

## ANSWERS TO QUESTIONS

### Understanding Concepts

1. Concept maps will vary, depending on students' prior knowledge. Students should be able to include the objects in the solar system (the Sun, the planets, some moons, and perhaps comets or other objects), some stars, and maybe more distant objects, such as galaxies.
2. The diagram should show light travelling from the Sun to a given planet then reflecting off the planet and travelling to Earth. (The diagram should position the chosen planet in relation to Earth; e.g., Mars is farther from the Sun than Earth.)
3. (a) Neptune and Pluto are much too far away from Earth to be seen with the unaided eye.  
(b) Mercury is close to the Sun, so we often have to look toward the Sun to see it. The Sun lights up our sky, preventing us from seeing other objects easily, including Mercury. Jupiter is far beyond Earth, so often we can look toward it at night to see the Sun's light reflect off it toward Earth.
4. Answers should summarize in complete sentences and with appropriate terminology the differences between planets and stars described in Table 1 (p. 402).

### Making Connections

5. Most scientists carry out experiments and observe the results, but astronomers cannot easily carry out experiments and are limited to observations at a distance. Some students may also include in their answer some of the different tools astronomers use, such as telescopes.
6. The predictable pattern of the constellations and their positions in the night sky provided people with a navigation tool and allowed them to orient themselves. Student responses to situations where navigating by the stars can still be useful will vary. They may raise situations such as being lost when night hiking or losing one's bearing while camping. Other situations could involve being at sea and losing radio or satellite contact. Some students in urban situations may not associate stars and constellations as a historical means of travel.

### Reflections

7. Answers will vary. Students' reflections should have a clearly stated position including at least two arguments (with concrete evidence) supporting the position. Responses should analyze the strong and weak points of the position chosen.

## Answers to Questions

Provides direction to assess student responses to the questions for each lesson.