Checking Concepts

1. Why is most of the mass of the solar system contained in the Sun?
2. Briefly describe the protoplanet theory of planet formation.
3. What name is given to a group of planets that orbit a star?
4. Why do sunspots appear as dark areas on the Sun’s surface?
5. What is solar wind?
6. Describe two differences between the inner and outer planets.
7. Name a planet that has no atmosphere.
8. Where is the Kuiper Belt found?
9. Describe the composition of a comet.
10. Describe the materials that both the Kuiper Belt and the Oort Cloud contain.

Understanding Key Ideas

11. An astronomical unit (AU) is the average distance between Earth and the Sun. Explain why the distances between bodies in the solar system are measured using AUs.
12. Compare and contrast the following terms.
   (a) planet and solar system
   (b) rotation and revolution
   (c) comets and asteroids
13. Is it possible for an object in space to revolve but not rotate? Explain.
14. Describe the shape of the paths of planets that orbit the Sun.
15. Although asteroids orbit as planets do, why are asteroids not considered to be planets?
16. Explain why the frozen debris found in the Oort Cloud, more than 50,000 AU away from the Sun, is still considered part of the solar system.
17. The photographs that follow show parts of the most recognizable features of three planets in our solar system. Name the planets and the features.

Pause and Reflect

The protoplanet hypothesis suggests that all the planets formed from the same rotating cloud of gas and dust at about the same time. Astronomers studying our solar system have found several pieces of evidence in support of this idea.

- All planets revolve in the same direction around the Sun (counterclockwise).
- Most planets rotate in the same direction (counterclockwise).
- Almost all the planets orbit the Sun on the same plane (an imaginary line drawn out from the Sun’s equator).

Explain how each of these ideas supports the protoplanet hypothesis.