Checking Concepts
1. What makes up most of interstellar matter?
2. Briefly explain how a star forms.
3. Is our Sun a low mass, intermediate mass, or high mass star?
4. Describe a supernova.
5. How does a black hole form?
6. What is a star’s spectrum?
7. Explain the Doppler effect.

Understanding Key Ideas
8. (a) Describe the process of fusion in a star.
   (b) What else is produced from a fusion reaction?
9. Why do black holes have such extraordinary gravitational pull?
10. What will eventually happen to all the stars in the universe?
11. Place the following in order from youngest to oldest.
12. (a) Using the Hertzsprung-Russell diagram for guidance, describe the temperature-luminosity relationship for each of the following types of stars.
    (i) white dwarfs
    (ii) red giants
    (iii) supergiants
    (b) Why is it more difficult to describe the position of a main sequence star than the ones above on the Hertzsprung-Russell diagram?
13. How is the colour of a star related to its temperature?
14. How is the colour of a star related to its luminosity (brightness)?

Pause and Reflect
In this section, a duck swimming in a pond was used to illustrate the way wavelengths can be affected by motion. The Doppler effect describes the shortening of wavelengths as stars move toward Earth and the lengthening of them as stars move away from Earth. In a few short sentences, describe other examples of the Doppler effect here on Earth.