

Chapter 21 Notes

A Family of Planets

Section 1

- **List** the planets in the order in which they orbit the sun.
- **Explain** how scientists measure distances in space.
- **Describe** how the planets in our solar system were discovered.
- **Describe** three ways in which the inner planets and outer planets differ.

Our Solar System

- Our solar system includes the _____, the planets, and many smaller objects.

Measuring and Interplanetary Distances

- Scientists use the astronomical _____ to measure distances in space. One astronomical unit is the average distance between the sun and Earth, or approximately _____ km.

The Discovery of the Solar System

- **Early Knowledge** Up until the 17th century, the _____ was thought to only contain Mercury, Venus, Earth, Mars, Jupiter, Saturn, the sun, and Earth's moon.
- **Using a Telescope** After the invention of the telescope, the _____ of Jupiter and Saturn were discovered.
- **Modern Times** By the _____th century, Uranus, Neptune, Pluto and many other bodies had been discovered.

The Inner and Outer Solar Systems

- **The Inner Planets** The planets closest to the sun include _____, Venus, Earth, and Mars.
- **The Outer Planets** The outer planets include Jupiter, _____, Uranus, and Neptune.

Section 2

- **Explain** the difference between a planet's period of rotation and period of revolution.
- **Describe** the difference between prograde and retrograde rotation.
- **Describe** the individual characteristics of Mercury, Venus, Earth, and Mars.
- **Identify** the characteristics that make Earth suitable for life.

Mercury: Closest to the Sun

- Mercury is a very hot, dry, _____ planet.
- It is so small that it's gravitational pull is not strong enough to support an _____.
 - Strong solar winds often blow what little atmosphere there is into space.
- Dense _____ core
- Daytime temp 450°C (840°F) Night -170°C (-275°F)

Venus: Earth's Twin?

- Venus is the closest in size to the Earth.

- It has a very thick atmosphere made mostly of CO² (_____%)
- It's atmosphere also contains strong acids.
- Very good at trapping _____!
- Daytime temp 500°C (900°F) Night -50°F (-32°C)
- Of all the inner planets, Venus has the _____ atmosphere.
- Has volcanoes

Earth: An Oasis in Space

- Earth formed at just the right distance from the sun.
- Warm enough to keep most water from freezing.
- Cool enough to keep the water from boiling away.

Mars: Our Intriguing Neighbor

- Mars has a _____ atmosphere.
- Air pressure at the surface is about the same as _____ km above the Earth's surface (3x higher than planes fly)
- Liquid water would quickly boil away with such _____ pressure.
- _____ on Mars's surface has led us to believe that there was liquid water there in the past.
- It is believed that the water may now be frozen beneath the soil.
- Has 2 polar ice caps.
- Has two large volcanic systems, one of which includes the largest _____ in the solar system.