

Chp 18 Lect 1 Notes: (section 2) Moons

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What is a satellite?

A satellite is a natural or artificial body that _____ around large bodies like planets. All of the planets, except for Mercury & Venus, have natural satellites called _____.

Artificial Satellite



Natural Satellite



Our Lovely Moon: Our moon is called _____ which is the Latin word for moon. Our moon has a lower _____ than Earth & samples of lunar rocks brought back by the Apollo astronauts suggests the moon is similar to the Earth's _____. The oldest lunar rocks are about 4.6 billion years old. The moon is also covered in craters. By counting these, we know exactly how many times the moon has been hit.

Moon Statistics	
Period of rotation	27 days, 8 hours
Period of revolution	27 days, 8 hours
Diameter	3,476 km
Density	3.34 g/cm ³
Surface temperature	-170 to 134°C
Surface gravity	17% of Earth's

Interesting Facts

- The moon changes slightly every single night.
- There is no air, food, or liquid water on the moon.
- The moon's gravity is too weak to hold an atmosphere.
- The moon _____ only _____% of the light that falls on it.
- Every full moon has a name. The most familiar is the harvest moon, which occurs in the fall.
- More than 70 spacecraft have been sent to the moon.
- 12 astronauts have walked on the surface

Why do we only see one side of the moon?

Think about it: every time you look at the moon, it looks the same. Same man on the moon, same bunny rabbit, always the same. This is because the moon _____

(27 days, 7 hours, 43 minutes) - so the same side always faces Earth. This is called synchronous rotation. There is a part of the moon we never see from Earth. There is no such thing as the dark side of the moon because the sun shines on all sides of the moon in turn.

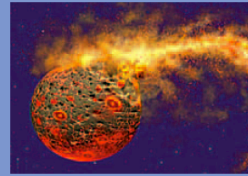
Formation of the Moon



1

Impact

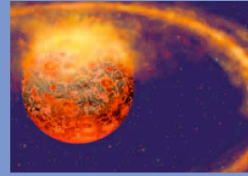
About 4.6 billion years ago, when Earth was still mostly molten, a large body collided with Earth. Scientists reason that the object must have been large enough to blast part of Earth's mantle into space, because the composition of the moon is similar to Earth's mantle.



2

Ejection

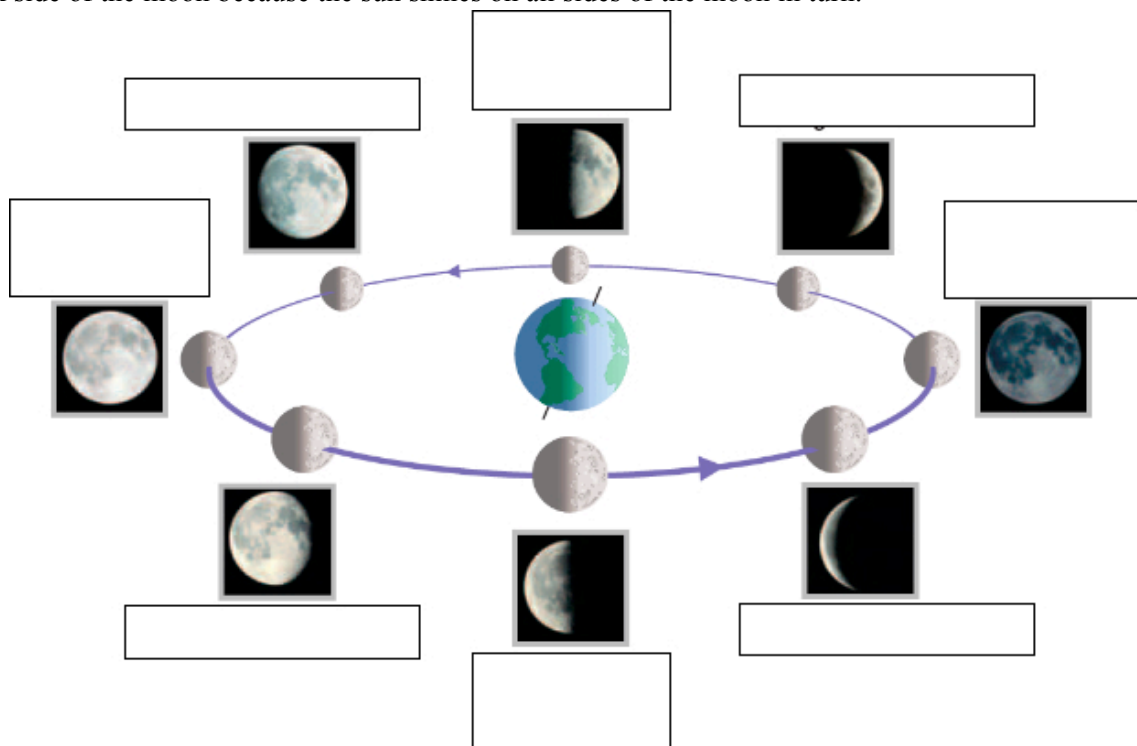
The resulting debris began to revolve around the Earth within a few hours of the impact. This debris consisted of mantle material from Earth and the impacting body as well as part of the iron core of the impacting body.



3

Formation

Soon after the giant impact, the clumps of material ejected into orbit around Earth began to join together to form the moon. Much later, as the moon cooled, additional impacts created deep basins and fractured the moon's surface. Lunar lava flowed from those cracks and flooded the basins to form the lunar maria we see today.





Eclipses

An eclipse occurs when the _____ of one celestial body falls on another. It's all about blocking light and creating a shadow. An eclipse could also happen on the surface of Mars when one of Mars' moons passes between the surface and the Sun. Eclipses don't last longer than a few hours because both planets or moons are _____. The amount of eclipse is also dependent on your _____. The same eclipse might be a total eclipse for someone in Brazil, but only a partial eclipse for someone in Florida.

Why don't we see solar & lunar eclipses every month? Because the moon's axis is tilted by about 5°. This means the moon stays out of Earth's shadows most of the time, and vice versa

_____ Eclipse

- Occurs when the _____ comes between the *sun* and the *moon*.
- During a total lunar eclipse, the moons often appears to turn a deep red.
- There are 2 to 3 lunar eclipses a year
- Partial lunar eclipses are a little more common than total lunar eclipses
- Lunar eclipses are totally safe to look at.



_____ Eclipse

- Occurs when the _____ comes between the *sun* and the *earth*.
- The Moon casts a shadow over a portion of the planet, leaving that area in darkness.
- If you were watching from space, you could see the shadow pass over the surface.
- You would also notice that the Moon's shadow only covers a part of the planet because the Earth is much larger than the Moon.
- There are 1-2 solar eclipses each year.
- A _____ solar eclipse happens when the Moon blocks the entire Sun.
- An _____ or partial solar eclipse only covers some of the Sun.
- There are different eclipses because the Moon can be closer or further away from the surface of the Earth.
- Never look directly at a solar eclipse.



Other Moons

- Many of the planets have moons - both large and small
- All of the gas giants have many moons
- Many of the very small moons may be captured asteroids
- _____ moons are larger than our moon: Ganymede, Titan, Callisto & Io

