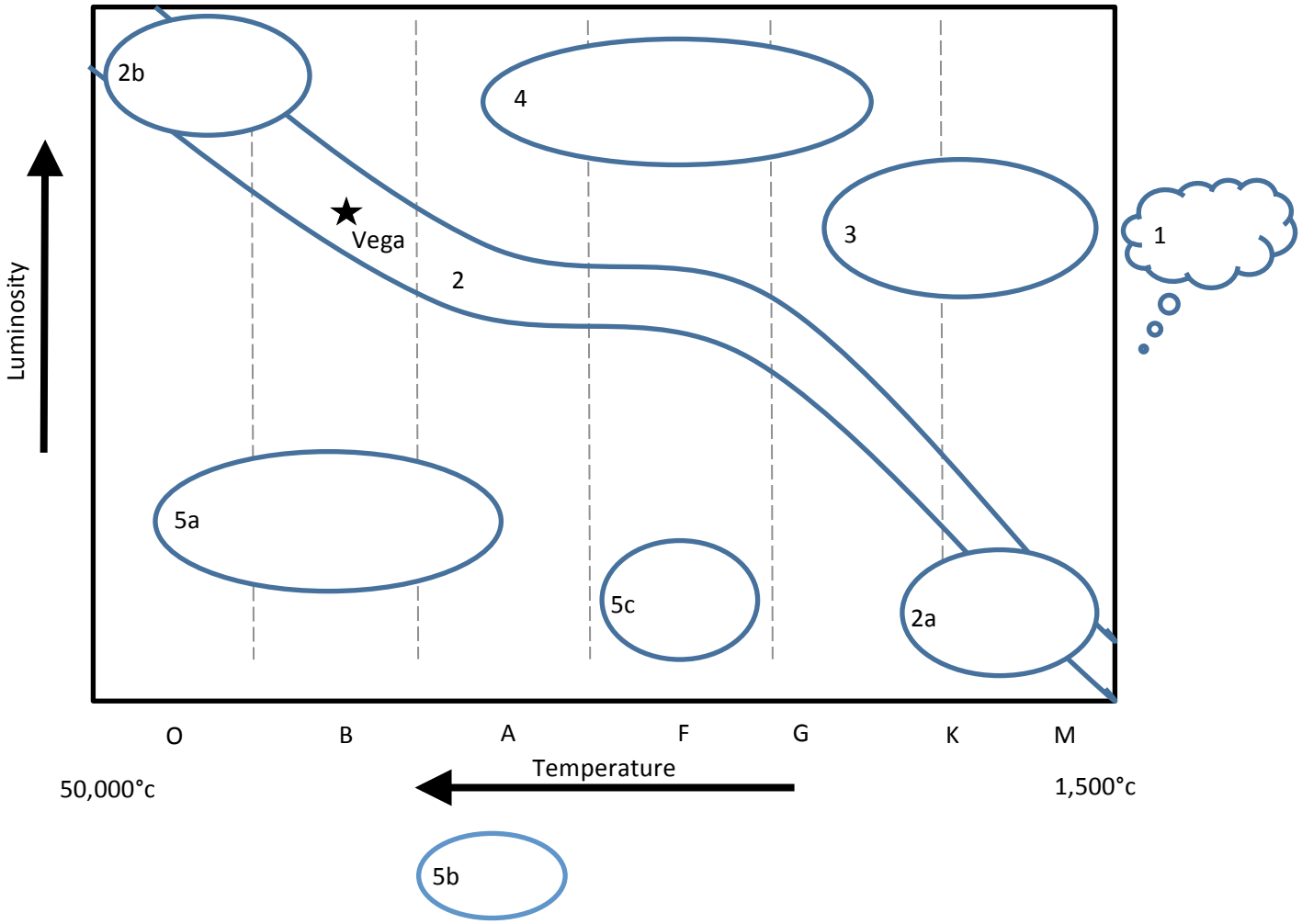
Name:
Date:
Period:

Hertzsprung-Russell Diagram



Part 1: Shading Areas on the H-R Diagram

From left to right between the dotted lines, shade the following colors lightly on the diagram background with colored pencils: Blue, light blue, white, yellow, orange, red.

Part 2: Label Life Cycle of a star

Label each of the following on the diagram.

1. Nebula Gas Cloud
2. Main Sequence

2a. Red Dwarfs
2b. Blue Giants

3. Red Giant
4. Super Giant

5a. White Dwarf
5b. Neutron Star
5c. Black hole

Part 3: Plotting stars

Mark each of the following with a star symbol on the H-R diagram. “Vega” has been done as an example.

1. A blue main sequence star labeled “Spica”
2. A red dwarf main sequence star labeled “Centauri”
3. A yellow main-sequence star labeled “Sun”
3. A very cool, very bright red giant labeled “Betelgeuse”
4. A red giant the same color as #2 and the same brightness as #1 labeled “Capella”
5. A white dwarf the same color as #1 and the same brightness as #2 labeled “Sirius B”

Part 4: Reading an H-R Diagram

1. What is the color of the stars with the highest surface temperature? Lowest surface temperature?

2. Most of the stars on the HR-diagram are classified as which type of stars?

3. What type of star has a high temperature but a low luminosity?

4. What type of star has a low temperature but a high luminosity?

5. Stars “Spica” and “Capella” have the same brightness. Does this mean they are the same temperature? Why or why not?

6. Stars “Spica” and “Sirius B” have the same color. Does that mean they are the same temperature? Why or why not?

7. Explain what is different about “Capella” that allows it to be the same color as “Centauri” but as bright as “Spica”.

8. How can a white dwarf be so hot in temperature, but still not be as bright as our Sun?

9. What will happen as a white dwarf continues to cool off? Why?