

Asteroids

(ارٹاھیرتاہیماڑ)

Definition:

Asteroids are rocky and metallic in nature (e.g. gold, platinum, palladium etc) and consists of metals like gold, platinum, palladium, clay, silicate, and many more.

Size:

In size, they may range from being as big as a dwarf planet or being as small as pebbles, and any size in between.

Theories About Origin: (How They Were formed?)

Theory No: 1 ⇒ When the Nebulae advanced to form our sun, it threw out a large amount of nebulaer debris, which was intended to make the bodies of planets, dwarf planets, satellites, etc.

plausible / palatable / appeal more ^{to} human
intelligent

(Both theories can be correct) M T W T F S

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However, some debris remain out of the reach of gravity and never become a part of any planets, dwarf planets, or satellites body, and have been revolving around the sun ever since,

e.g. → Asteroid Belt

Theory No: 2 ⇒ A/c to some

scientists, initially nebular debris became part of celestial bodies.

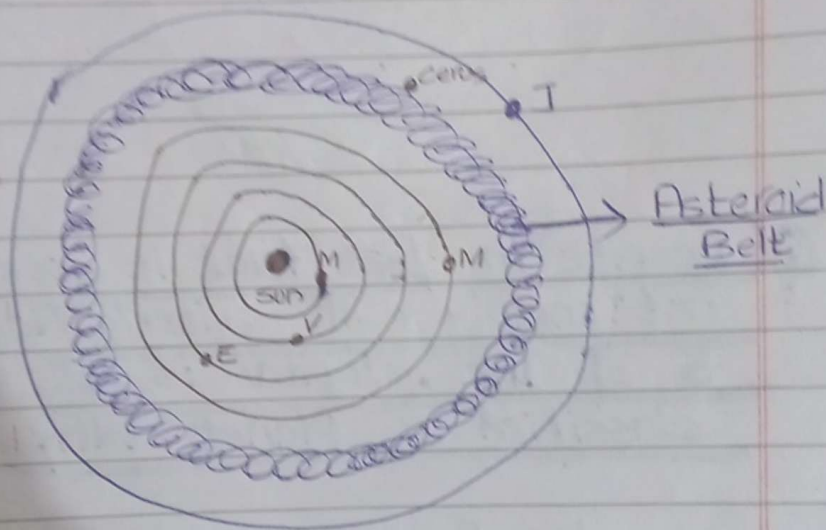
However in the early chaotic solar system, the orbits were not fix, so when planetesimals () would collide with one another. The huge collisions of these planetesimals would pulverise (تفتت) them and big chunks would break off which can be seen in the form of asteroids.

diff. →
planet
(chaotic system)

Types & Location:

① Asteroid Belt ⇒ Asteroids can be present in this belt, b/w Mars and Jupiter.

⇒ Containing as many as 2 million asteroids



② Trojans:

Criteria no= 3 for Planets of IAU is that, they must have cleared the neighborhood around their orbit from debris.

⇒ However, Jupiter happens to be exceptions to this.

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↳ Thousands of asteroids revolve around the sun near / on Jupiter's orbits.

↳ These asteroids are called Trojans.



Q Despite the fact, that it does not comply with criteria No-3 of IAU, Jupiter is still classified as planet. Why?

⇒ b/c Jupiter is so damn big, that about 11300 planets Earths can fit it.

⇒ Might is Right

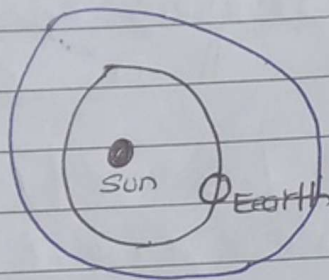
③

Some asteroids that they don't want to be a part of flock (like asteroid belt or the trojans)

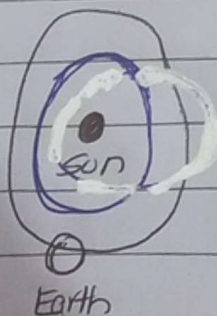
⇒ So, they set their own orbit around the sun (individual orbits)

① **OEO**:

If its orbit is bigger than Earth's orbit around the sun, then it is called outer earth object.

② **IEO**:

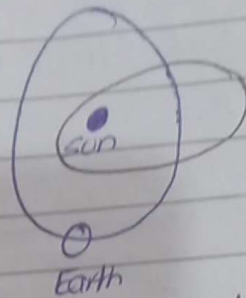
However, if its orbit around the sun is smaller than Earth's orbit ⇒ inner earth object



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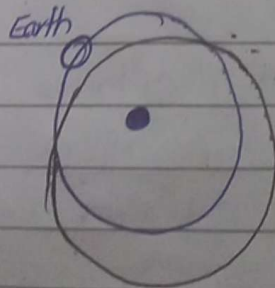
③ Earth Crossing

If ^{asteroid's} ~~earth's~~ orbit around the sun intersects ^{cut through} the earth's orbit \Rightarrow Earth crosser



\hookrightarrow It become destructive dangerous, when they are bigger than 140 meters in size, and closer than 0.05 AU, in

then it become Potentially Hazardous Object (PHO)



نہایت خطرناک ہے اس کی
 آمد کی تاریخ
 اور گراؤ اس کی
 excers اور اس کی
 اس کے لئے اولیٰ گرا
 اس کے لئے اس
 اور اس کے
 PHO ہے
 جاننا ہے

Notable Mentions:

② → Asteroid Bennu ⇒ asteroid containing such precious metals than all of the worlds GDP.

(that's why state took interest in this)

⇒ Due to this, it started space race, that who sent space craft there, that state can claim this asteroid Bennu.

③ → PT5 or Mini Moon ⇒ For the

very brief period of time, earth has two moons. for atleast two months (last year 2025 ⇒ Oct + Nov)

asteroid
earth
month
orbit
final
191

④ → Asteroid Apophis

(named after the Egyptian God for death/darkness/destruction)

⇒ It is an asteroid which pass near the earth for every 7 years

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⇒ It means that in April, Friday 2029, it will pass near the earth, and there is a high chance of hitting the planet earth.

⇒ However, if it missed in 2029 and not strike the earth, it will come back in 2036, with an even higher probability to strike planet Earth.

⇒ This is the real threat.

Comets:

(مذنبات - كواكب قزمة)