

Name: _____

HR Diagram – Student Guide

Pretest Score: _____

Background Information

Work through the background sections on Spectral Classification, Luminosity, and the Hertzsprung-Russell Diagram. Then complete the following questions related to the background information.

Question 1: The table below summarizes the relationship between spectral type, temperature, and color for stars. Note that the surface temperature of the stars in the table increases.

| Star | Surface Temperature K | Spectral Type | Color |
|---------------|-----------------------|---------------|--------------|
| Betelgeuse | | M2 | |
| Arcturus | 4,300 | | |
| | | G2 | Yellow |
| Procyon A | | F5 | Yellow-White |
| Sirius A | | A1 | White |
| Rigel A | 11,000 | | |
| Delta Orionis | | O9 | |

Question 2: Complete the following table related to stellar luminosities in solar units using the equation $L \propto R^2 T^4$.

| Radius (R_{\odot}) | Temperature (T_{\odot}) | Luminosity (L_{\odot}) |
|------------------------|-----------------------------|----------------------------|
| | 1 | 1 |
| 1 | 2 | |
| | 1 | 9 |
| 1 | 1/2 | |