

Chapter 21 Notes

A Family of Planets

Section 3

- **Explain** how gas giants are different from terrestrial planets.
- **Describe** the individual characteristics of Jupiter, Saturn, Uranus, Neptune, and Pluto.

The Asteroid Belt

- The four inner planets are separated from the outer planets by the _____ belt.
- There are thousands of asteroids but it is mostly empty space.
- The total mass of all the asteroids combined is less than _____ of the moon.
- It is believed that these asteroids never came together to form a planet because of the gravitational “tug of war” between _____ and Mars.

Jupiter: A Giant Among Giants

- Jupiter is the largest planet in our solar system.
- It is mostly made of _____ and _____.
- Has an extremely thick atmosphere.
- The colors that you see are probably due to small amounts of _____ compounds.
- Has a great red spot on it which is actually a _____ that is more than 400 years old and is three times the diameter of the Earth.
- Jupiter has _____ moons that orbit it!
- Has a faint ring around it.
- Temperature varies from -145°C (-229°F) in the upper atmosphere to $24,000^{\circ}\text{C}$ ($43,232^{\circ}\text{F}$) at the core.

Saturn: Still Forming

- Saturn’s _____ are its defining characteristic.
- They are made of ice, rocks, and dust.
- Made mostly of hydrogen and helium.
- It is still taking in matter and forming.
- Saturn has wind speeds of 1,800 km/hr (1,118 mi/hr)!
- Saturn is _____ and has seasons like us.
- Temperatures are similar to Jupiter.
- It has 62 known moons.

Uranus: A Small Giant

- The Mostly made of hydrogen, helium, and methane.
 - This makes Uranus appear _____.
- Uranus is the coldest planet.
 - Avg. Temp -224°C (-371°F)
 - The core is also much colder than other gas giants.
- Like the other gas giants it also has rings.
- **A Tilted Planet** Unlike most other planets, Uranus is tipped over on its axis. So its axis of rotation is tilted by almost 90° and lies almost in the plane of its orbit.

Neptune: The Blue World

- The composition of Neptune’s atmosphere is similar to that of Uranus’s atmosphere, but Neptune has belts of clouds that are much more visible.
- Neptune was not discovered until 1846.

- Temperatures are very cold -218°C (-360°F)
- Has a very eccentric orbit and is sometimes farther away than Pluto.

The Dwarf Planets

- Orbiting bodies that are not quite big enough to be a planet are classified as **dwarf planets**.
- **A True Planet?** In 2006 the planet Pluto was officially “demoted” to the status of a dwarf planet. Things smaller than Pluto are classified as “other orbiting bodies”.

Section 4

- **Describe** the current theory of the origin of Earth’s moon.
- **Explain** what causes the phases of Earth’s moon.
- **Describe** the difference between a solar eclipse and a lunar eclipse.
- **Describe** the individual characteristics of the moons and other planets.