Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Space Science Study Guide**

Due: September 25, 2018

The Space Science Exam consists of **50 Multiple Choice questions and 5 short answer questions**. Completing this Study Guide by **examining old notes and Powerpoints on the website** helps to prepare you for the exam.

Please define the following on the back of this sheet, a separate sheet of paper, notecards, quizlet, etc.

**Vocabulary:**

* Galileo
* Claudius Ptolemy
* Nicolaus Copernicus
* Edwin Hubble
* Henrietta Levitt
* Isaac Newton
* Kepler
* Geocentric Model
* Heliocentric Model
* Retrograde Motion
* Perihelion
* Aphelion
* Keplers 1st Law
* Keplers 2nd Law
* Keplers 3rd Law
* Atom
* Helium
* Hydrogen
* Universal Expansion
* Hubble’s Law
* 3 degree background radiation
* Quasars
* Radioactive Decay
* Stellar Formation
* Speed of light
* Solar System
* Terrestrial Planets
* Jovian Planets
* Asteroids
* Comets
* Meteoroids
* Foci
* Major Axis
* Eccentricity
* Light Energy
* Electromagnetic Spectrum
* Radio waves
* Microwaves
* Infrared waves
* Visible light
* Ultraviolet waves
* X-rays
* Gamma rays
* Frequency
* Wavelength
* Light-year
* Parsec
* Parallax
* Fusion
* Hydrostatic Equilibrium
* Absolute Magnitude
* Apparent Magnitude
* Luminosity
* Classification
* HR Diagram
* Main Sequence
* Red Giant
* Supernova
* Hypernova
* Neutron Star
* Blackhole
* White Dwarfs

Please answer the following questions with evidence. These are questions Ms. Caven pulled from the test that seemed particularly challenging.

**Short Answer Questions:**

1. How has our view of the universe changed over time? Be sure to use real life examples of astronomers and their discoveries that helped develop our view.
2. What is the typically composition of a star? How does this relate to its life cycle, nuclear fusion and hydrostatic equilibrium? Be sure to mention all steps of the life cycle (both low and high mass) and how temperature plays a role.
3. Using the electromagnetic spectrum as a reference, describe the relationship between wavelength, energy, and frequency of radiation waves.
4. Identify the areas/regions of the electromagnetic spectrum. How has it aided in the study of the cosmos?
5. How is E=mc2 important to the Big Bang?
6. How are stars born?
7. What does a spectroscope do?
8. How do frequency, energy, and wavelength relate to each other on the electromagnetic spectrum?
9. In what unit are stellar distances measured?
10. Which star colors have the highest temperature on the main sequence?
11. What is the product of nuclear fusion?
12. What are some concepts from Interstellar you found intriguing?
13. Explain the relationship between foci distance, major axis length, and orbit eccentricity.
14. Compare and contrast the geocentric model and heliocentric model.
15. Explain Kepler’s 3 laws of motion in your own words.
16. List the early astronomers (with the exception of Brahe) we studied and their contribution to the study of space.
17. Define aphelion and perihelion. (Be able to label these and the **major axis** in a diagram.)
18. Define and explain retrograde motion.
19. Identify the first elements formed after the Big Bang.
20. When were the first stars and galaxies formed?
21. How are gravity and mass related to the formation of the universe?
22. How does mass affect a planet’s orbit around a star?
23. Identify the life cycle of a star and explain what happens during each step. (Think hydrogen and helium levels.)
24. Read and analyze the H-R Diagram. (there are SIX questions on the test where you will interpret the diagram)!
25. Be familiar with the basic properties of a star (i.e. apparent magnitude, absolute magnitude, luminosity, etc).
26. Identify the regions of the electromagnetic spectrum and how it’s helped in the study of the cosmos.
27. Explain the relationship between wavelength, frequency, and energy of a wave.