

Name: _____

Date: _____ Period: _____

Classification of Stars

CLASS NOTES

- Star - _____

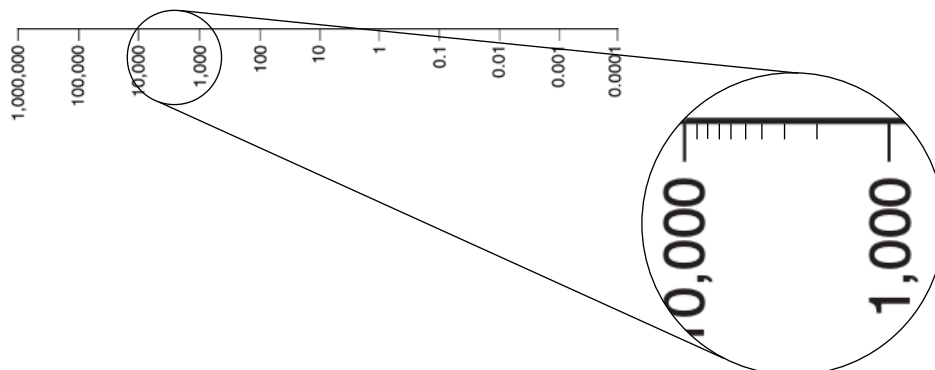
 - Creates energy by _____
 - Majority of know matter in the galaxy
- Absolute Magnitude - _____

 - Factors that Affect Absolute Magnitude: Temperature, Size and Distance
- Absolute Brightness - _____

 - Factors that Affect Absolute Brightness: Temperature and Size
- Spectral Class - _____

 - Electromagnetic radiation is split with a prism into the rainbow of colors and spectral lines
- Luminosity - _____

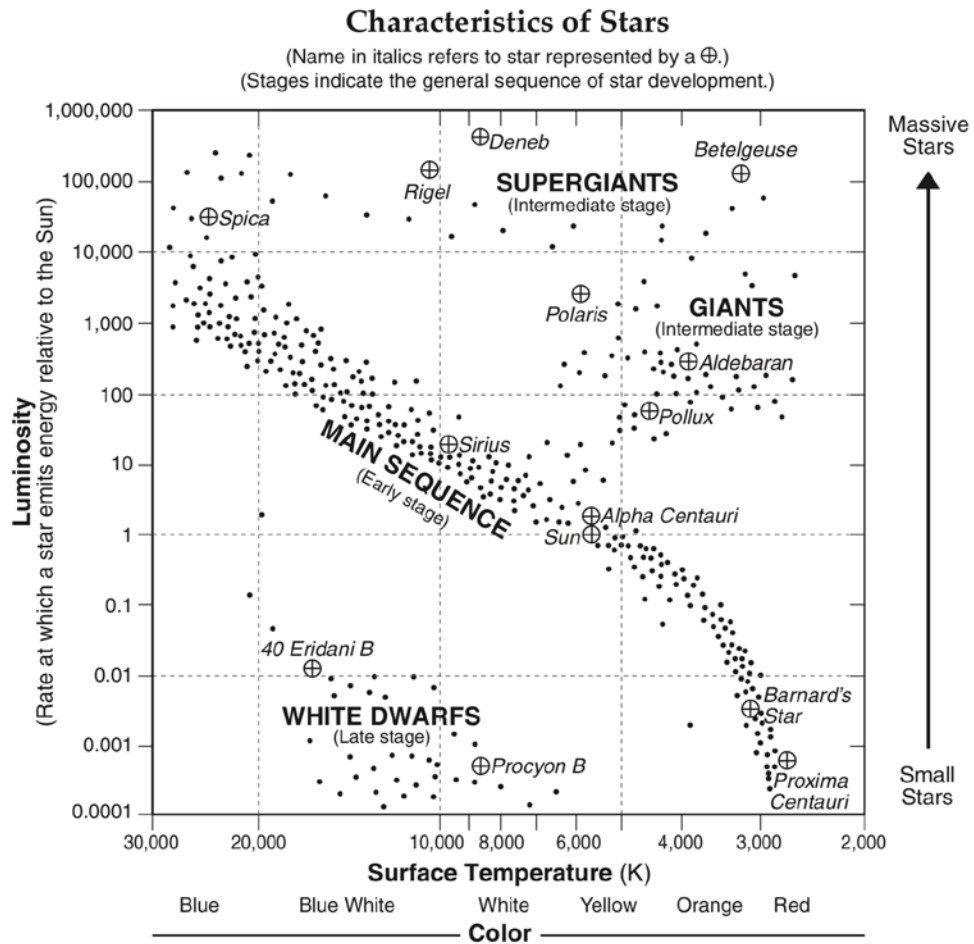
 - Our Sun is the baseline with 1 energy unit
 - Graphed on a logarithmic [non-linear] scale



Classification of Stars

- H-R Diagram -

- Developed by Ejner Hertzsprung of Denmark and Henry N. Russell of the United States



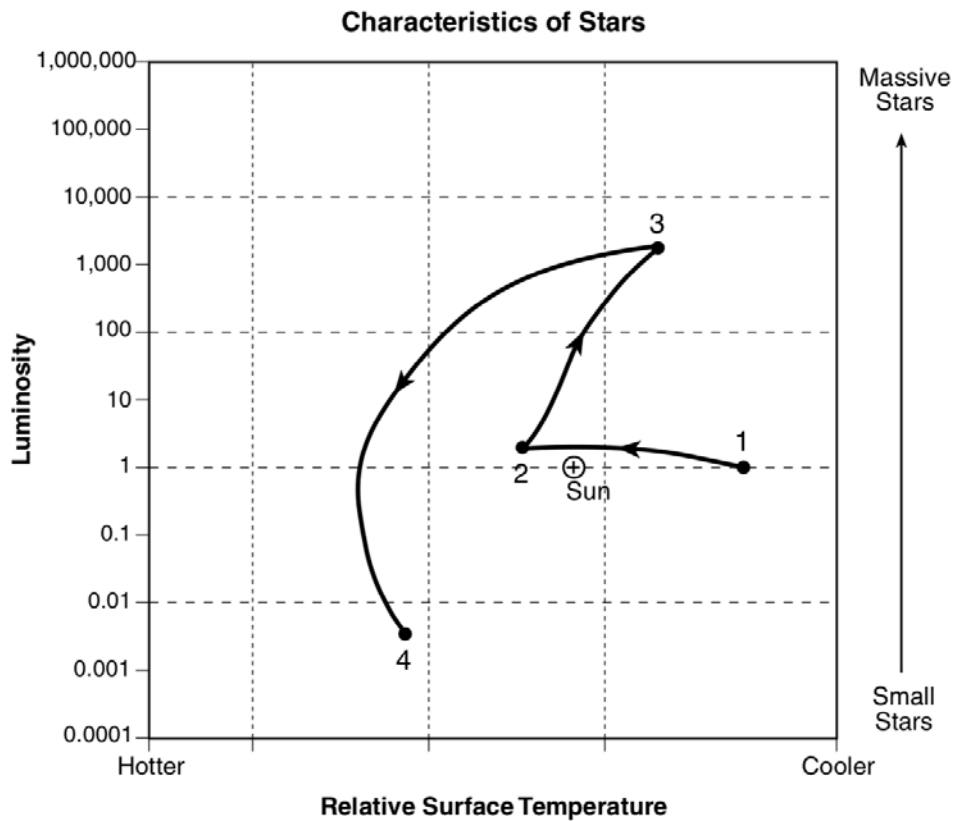
Classification of Stars

PART I QUESTIONS: MULTIPLE CHOICE

1. Which of the following stars has a temperature of approximately 9,000 K and luminosity about 1 to 20 times greater than the Sun's luminosity?
 - a. Sirius
 - b. Procyon
 - c. Rigel
 - d. Polaris
2. Which of the following types of stars is considered part of the main sequence?
 - a. Supergiants
 - b. Red giants
 - c. Red dwarfs
 - d. White dwarfs
3. Which of the following stars is cooler than the Sun?
 - a. Procyon B
 - b. Rigel
 - c. Barnard's Star
 - d. Sirius
4. The Sun is classified with which of the following types of stars?
 - a. Supergiants
 - b. Red giants
 - c. Main sequence
 - d. White dwarfs
5. Which of the forces listed below is most responsible for the formation of stars?
 - a. Gravity
 - b. Magnetism
 - c. Electromagnetism
 - d. Light
6. Which star has a higher luminosity and a lower temperature than the Sun?
 - a. Rigel
 - b. Barnard's Star
 - c. Alpha Centauri
 - d. Aldebaran
7. Compared to the temperature and luminosity of the star Polaris, the star Sirius is
 - a. hotter and more luminous
 - b. hotter and less luminous
 - c. cooler and more luminous
 - d. cooler and less luminous

Classification of Stars

Base your answers to questions 8 through 10 on the graph below and on your knowledge of Earth science. The graph shows the changes in a single star's luminosity and relative temperature from its formation [point 1] to its late stage [point 4] relative to the Sun.



8. Which is a possible surface temperature of this star at point 2?
 - a. 3000 K
 - b. 7000 K
 - c. 5000 K
 - d. 10,000 K

9. Between points 1 and 3, this star is visible to observers on Earth because it emits light energy. This energy is released by the process of nuclear fusion when
 - a. dust collides with the star
 - b. dust is broken apart by radiation
 - c. lighter elements combine to form heavier elements
 - d. heavier elements are broken down to form lighter elements

10. What classification is a star at point 4?
 - a. White Dwarf
 - b. Main Sequence
 - c. Supergiant
 - d. Giant