**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Chapter 23 Guided Notes-Touring Our Solar System**

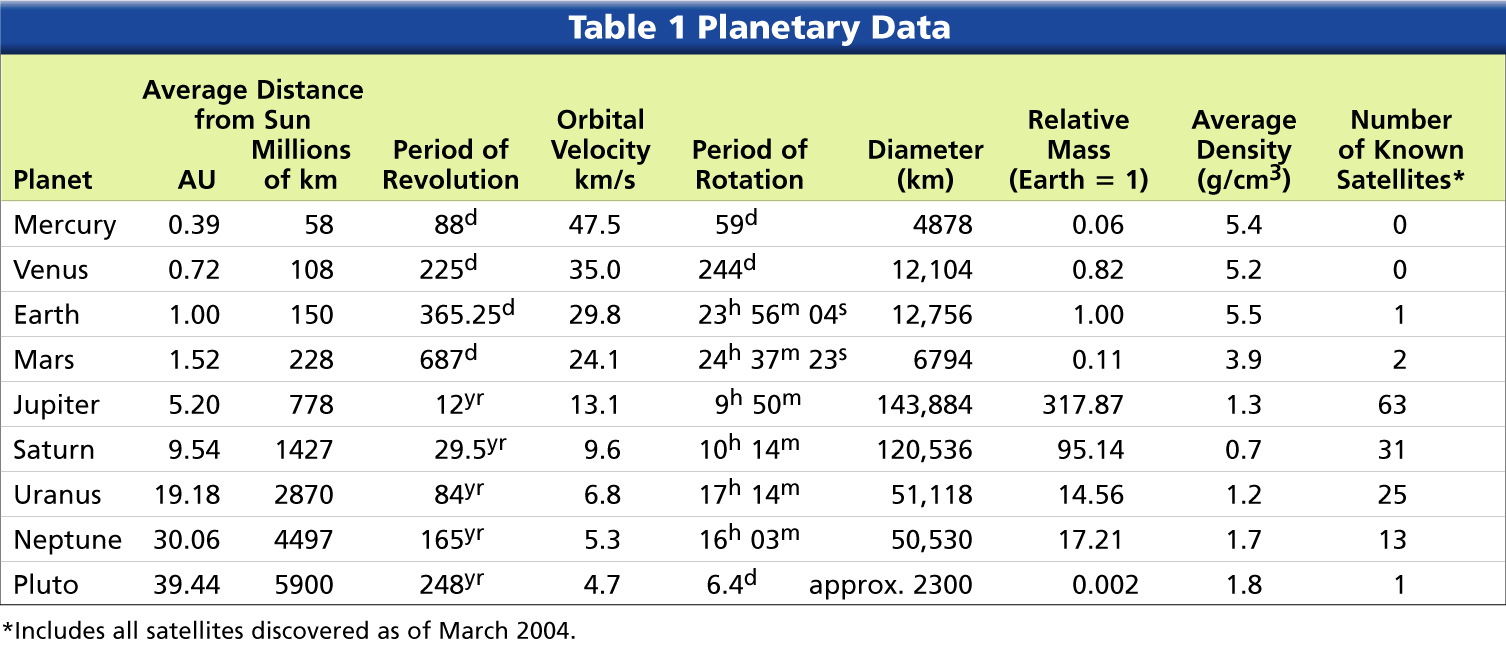
**23.1-Origin of the Solar System**

**Solar System Basics**

* The sun is at the \_\_\_\_\_\_\_\_\_\_\_of our solar system, with \_\_\_\_\_planets \_\_\_\_\_\_\_\_\_\_\_\_\_ around it
* The sun accounts for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of our solar system
* All planets orbit the sun due to the sun’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and all travel in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The \_\_\_\_\_\_\_\_\_ the planet is to the sun, the \_\_\_\_\_\_\_\_\_\_\_\_ it revolves around the sun

**Overview of the Planets**

* Planets fall in to two groups:
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Terrestrial planets are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than Jovian, and are relatively \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Include \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Jovian planets are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Include \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Remember, Pluto \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ anymore. (we’ll talk later about this)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the most obvious difference between Terrestrial and Jovian planets
* Terrestrial are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Density, chemical makeup, and rate of rotation are other ways in which the two groups of planets differ.
  + Terrestrial \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(\_\_\_\_\_\_\_\_\_greater than water)
  + Terrestrial \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Terrestrial \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, Jovian are\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**The Interiors of Planets**

* Substances that make up the planets are divided into 3 categories: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

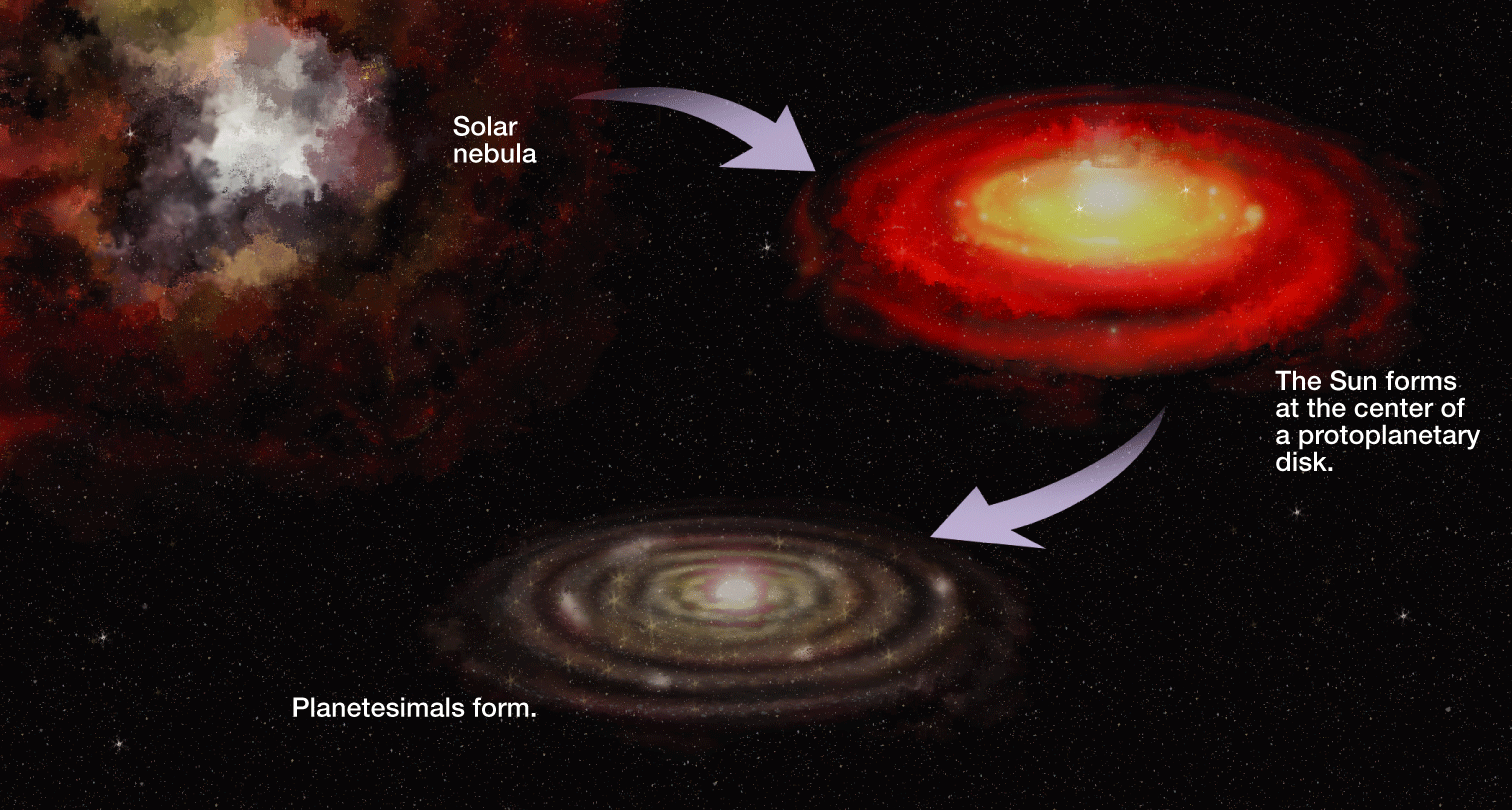
1. The gases-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. The rocks are mainly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. The ices include \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and have intermediate melting points

**The Atmospheres of Planets**

* A planet’s ability to retain an atmosphere depends on its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* If hotter and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* If colder and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_ planets have very \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ planets have meager and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layers

**Formation of the Solar System**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Usually \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* For some reason, these \_\_\_\_\_\_\_ clouds begin to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ gravitationally
* As they contract, they spin \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* According to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the sun and planets formed from a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* As the speed of rotation \_\_\_\_\_\_\_\_\_\_\_\_\_, the center of the disk began to \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Matter began more concentrated at the \_\_\_\_\_\_\_\_\_\_\_where the \_\_\_\_\_\_\_ eventually formed
* The planets began to form through a process called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* With terrestrial planets, temperatures were so \_\_\_\_\_\_\_\_\_ that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ materials could form solid grains
* With Jovian planets, temperatures were so \_\_\_\_\_\_\_that\_\_\_\_\_\_\_\_\_\_ of water and other substances could form.



**23.2- The Terrestrial Planets**

* Include \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Mercury**

* Mercury is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ planet; it is hardly larger than \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Mercury takes \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to rotate on its axis (takes 24 hours on earth)
* Has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Mercury’s surface has cratered \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, much like the moon, and vast smooth terrains that resemble \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Temperatures- Mercury has the greatest \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of any planet.
  + Can range from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ during the day
* Mercury has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Venus**

* Venus is similar to \_\_\_\_\_\_\_\_\_\_\_\_\_in size, density, mass, and location in the solar system. Thus, it has been referred to as “Earth’s twin.”
* Revolves around the sun in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (365 on earth)
* Surface Features
  + Venus is covered in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that visible light \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + About \_\_\_\_\_ of Venus’s surface consists of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Only \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of venus’s surface consists of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Venus’s Atmosphere
  + Can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Atmosphere is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + This leads to a large \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Only small amounts of water vapor and nitrogen have been detected
  + Venus has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Earth**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_planet from the sun
* Rotates on axis every \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Revolves around sun every \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Relatively \_\_\_\_\_\_\_\_\_\_\_\_\_ atmosphere made of mostly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Earth has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Mars: The \_\_\_\_\_\_\_\_\_\_ Planet**

Atmosphere

* The Martian atmosphere has only \_\_\_\_\_\_\_\_\_\_\_\_\_ of the \_\_\_\_\_\_\_\_\_\_\_\_\_ of Earth’s.
* Although the atmosphere of Mars is very \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and may cause the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ observed from Earth.

Surface

* Most Martian surface features are old by Earth standards. The highly cratered \_\_\_\_\_\_\_\_\_\_\_ hemisphere is probably \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ years old.
* Some of the “newest” volcanic regions are at least\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Has the solar system’s biggest \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (size of Ohio, \_\_\_\_\_\_\_ times taller than Mt. Everest)
* Gets the name Red Planet from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on the Surface
* Has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Water on Mars
  + Some areas of Mars exhibit \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ similar to those created by streams on Earth.
  + Images from the Mars Global Surveyor indicate that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has recently migrated to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**23.3- The Jovian Planets**

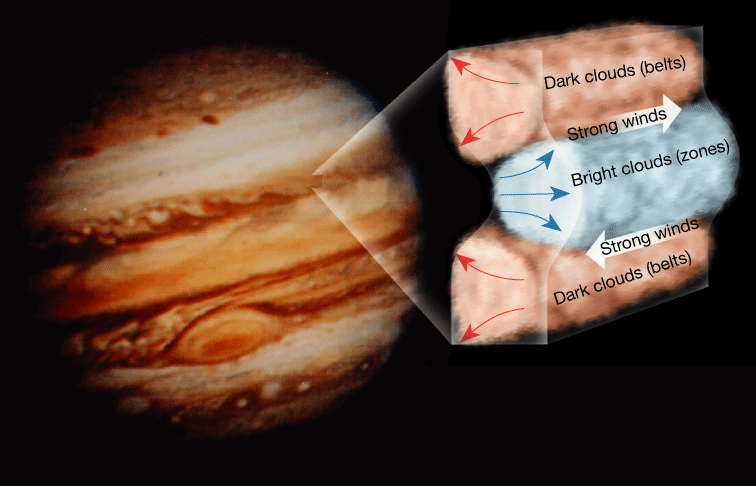
* Includes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Separated from the Terrestrial Planets by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Jupiter**

* Jupiter \_\_\_\_\_\_\_\_\_\_\_\_\_\_ planet from sun
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_planet
* Has a mass that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than the mass of all the other planets and moons combined
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Known for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, a big \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that is \_\_\_\_\_\_\_times the size of earth

Atmosphere

* Made of mostly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and also contains small amounts of methane, ammonia, water, and sulfur compounds
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ you see on Jupiter are huge \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Gives off \_\_\_\_\_\_\_\_\_\_\_\_\_\_ as much heat as it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from sun



Jupiter’s Moons

* Jupiter has \_\_\_\_\_\_\_\_\_\_\_moons, including the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-Believed to have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in solar system

* Jupiter’s Rings
  + Jupiter’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ was one of the most unexpected discoveries made by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Saturn**

* The most prominent feature of Saturn is its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Features of Saturn
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_planet from sun
  + Takes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to make one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ around the sun
  + Saturn is almost \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Saturn’s atmosphere is very active, with winds roaring up to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ similar to Jupiter’s Great Red Spot, but much smaller, occur on the surface
  + Rings of Saturn are very complex
  + Saturn has many moons-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Saturn’s Rings
  + Until the discovery that Jupiter, Uranus and Neptune have ring systems, we thought it was just Saturn
  + Most rings fall into one of two categories based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Main rings, A & B are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are composed of widely \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Saturn’s Moons
  + Saturn’s satellite system consists of 31 moons
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the largest moon
    - Titan is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - Has a thick \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atmosphere with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and photochemical smog
    - It may have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ oceans, rivers, and rain

**Uranus**

* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Instead of being generally perpendicular to the plane of its orbit like the other planets, Uranus’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lies nearly\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with the plane of its orbit.
* This causes it to look like its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ instead of spinning, which could have been caused from a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ planet from sun
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Atmosphere is mostly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Atmosphere gases give it a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ color
* Has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, small moons

**Neptune**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ planet from sun
* Known as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Winds exceed over \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Also has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(a giant storm)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Atmosphere made mostly of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ color from atmospheric gases
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ known Moons
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is largest, about the size of Earth’s Moon
  + Lowest surface temperatures measured in the solar system at -200 degrees Celsius
  + Only \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that exhibits \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Pluto**

* Pluto was decommissioned as planet in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, now classified as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* We will get into what it is classified later
* Pluto does not follow the trends of other Jovian Planets
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**23.4-Minor Members of the Solar System**

**Asteroids**

* An asteroid is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ whose diameter can range from a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Most asteroids lie between the orbits of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They have orbital periods of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Comets**

* \_\_\_\_\_\_\_\_\_\_\_\_ are bodies made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ held together by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_gases. Comets generally revolve about the sun in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ component of a comet’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + A small growing nucleus with a diameter of only a few kilometers can sometimes be detected with a coma. As comets \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, some, but not all, develop a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_that extends for \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of kilometers
* Comet’s tail points \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from the sun

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Belt**

* Encompasses the region of the solar system past \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the largest member
* The belt was discovered in\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Known KBO are over \_\_\_\_\_\_\_\_\_\_\_\_\_\_ but believed to be over \_\_\_\_\_\_\_\_\_\_\_\_\_\_ total
* **Orbits are close to the same plane as the planets**

**\_\_\_\_\_\_\_\_\_\_\_ Cloud**

* Comets with long orbital periods appear to be distributed in all directions from the sun, forming a spherical shell around the solar system
* This is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than the Kuiper Belt

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Comet**

* Most famous short period comet
* Orbital period is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The next time we will be able to get a good look at it is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Meteoroids, Meteors, Meteorites**

* \_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_=luminous phenomenon observed when a meteoroid enters \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and burns up, popularly called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_= \_\_\_\_\_\_\_\_\_\_\_\_\_of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_that reaches earth’s \_\_\_\_\_\_\_\_\_\_

**Most meteoroids originate from any one of the following three sources:**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_