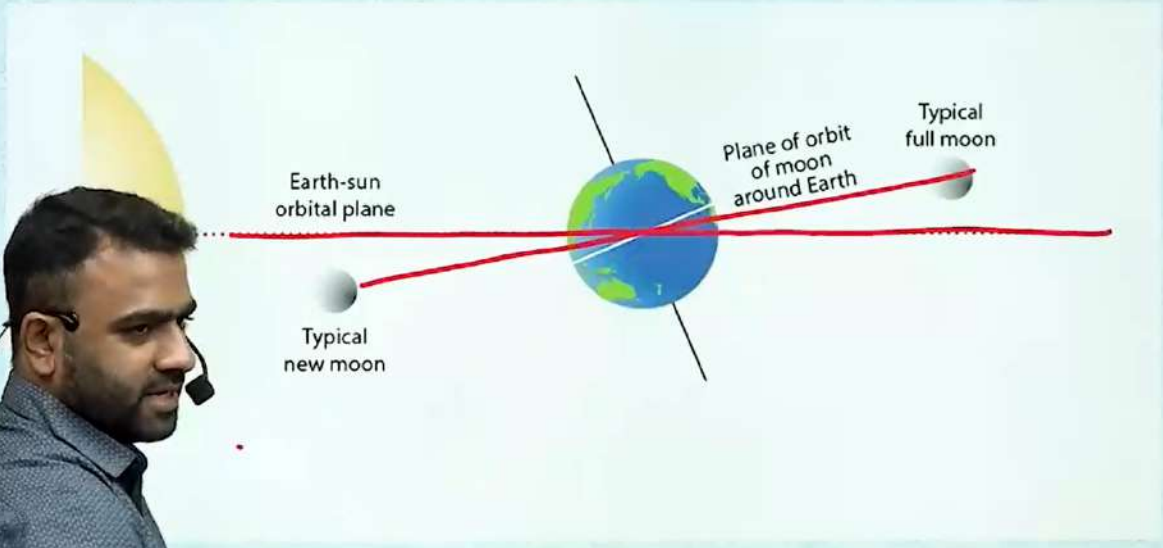


- **Asteorid:** Small Rocky metallic object.
- **Meteoroid:** When an asteroid comes out of its belt and comes near Earth.
- **Meteor:** The flash of light produced due to the burning of meteoroids in the earth's atmosphere. It is also called a shooting star.
- **Meteorite:** The remnant of a meteoroid that has reached the earth's surface after passing through the atmosphere.

- **Comet:** Comets are frozen bodies with a rocky and metallic core surrounded by gas and dust. Called as Coma
- They are from Kuiper Belt and have a very elongated orbit around the sun, comet develops a tail as it comes near to the sun.
- The tail is longest when it is nearest and is always pointed away from the sun
- E.g. **Hailey's** comet with an orbital period of 76 years (1986 last sighted), **Halebopp** (1997), Comet **Neowise** (2020), **Green Comet** (2023)

The topic for the next class: Eclipse, Geomorphology.





Position of Sun, Earth & Moon


Waxing Gibbous Moon
First Quarter Half Moon
Waxing Crescent Moon
Full Moon
New Moon
Waning Gibbous Moon
Three Quarter Half Moon
Waning Crescent Moon
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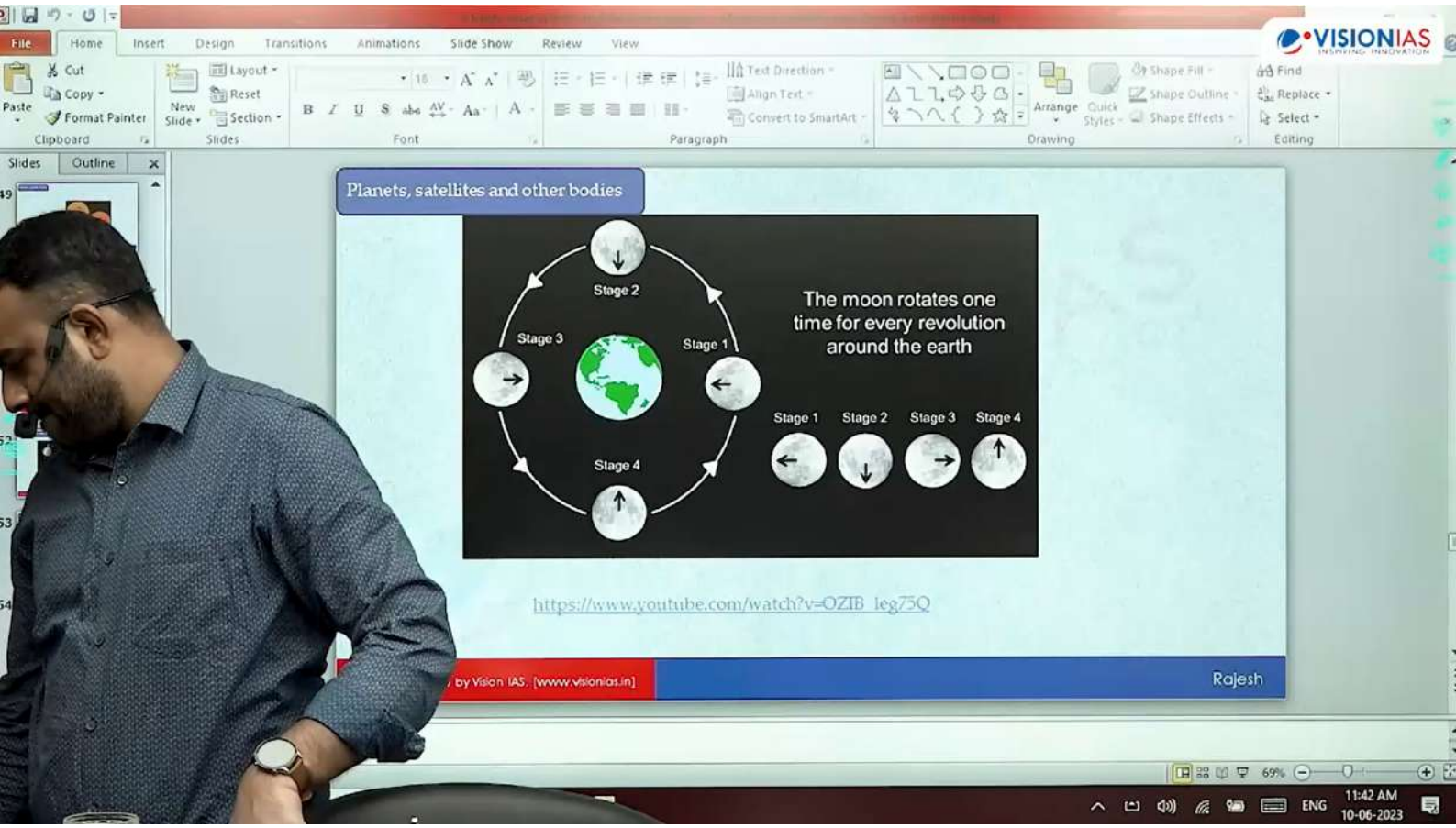
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Home
Insert
Design
Transitions
Animations
Slide Show
Review
View
VISIONIAS
Slides
Outline
Planets, satellites and other bodies
Stage 2
Stage 3
Stage 1
Stage 4
The moon rotates one time for every revolution around the earth
Stage 1
Stage 2
Stage 3
Stage 4
https://www.youtube.com/watch?v=OZIB_leg75Q
by Vision IAS. [www.visionias.in]
Rajesh
ENG
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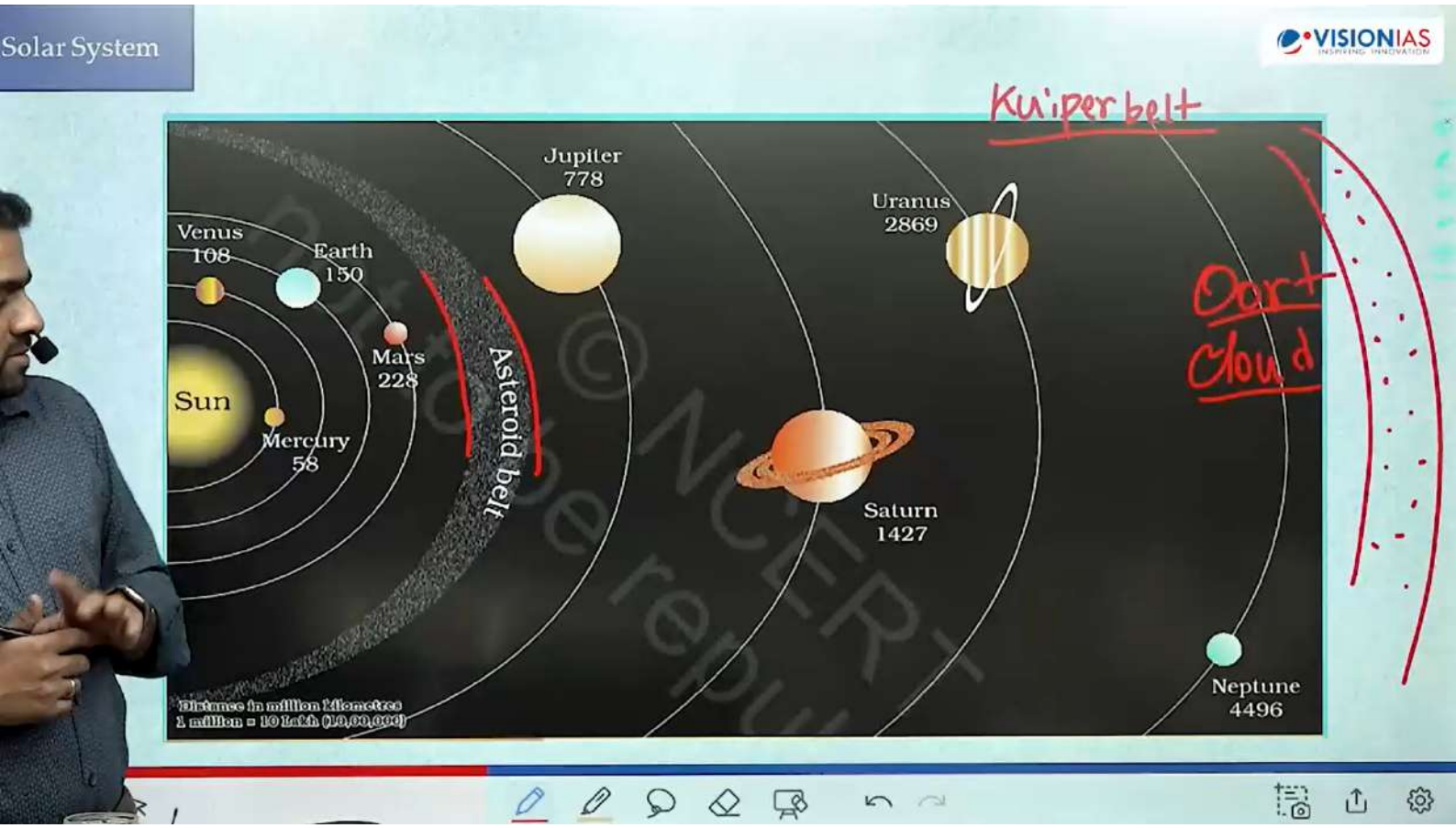
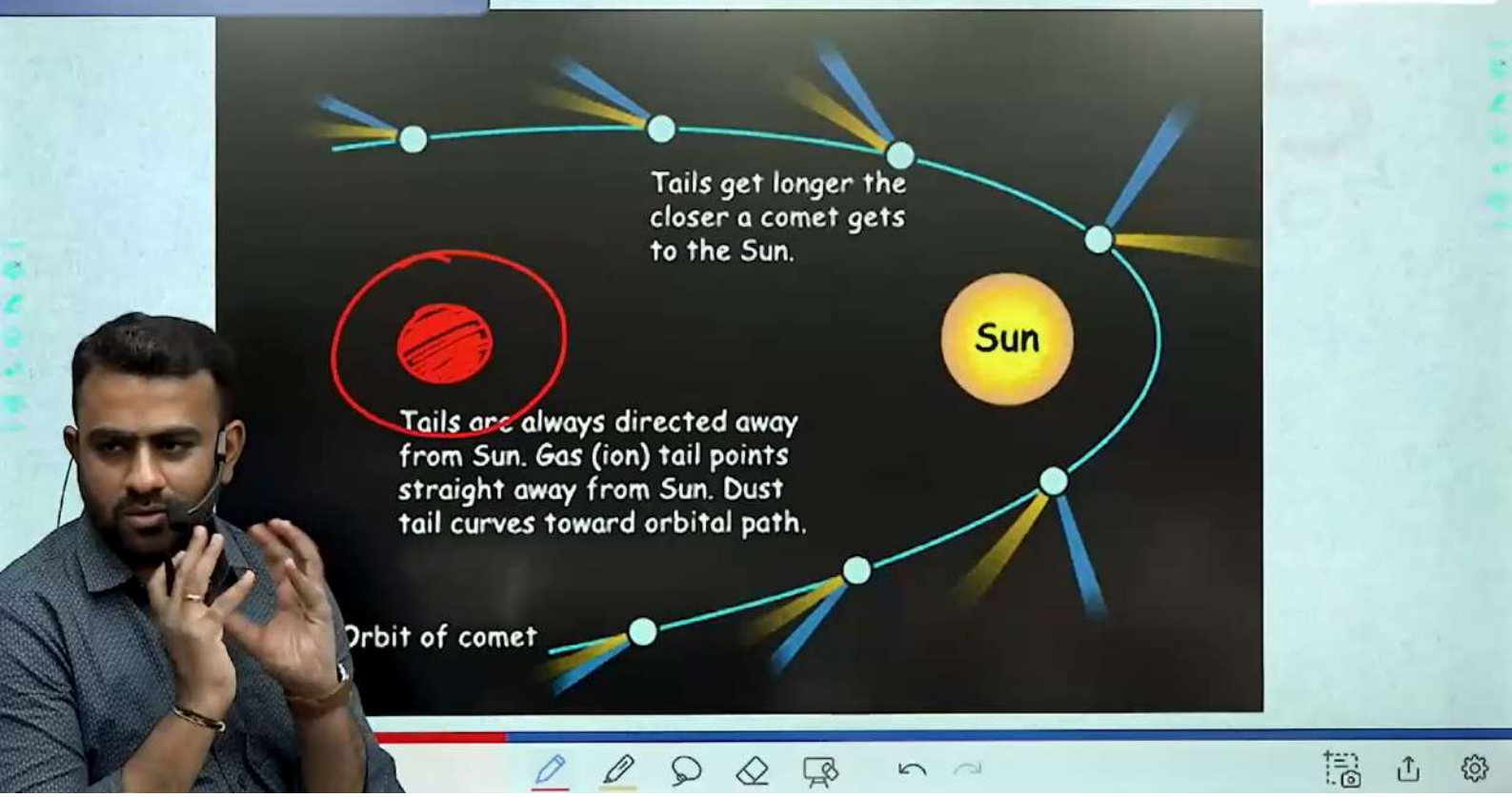
10-06-2023


Solar System
VISIONIAS
INSPIRING INNOVATION
Kuiper belt
Oort cloud
Jupiter
778
Uranus
2869
Venus
108
Earth
150
Mars
228
Sun
Mercury
58
Asteroid belt
Saturn
1427
Neptune
4496
Distance in million kilometres
1 million = 10 Lakh (10,00,000)



Comet Neowise