Solar System and Universe Review Sheet

**Vocabulary**

1. Big bang theory- the theory that the universe started to expand out of an extremely dense, hot state caused by a large explosion
2. Solar system- the sun and its family of orbiting planets, moons, and other objects
3. Galaxy- millions of billions of stars held together in a group by their own gravity
   1. We live in the Milky Way galaxy
4. Universe- space and all the matter and energy in it
5. Light year- the distance light travels in one year equals one light year
6. Ellipse- an oval or flattened circle
   1. The path of the planets around the sun
7. Rotation- spinning of the earth on its axis
   1. One rotation is one day
8. Revolution- the movement of the earth around the sun
   1. One revolution is one year
9. Geocentric system- the idea that the earth is the center of the universe
10. Heliocentric system- the idea that the sun is the center of the solar system

**Historic Models of Astronomy**

* People believed the geocentric system for over 1400 years
* Ptolemy (140AD) believed the geocentric model
* Copernicus (early 1500s) developed the heliocentric system
  + His thoughts were not published until after his death
  + The public did not accept this view because of the church’s influence
* Galileo believed in the heliocentric system
  + Used the telescope to see four of Jupiter’s moons and the phases of Venus
  + Was open with his findings and was persecuted for his ideas
* Kepler found that the orbit of each planet is an ellipse
* Newton
  + Explained that inertia and gravity combine to keep the planets in orbit
    - The tendency of a moving object to continue in a straight line or a stationary object to remain in place is called inertia
    - Gravity is the force that attracts all objects to one another
      * Strength of gravity depends on:

1) Masses of the objects- greater mass results in greater gravity

2) Distance between them- greater distance between objects equals less gravity

**Types of Galaxies**

1. Spiral galaxies- have two or more spiral arms that branch out from the center
   1. Most common type of galaxy
   2. Our solar system is found on an outer arm of the Milky Way galaxy
2. Elliptical galaxies- look like flattened disks with much older stars
3. Irregular galaxies- have no definite shape and stars are not arranged evenly

**Asteroids**

* Orbit the sun
* Irregular in shape
* Composed of dust, rock and metal
* Found in the asteroid belt (area between Mars and Jupiter)

**Comets**

* Form far from the sun and therefore contain a lot of ice
* Their orbits are usually more oval than the paths of planets
* When a comet gets close to the sun, the ice melts and creates a “tail” of gas and dust
  + The tail always points in the direction away from the sun due to solar winds
* When the light hits the gas and dust, it creates a bright, visible light that can be seen on Earth’s surface
* Appear to move slowly across the night sky

**Meteors**

* Also known as shooting stars
* When particles in space enter Earth’s upper atmosphere, they become meteors
* As Earth’s gravity pulls them closer, the objects become hot and begin to glow
* The glowing creates a brief streak of light across the sky

**Meteorites**

* A meteorite is a space object that reaches Earth’s surface
* Outside is usually smooth from melting during the fall through Earth’s atmosphere (hot!)
  + What reaches the surface is usually made of rock and metals
* Most come from the asteroid belt
* Meteorites provide a first-hand look at what materials can be found in space

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**Vocabulary**

1. Big bang theory- the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ out of an extremely dense, hot state caused by a large explosion
2. Solar system- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Galaxy- millions of billions of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. We live in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Universe- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Light year- the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in one year equals one light year
6. Ellipse- an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. The path of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Rotation- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. One rotation is one \_\_\_\_\_\_\_\_
8. Revolution- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. One revolution is one \_\_\_\_\_\_\_\_\_\_\_\_\_
9. Geocentric system- the idea that the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Heliocentric system- the idea that the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Historic Models of Astronomy**

* People believed the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ system for over 1400 years
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (140AD) believed the geocentric model
* Copernicus (early 1500s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + His thoughts were not published until after his death
  + The public did not accept this view because of the church’s influence
* Galileo believed in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Used the telescope to see \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + Was open with his findings and was persecuted for his ideas
* Kepler found that the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Newton
  + Explained that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - The tendency of a moving object to continue in a straight line or a stationary object to remain in place is called \_\_\_\_\_\_\_\_\_\_\_\_
    - Gravity is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Strength of gravity depends on:

1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the objects- greater mass results in greater gravity

2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between them- greater distance between objects equals less gravity

**Types of Galaxies**

1. Spiral galaxies- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   1. Most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Our solar system is found on an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the Milky Way galaxy
2. Elliptical galaxies- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Irregular galaxies- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Asteroids**

* Orbit the sun
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in shape
* Composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Found in the asteroid belt (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

**Comets**

* Form \_\_\_\_\_\_\_\_\_ from the sun and therefore contain a lot of \_\_\_\_\_\_\_\_\_
* Their orbits are usually \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* When a comet gets close to the sun, the ice melts and creates a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + The tail always points in the direction \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* When the light hits the gas and dust, it creates a bright, visible light that can be seen on Earth’s surface
* Appear to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Meteors**

* Also known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* When particles in space enter \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, they become meteors
* As Earth’s gravity pulls them closer, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The glowing creates a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Meteorites**

* A meteorite is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Outside is usually \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ during the fall through Earth’s atmosphere (hot!)
  + What reaches the surface is usually made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Most come from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Meteorites provide a first-hand look at \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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