Answer Key
Mapping Earth

Lesson 1

Before You Read
1. agree
2. disagree
3. disagree

Read to Learn
1. Possible answers: road maps, trail maps, and weather maps
2. A map view shows an area of Earth’s surface from above. A profile view shows a vertical “slice” through the ground.
3. to explain what each symbol on the map means
4. Students should circle four tables and highlight the dotted line.
5. graphic scale
6. 3 km
7. Latitude lines run east/west, and longitude lines run north/south making an interlocking grid that is useful for locating points on a globe or map.
8. Students should highlight the equator and the prime meridian.
9. Latitude describes a location north or south of the equator. Longitude describes a location east or west of the prime meridian.
10. If everyone uses the same reference point, confusion is reduced to a minimum. Without time zones, everyone would have a different time for his or her location.
11. 11 A.M.
12. conical projection
13. Cylindrical projections are accurate at the center of the map (equator) while areas at the poles are enlarged. Conical projections are accurate where the cone touches the globe, but distortions occur everywhere else.

After You Read
1. Possible answer: A map legend tells you what the symbols on the map mean; a map scale tells you how far apart things on a map actually are; and lines of latitude and longitude help you locate places with respect to the entire globe.
2. There are four tables on the map. 1 cm = 5 m.
3. Students should explain how underlining the main ideas helped them learn the material.

Lesson 2

Before You Read
4. agree
5. disagree
6. disagree

Read to Learn
1. Explorers and sailors made the first maps to record their trading routes.
2. a map that shows the detailed shapes of Earth’s surface, along with its natural and human-made features
3. They are all artificial lines drawn on maps to help the user. Lines of latitude and longitude help the user determine location. Contour lines help the user envision the actual shape of the land.
4. Students should highlight an area where the contour lines are somewhat far apart.
5. Contour lines are useful in determining the elevation of certain points and the slope and relief of the land.
6. First, draw a profile line on the map. Then transfer the elevations of the contours crossed by the profile line to the y-axis of the topographic profile.
7. The legend contains the symbols that are used to identify the features on the topographic map.
8. Primary highways are main roads and interstates; secondary roads are less traveled. Each has its own symbol.
9. Different colors represent different geologic formations.
10. by drilling for samples, studying earthquake waves, or looking at cliffs
11. The geologic cross section shows the various rock formations that are under the surface of Earth.
12. Students should circle the area where the signals are labeled.
13. safety and rescue; navigating airplanes, ships, and cars; tracking wildlife; earthquake detection; hiking; biking; land surveying
14. GPS units receive signals from three or four satellites. The units calculate their locations. These reference points can be used by mapmakers to generate maps.
15. Possible answers: roads, land usage, elevation
16. GIS can be used to create maps from data banks of information and models that can be used in simulations of changing conditions.

17. collecting information about an area without coming into physical contact with it

18. Remote sensing can be used to show detailed information about agriculture, forestry, geology, land use, and many other subjects.

19. Satellites and sonar are two tools that are used to collect remote sensing data.

After You Read
1. Possible answer: A topographic map has contour lines that show the relief of an area and the elevation at each point on the map.

2. left box: high point of area; right box: slope

3. A topographic map shows the detailed shapes of Earth’s surface, along with its natural and human-made features. A geologic map shows the surface geology of the mapped area, such as rock types, their ages, and locations of faults.