

* * Lecture Notes for 10/19 * *

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Tides

- Both solar and lunar tides -

Lunar tides = bulges in ocean; moon's gravity creates a bulge in the ocean; Earth's spinning through that bulge.

- tidal braking = reason why moon keeps its same side facing the Earth; slows rotation of Earth - speeds up moon's rotation
- moon moving farther away from the Earth (very small distances)

• EARTH MOON SYSTEM:

• The Solar System •

• Components:

composed of the sun, 9 planets, moons, comets, asteroids

maybe one other = Quasar (planet X) - comet = cyber belt

(Cyber belt = in the elliptic plane)

• Differentiated = changes over distance

rocky planets and gaseous planets; rocky asteroids

① Terrestrial planets / NO RINGS / smaller planets

not silicates, poor in hydrogen gas

② Jovian: small rocky cores - gas surrounding them. / HAVE RINGS

too hot in inner solar system for gaseous planets to be

* Jupiter = largest planet

• Most objects are arrayed in a flattened disk except:

pluto, mercury, and 1

- Most of the mass of the solar system is the sun
- planets orbit the sun counter clockwise as seen from above north of elliptic plane
- 40 AU = (sun - pluto) radius of the solar system
- Solar system = 100 AU
- mercury / venus = only 2 planets that don't have moons

• The Sun •

- powered by Hydrogen Fusion

71% Hydrogen 27% Helium (hydrogen fusion); carbon and everything

• The planets:

① Terrestrial

② Jovian - gaseous, no well-defined surfaces / may have a small solid core

- Stars = big ball of hydrogen gas (like the sun, but much smaller)

- colors = depends on temperature (surface) and size

- get enormously big as they get older - more hydrogen it has - depends on how long it will live - burn.

(Global warming = planets heating up)

• Gap between Mars and other planets -

a bunch of asteroids

• planets formed by collisions of other objects

Asteroid belt = not enough gravity to pull it all together

Almost in between Jupiter and the Sun.

All planets ~ 4.5 billion yrs old

Pluto in Outer Belt = ice / rocks

Jupiter is Sun-like → has a lot of hydrogen than terrestrial planets