**Hierarchy of the Universe**

Name:

Solar System



**M**y **V**ery **E**xcited **M**other **J**ust **S**erved **U**s **N**oodles

**GEO-centric=**

**HELIO-centric=**

* **1543 Polish scientist Nicolaus Copernicus suggested Sun was center of solar system**
* **First time a sun-centered or “heliocentric” model was proposed**
* **In a heliocentric model, the inner planets move faster in their orbits than the outer planets do; as Earth bypasses a slower moving outer planet it appears the outer planet temporarily moves backward in the sky**

**The Big Bang Theory**- states that the universe began as a point and has been ever since. There are many misconceptions about the Big Bang Theory.

 Misconceptions:

1. The Big Bang was an .
	1. There was NO .
	2. Reality: space expands
		1. When there is more space between , they “move” away from each other like the “dots on an expanding balloon”
2. The Big Bang Theory is an explanation for how the universe was .
	1. Reality: explains how the universe first started but leaves many unanswered questions.
		1. Time, Space, and Matter were created in the Big Bang
3. There is NOT for the Big Bang Theory
	1. Reality:
		1. Shift
		2. Cosmic Background

**The Doppler Effect**- Red Shift vs. Blue Shift (write an explanation for the images below)



Kepler’s First Law

**Kepler’s 1st Law**: All planetary orbits are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in shape.

A planet is in orbit as shown below. Draw 2 possible locations for a Sun. Label the Earth and Sun



**Kepler’s 2nd Law**- a line joining a planet to its sun sweeps out equal areas in equal times as the planets travel along its orbit.

Use the diagram below to explain how and why a planet’s speed changes as it travels around its sun. Think about when a planet travels faster/slower in its orbit.