9-6. Apparent magnitude refers to how bright a star looks from the Earth regardless of the star's distance from us. Absolute magnitude is how bright the star would appear if its distance was standardized as 10 pc from Earth. By eliminating the effect of different distances between stars and the Earth, astronomers are able to study their other properties, such as size and temperature.

9-13. See Figures 9-6 and 9-7.

10-10. In 5 billion years the Sun will run out of hydrogen fuel in its core. Fusion there will temporarily cease and shell hydrogen fusion will begin just outside the core. This new fusion, closer to its surface, will push the outer layers farther outward and into the giant phase.

11-9. White dwarfs, the remnants of main-sequence stars with less than 8 solar masses, are composed of carbon and oxygen. Electron degeneracy pressure opposes the force of gravity within them. They are typically about the size of the Earth. Neutron stars, the remnants of main-sequence stars with between 8 and 25 solar masses, are composed primarily of neutrons. Neutron degeneracy pressure counteracts the force of gravity in them. They are typically a few kilometers or miles across. Fusion does not occur in either type of stellar remnant. White dwarfs are more common than neutron stars because low-mass main-sequence stars are more common than high-mass main-sequence stars.