

## Unit 2 Section 3 Study Guide

**Directions: Answer the following questions.**

### **Reviewing Objectives Part 1:**

1. Explain how the Hertzsprung-Russell (H-R) diagram can be used to deduce other parameters (distance). Pages: 781-786
2. Explain how you can infer the temperature, life span, and mass of a star from its color. Use the H-R diagram to explain the life cycle of stars. Pages: 781-786
3. Explain how the balance between fusion and gravity controls the evolution of a star (equilibrium).  
Pages: 781-786
4. Compare the evolution paths of low, moderate, and high mass stars using the H-R diagram.  
Pages: 781-786

### **Reviewing Major Concepts Part 2: *Textbook Chapter 30 sections 2***

1. Explain the steps that the gas in a nebula goes through as it becomes a star.
2. Describe the process that generates energy in the core of a main-sequence star.
3. Explain how a main-sequence star like the sun is able to maintain a stable size.
4. Describe how a star similar to the sun changes after it leaves the main-sequence stage of its life cycle.
5. Describe what causes a nova explosion.
6. Explain why only very massive stars can form black holes.
7. Describe the two types of supernovas.

### **CRITICAL THINKING**

8. Identifying Relationships. How do astronomers conclude that a supergiant star is larger than a main-sequence star of the same temperature?
9. Analyzing Ideas. Why would an older main-sequence star be composed of a higher percentage of helium than a young main-sequence star?
10. Compare and Contrast. Why does temperature increase more rapidly in a more massive protostar than in a less massive protostar?

