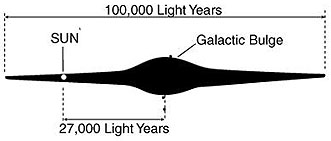
** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Chapter 25 & 26 Notes: Space**

1. Everything that we can see and observe and is known to exist is called the  **.**
2. Universe is still and .
   1. **Hubble’s Law**: says that the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at which a galaxy is moving away is proportional to its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from us.
      1. Galaxies \_\_\_\_\_\_\_\_\_\_ to us are moving away from us .
      2. Galaxies \_\_\_\_\_\_\_\_\_\_\_\_ from us are moving away .
   2. Observations of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ show a shift in their spectra
      1. **Redshift** means the galaxy is moving \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the light waves
      2. **Blueshift** means the galaxy is moving \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ us and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the light waves
3. If galaxies are continually moving away, then if we \_\_\_\_\_\_\_\_\_\_\_\_\_ their movement, it takes us back to a single \_\_\_\_\_\_\_\_\_\_\_\_ in space and time.
   1. The single point is called a **\_\_\_\_\_\_\_\_\_\_ singularity** or **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ singularity**.
   2. Contained all \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ever to exist.
   3. This point expanded rapidly, suddenly, like an explosion. This sudden expansion is called the **B\_\_\_\_\_\_ B\_\_\_\_\_\_\_ Theory**.
      1. H\_\_\_\_\_\_\_\_\_\_\_\_\_ and h\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms formed first as universe cooled
      2. Hydrogen forms into \_\_\_\_\_\_\_\_\_\_\_, and starts fusion
   4. **Dark Energy** is the force that is causing our universe to e\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_a\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Galaxy: a huge group of individual \_\_\_\_\_\_\_\_, star systems, star clusters, \_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_ bound together by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   1. We live in the M\_\_\_\_\_\_\_\_ W\_\_\_\_\_\_ Galaxy
      1. \_\_\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_ Billion stars in our galaxy
      2. Diameter is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ light years
      3. Takes \_\_\_\_\_\_\_\_ million years for our sun to complete \_\_\_\_ orbit
      4. We are a \_\_\_\_\_\_\_\_-spiral galaxy



Side View of MWG Top View of MWG

* 1. Galaxy classification is by shape, there are 4 types.
     1. Spiral, Barred-Spiral, Elliptical, and Irregular

|  |  |
| --- | --- |
| **4 Types of Galaxies** | |
| Spiral | Elliptical |
| Barred-Spiral | Irregular |

1. Star Life Cycle:
   1. Born in a **Nebula** (Hydrogen \_\_\_\_\_\_ and \_\_\_\_\_\_\_ cloud)
      1. Gravity pulls it together. The gas gets so compressed that it \_\_\_\_\_\_\_\_\_\_\_, this is called a **p\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.
      2. Gravity keeps compressing until Hydrogen atoms are \_\_\_\_\_\_\_\_\_\_\_\_ into H\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
      3. A star is formed when n\_\_\_\_\_\_\_\_\_\_\_\_\_ f\_\_\_\_\_\_\_\_\_\_\_\_\_ begins.
   2. Adult Star- different s\_\_\_\_\_\_\_\_, temp, c\_\_\_\_\_\_\_\_\_ and luminosities.
   3. A star dies when run out of \_\_\_\_\_\_\_\_\_ (run out of atoms to fuse, can’t fuse past Iron)
      1. If they are \_\_\_\_ solar masses or less, die as **white dwarf**
      2. If they are \_\_\_\_\_\_\_\_\_\_\_ solar masses, die as **neutron star**
      3. If they are greater than \_\_\_\_\_ solar masses die as **black hole**
2. Solar System Formation- **The Nebular Theory**:
   1. Star is born from \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_ coming together
   2. Most of the mass (99%) goes into the center to form the \_\_\_\_\_\_
   3. The left over matter \_\_\_\_\_\_\_\_\_\_\_\_\_ together around the star

|  |  |  |
| --- | --- | --- |
| Formation of Our Solar System | | |
| Nebula comes together | Flattens into disk | Protostar is formed, planetessimals form |
| Protoplanets accrete &solar winds blow less dense material out | | Planets finish morning with 8 planets. Still left over material |

1. Facts about planets in our solar system:

|  |  |
| --- | --- |
| *Mercury* | |
| Size: |  |
| Location: |  |
| Orbital plane |  |
| Atmosphere: |  |
| Primary Elements: |  |
| Planet made of: |  |

|  |  |
| --- | --- |
| *Venus* | |
| Size: |  |
| Location: |  |
| Orbital plane |  |
| Atmosphere: |  |
| Primary Elements: |  |
| Planet made of: |  |
| *Earth* | |
| Size: |  |
| Location: |  |
| Orbital plane |  |
| Atmosphere: |  |
| Primary Elements: |  |
| Planet made of: |  |

|  |  |
| --- | --- |
| *Mars* | |
| Size: |  |
| Location: |  |
| Orbital plane |  |
| Atmosphere: |  |
| Primary Elements: |  |
| Planet made of: |  |

|  |  |
| --- | --- |
| *Jupiter* | |
| Size: |  |
| Location: |  |
| Orbital plane |  |
| Atmosphere: |  |
| Primary Elements: |  |
| Planets made of: |  |

|  |  |
| --- | --- |
| *Saturn* | |
| Size: |  |
| Location: |  |
| Orbital plane |  |
| Atmosphere: |  |
| Primary Elements: |  |
| Planets made of: |  |

|  |  |
| --- | --- |
| *Uranus* | |
| Size: |  |
| Location: |  |
| Orbital plane |  |
| Atmosphere: |  |
| Primary Elements: |  |
| Planets made of: |  |

|  |  |
| --- | --- |
| *Neptune* | |
| Size: |  |
| Location: |  |
| Orbital plane |  |
| Atmosphere: |  |
| Primary Elements: |  |
| Planets made of: |  |

1. Other objects in our solar system:
   1. **Comets**: dusty pieces of \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_ that partially vaporize when they pass near the sun.
   2. **Meteoroids**: pieces of \_\_\_\_\_\_\_\_\_, usually less than a few hundred \_\_\_\_\_\_\_\_\_ in size, that travel through the solar system.
      1. **Meteor**: when its falling through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
      2. **Meteorite**: when it’s on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   3. **Asteroids**: small, rocky solar-system bodies, most of which are found orbiting the sun in a region between M\_\_\_\_\_\_\_\_\_\_ and J\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
      1. These unaltered remnants show us the \_\_\_\_\_\_ of the solar system and what it originally was \_\_\_\_\_\_\_\_\_ from.

**Standards to know for the test:**

**HIEI:** Classify bodies in Solar System (properties & composition)

Describe attributes of our galaxy & evidence of multiple Galaxies.

(Sun, rock & gas planets, asteroids, comets, moons)

(Size, location, orbital path/plane, atmosphere, elements, % comp)

(Relative stellar mass, galaxy size/shape)

**H2E3**: Describe how the universe, galaxies, stars, and planets evolve over time.

(Big Bang, expanding still, H and He formed 1st)

(Accretion, star life cycle, fusion cycle)

(Solar system formation, meteor evidence)