

Topic 4.2 Assessment

Check Your Understanding Answers

Understanding Key Ideas

1. Students' answers could include people use motion of sky objects to monitor the passage of time, to predict the change of seasons, to navigate, to time their farming practices, to mark celebrations, etc.
2. Constellations are star patterns officially recognized by the International Astronomical Union. Asterisms are star patterns with no official status.
3. a) Stars appear to move east to west as they rotate clockwise around a fixed point.
b) The North Star, or Polaris, is the star that is currently aligned with Earth's axis of rotation. All the stars in the night sky in the northern hemisphere appear to revolve around this one star.
4. Different cultures view constellations through their place- and culture-specific world views.
5. Students' answers should refer to geographic location. The farther north you are located, the fewer of the southern hemisphere stars you can see. In addition, the curvature of Earth will affect your view.

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BC Science Connections 10 Teaching Notes Topic 4.2 What do we know about the universe based on what we can see only with our eyes?

6. Different star patterns are visible during different seasons due to Earth being in different parts of its yearly orbit around the Sun, as per Figure 4.13.

Connecting Ideas

7. a) the ecliptic
b) Students' answers could include the comets are starting from points farther out, or even beyond, the solar system, and that their orbits do not fall along the ecliptic.
8. Students' answers may vary but could include to locate the North Star. Face it squarely, and point to it with your outstretched arm. East will be toward your right shoulder, west your left shoulder, and south will be directly behind you.

Making New Connections

9. Students' answers may vary but could include i) from night to night, planets appear to move through the backdrop of stars; ii) planets do not twinkle like stars. Because they are much closer to Earth than stars, the sunlight reflected from the planets does not have to travel extremely vast distances to get to Earth.
10. Because the constellation Orion is slightly above the ecliptic, planets occasionally can be seen moving through Orion; Cygnus is too far north of the ecliptic for this to happen. (Note that some students might say that neither constellation is good for looking for planets, because planets would most commonly be found along the ecliptic and, thus, would be found within constellations of the zodiac. Without researching further, this is a fair answer based on its reasoning.)