

Directed Reading

Section: Types of Maps

- _____ 1. What are some of the characteristics of an area shown on maps used by Earth scientists?
- a. types of animals, types of plants, types of minerals
 - b. types of rocks, differences in air pressure, varying depths of groundwater
 - c. types of governments, differences in tire pressure, varying depths of focus
 - d. types of countries, types of states, types of counties

TOPOGRAPHIC MAPS

- _____ 2. What do topographic maps show?
- a. surface features of Earth
 - b. surfaces of highways
 - c. cities and counties
 - d. the tops of mountains
- _____ 3. What is topography?
- a. the study of mountains
 - b. the study of weather and climates of Earth
 - c. the size and shape of the land surface features of a region
 - d. the features of Earth beneath the surface crust
- _____ 4. What do most topographic maps show besides natural features?
- a. types and properties of soils
 - b. constructed features, such as buildings and roads
 - c. weather features, such as temperature and precipitation
 - d. types of rocks found in a given area
- _____ 5. How are topographic maps made?
- a. by putting available photographs together with old maps to make a new map
 - b. by using land-level photographs and estimates of distance collected in the field
 - c. by using subterranean photographs and survey points collected in the field
 - d. by using aerial photographs and survey points collected in the field

Directed Reading *continued*

- _____ 6. Topographic maps show the height of land above sea level, which is called
- a. irrigation.
 - b. revelation.
 - c. elevation.
 - d. elevator.
- _____ 7. What is mean sea level, or the place from which elevation is measured?
- a. the point midway between the highest and next to highest tide levels of the ocean
 - b. the point midway between the highest and lowest tide levels of the ocean
 - c. the point midway between the lowest and next to lowest tide levels of the ocean
 - d. the point closest to the lowest and next to highest tide levels of the ocean
- _____ 8. What is the elevation at mean sea level?
- a. -20
 - b. 100
 - c. 500
 - d. 0
- _____ 9. What would be the advantage of a topographic map of an island over a typical map projection?
- a. It would show the island's plants, water, and resources.
 - b. It would show the island's villages, roads, and ports.
 - c. It would show the island's location, buildings, and farms.
 - d. It would show the island's size, shape, and elevation.
- _____ 10. What are contour lines used to show on topographic maps?
- a. irrigation
 - b. elevation
 - c. escalation
 - d. aeration
- _____ 11. What is a contour line?
- a. an isogram that connects points of equal elevation
 - b. an anagram that connects points of equal elevation
 - c. an isogram that connects points that have different elevations
 - d. an epigram that connects points of equal elevation
- _____ 12. Because points at a given elevation are connected, the shape of
- a. the common lines reflects the shape of the land.
 - b. the contour lines reflects the shape of the map.
 - c. the contour lines reflects the shape of the land.
 - d. the epigrams reflects the shape of the land.

Directed Reading *continued*

_____ **13.** What is the contour interval?

- a.** the difference in contour between one elevation line and the next
- b.** the difference in elevation between one elevation line and the next
- c.** the difference in elevation between one contour line and the next
- d.** the difference in contour between one contour line and the next

14. What is relief on a map?

15. What is the contour interval like on a map where the relief is high? Give an example.

16. What is the contour interval like on a map where the relief is low? Give an example

17. What is an index contour?

18. How are exact elevations marked?

19. What indicates the shapes of landforms on a topographic map?

Directed Reading *continued*

20. What do contour lines spaced widely apart indicate?

21. What do contour lines spaced closely together indicate?

22. Describe the contour line that indicates a valley.

23. Where will the V in the contour line point if a stream or river flows through the valley? Explain why.

24. How is the width of a valley represented on a contour map?

25. How are hilltops indicated on a topographical map?

26. What are depression contours?

27. What does the color of a symbol indicate on a topographic map?

Directed Reading *continued*

In the space provided, write the letter of the color that is used to represent each feature on contour maps.

- | | |
|---|--------------------------|
| _____ 28. major highways | a. black |
| _____ 29. bodies of water | b. red |
| _____ 30. buildings, boundaries, roads, railroads | c. blue |
| _____ 31. contour lines | d. green |
| _____ 32. areas not verified by field exploration | e. brown or black |
| _____ 33. forested areas | f. purple |

GEOLOGIC MAPS

- _____ 34. What are geologic maps designed to show?
- a.** the distribution of topographic features
 - b.** the distribution of geologic features
 - c.** realistic geologic features
 - d.** the distribution of political boundaries
- _____ 35. What in particular do geologic maps show about a given area?
- a.** types of rocks and locations of faults, folds, and other structures
 - b.** types of organisms and locations of habitats and ecosystems
 - c.** types of roads and locations of highways and rest stops
 - d.** types of contours and locations of roads, lakes, and buildings
- _____ 36. What type of maps are geologic maps created on top of?
- a.** case maps
 - b.** topographic maps
 - c.** reference maps
 - d.** base maps
- _____ 37. What does the base map provide?
- a.** underground features, such as faults or folds, to help identify the location of geographic units
 - b.** surface features, such as rocks, faults, or folds, to help identify the location of geologic units
 - c.** map features, such as bodies of water or roads, to help identify the location of geographic units
 - d.** surface features, such as topography or roads, to help identify the location of geologic units

Directed Reading *continued*

- _____ **38.** What is a geologic unit?
- a.** a volume of rock of different age ranges and rock types
 - b.** a single rock of a given age range and rock type
 - c.** a volume of rock of a given age range and rock type
 - d.** a single rock of different age ranges and rock types
- _____ **39.** What types of units are usually assigned colors in the same color family, such as different shades of blue?
- a.** geologic units of similar ages
 - b.** geologic units of similar colors
 - c.** geologic units of similar types of rock
 - d.** geologic units of different ages
- 40.** Describe the set of letters that geologists assign to each rock unit and what the letters symbolize.

- 41.** What do contact lines indicate on geologic maps?

- 42.** Describe the two main types of contacts.

- 43.** What are strike and dip symbols?

SOIL MAPS

- _____ **44.** Why do Earth scientists construct soil maps?
- a.** to classify, map, and describe sediment
 - b.** to classify, map, and describe soils
 - c.** to survey, record, and spread soils
 - d.** to decide where to use more soil as land fill

Directed Reading *continued*

- _____ **45.** What are soil maps based on?
- a.** surveys that reveal information about locations of soil
 - b.** surveys that record information about properties of soil
 - c.** surveys that record information about properties of vegetation
 - d.** surveys that record information about properties of minerals
- _____ **46.** What is the government agency in charge of soil data?
- a.** Natural Resources Conservation Service
 - b.** Natural Resources Conversation Service
 - c.** American Resources Conservation Service
 - d.** National Resources Conservation Service
- _____ **47.** What department is the NRCS part of in the U.S. federal government?
- a.** the Department of Forestry
 - b.** the Department of Horticulture
 - c.** the Department of Minerals
 - d.** the Department of Agriculture

48. What are the three main parts of a soil survey?

49. Describe the three parts of a soil survey.

50. How does knowing soil properties help farmers, agricultural engineers, and government agencies?

OTHER TYPES OF MAPS

- _____ **51.** Earth scientists use maps to show the location and flow of water and air by plotting data from various points around a region and
- a.** using isotopes to connect the points with different data.
 - b.** using isograms to connect the points with identical data.
 - c.** using isograms to connect the points with different data.
 - d.** using epigrams to connect the points with identical data.

Directed Reading *continued*

- _____ **52.** What do meteorologists use maps for?
- a.** to record and predict meteorites
 - b.** to record and predict volcanic eruptions
 - c.** to record and predict the weather
 - d.** to record and predict earthquakes
- _____ **53.** What types of things may be plotted on weather maps?
- a.** precipitation, air pressure, weather fronts
 - b.** condensation, ice formation, climate
 - c.** volcanoes, earthquakes, tidal waves
 - d.** mountains, valleys, waterways
- _____ **54.** What can be recorded about groundwater by using maps?
- a.** mineral content and saline content
 - b.** location and direction of flow
 - c.** purity and taste
 - d.** amount and best way to drill wells
- _____ **55.** What other things do Earth scientists use maps to study?
- a.** changes in geography, state lines, and economic factors
 - b.** changes in the life cycles of organisms
 - c.** changes in topography, available resources, and factors that affect climate
 - d.** changes in global geopolitical boundaries

45. isograms used by meteorologists to show changes in atmospheric pressure on weather maps
46. All points along an isobar share the same pressure value.
47. because one location cannot have two air pressures
48. to show areas that have similar measurements of precipitation, temperature, gravity, magnetism, density, elevation, or chemical composition

SECTION: TYPES OF MAPS

1. B
2. A
3. C
4. B
5. D
6. C
7. B
8. D
9. D
10. B
11. A
12. C
13. C
14. Relief is the difference between the highest and lowest elevations in a given area.
15. It is high. It may be 50 or 100 meters.
16. It is low. The contour interval may be 1 or 2 meters.
17. every fifth contour line on a map, which is bolder than the other lines and labeled with its elevation
18. by an x and a label
19. the spacing and direction of the contour lines
20. that the elevation is gradual and that the land is relatively level
21. that the change in elevation is rapid and that the slope of the land is steep
22. A contour line indicating a valley bends to form a V shape. The bend points toward the higher end of the valley.
23. It will point upstream, the direction from which the water flows, because rivers always flow from higher to lower elevations.
24. The width of the V shows the width of the valley.
25. by contour lines that form closed loops
26. closed-loop contour lines with short, straight lines perpendicular to the inside of the loop that point toward the center of the depression
27. The color of a symbol indicates the type of feature on a topographic map.
28. B
29. C
30. A
31. E
32. F
33. D
34. B
35. A
36. D
37. D
38. C
39. A
40. The set of letters usually consists of one capital letter symbolizing the age of the rock, generally by geologic period, followed by one or more lowercase letters that represent the name of the unit or type of rock.
41. They indicate contacts, or places at which two geologic units meet.
42. Depositional contacts show where one rock layer formed above another. Faults are cracks where rocks can move past each other.
43. Strike symbols indicate the direction in which rock beds run. Dip symbols indicate the angle at which the beds tilt.
44. B
45. B
46. A
47. D
48. text, maps, and tables
49. The text includes general information about the geology, topography, and climate of the area being mapped. The tables describe the types and volumes of soil in the area. There are usually two types of soil maps: a general map showing the approximate location of different types of soil in the area and one that shows detailed information.
50. It helps them identify ways to conserve and use soil and to plan sites for future development.

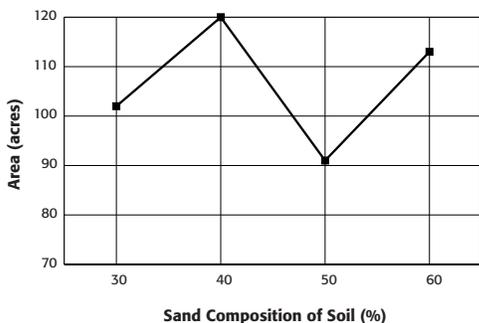
- 51. B
- 52. C
- 53. A
- 54. B
- 55. C

Math Skills

- 1. $10,000,000 = 10 \times 10 = 10^7$
- 2. $10,000 = 10 \times 10 \times 10 \times 10 = 10^4$
- 3. $250,000 = 500 \times 500 = 500^2$
- 4. $10 = 10 \times 1 = 10^1$
- 5. $5 \times 5 \times 5 \times 5 = 625$; $2 \times 2 \times 2 = 8$
 $625 \times 8 = 5000$
- 6. 1
- 7. $20^6 = 20 \times 20 \times 20 \times 20 \times 20 \times 20 = 64,000,000$
- 8. $13 \times 13 \times 13 \times 13 = 28,561$

Graphing Skills

- 1. 40%
- 2. 30%
- 3. 145 km²
- 4. 174 km²
- 5.



Section Quizzes

SECTION: FINDING LOCATIONS ON EARTH

- 1. E
- 2. D
- 3. A
- 4. B
- 5. C
- 6. B
- 7. C
- 8. A
- 9. C
- 10. D

SECTION: MAPPING EARTH'S SURFACE

- 1. C
- 2. D
- 3. E
- 6. D
- 7. A
- 8. B

- 4. B
- 5. A
- 9. C
- 10. C

SECTION: TYPES OF MAPS

- 1. D
- 2. C
- 3. E
- 4. A
- 5. B
- 6. D
- 7. A
- 8. C
- 9. B
- 10. D

Chapter Test A

- 1. E
- 2. I
- 3. F
- 4. J
- 5. H
- 6. D
- 7. G
- 8. A
- 9. B
- 10. C
- 11. B
- 12. A
- 13. B
- 14. A
- 15. D
- 16. B
- 17. C
- 18. B
- 19. D
- 20. A

Chapter Test B

- 1. C
- 2. A
- 3. E
- 4. B
- 5. D
- 6. D
- 7. B
- 8. A
- 9. B
- 10. C
- 11. D
- 12. D
- 13. B
- 14. A
- 15. C
- 16. contour lines
- 17. fractional scale
- 18. magnetic declination
- 19. geologic unit
- 20. cartography
- 21. Answers may vary. Sample answer:
place's latitude indicates how many degrees north or south of the equator it is. Combining a place's latitude with its longitude (the number of degrees east or west of the prime meridian) determines its location on Earth.