

3.3 Notes

Objectives

- **Explain** how elevation and topography are shown on a map.
- **Describe** three types of information shown in geologic maps.
- **Identify** two uses of soil maps.

Topographic Maps

- One of the most widely used maps is called a topographic map, which shows the surface features of Earth.
- **topography** the size and shape of the land surface features of a region
- **elevation** the height of an object above sea level

Advantages of Topographic Maps

- Topographic maps provide more detailed information about the surface of Earth.

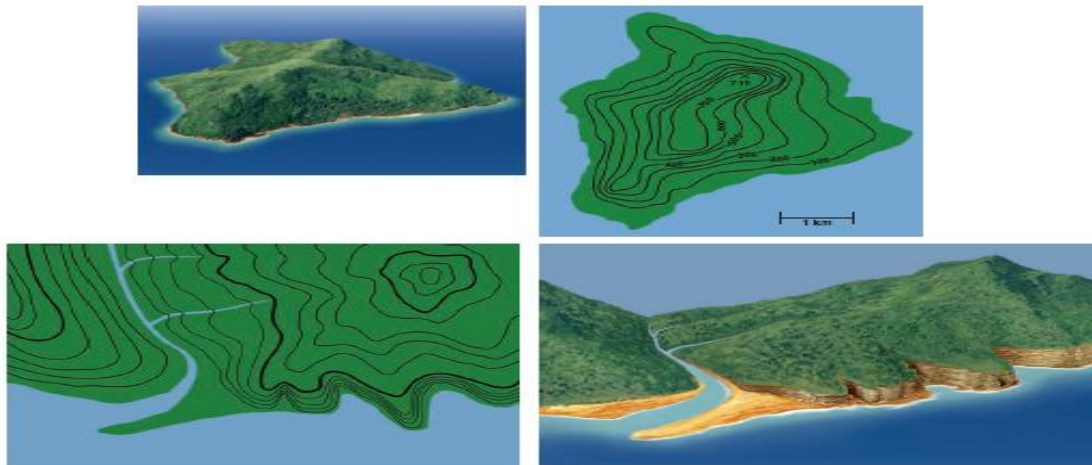
Elevation on Topographic Maps

- On topographic maps, elevation is shown by using contour lines.
- **contour line** a line that connects points of equal elevation on a map
- The difference in elevation between one contour line and the next is called the *contour interval*. The contour interval is selected based on the relief of the area being mapped.
- **relief** the difference between the highest and lowest elevations in a given area
- Every fifth contour line is darker than the four lines one either side of it. This *index contour* makes reading elevation easier.

Landforms on Topographic Maps

- The spacing and direction of contour lines indicate the shapes of the landforms represented on a topographic map.
- Closely spaced contour lines indicate that the slope is steep.
- Widely spaced contour lines indicate that the land is relatively level.
- A contour line that bends to form a V shape indicates a valley. The bend in the V points toward the higher end of the valley; this V points upstream, or in the direction from which the water flows, if there is a stream.
- Contour lines that form closed loops indicate a hilltop or a depression. Closed loops that have short straight lines perpendicular to the inside of the loop indicate a depression.

The diagram below shows how topographic maps represent landforms.



Topographic Map Symbols

- Symbols are used to show certain features on topographic maps.
- Symbol color indicates the type of feature. Constructed features, such as buildings, are shown in black. Highways are shown in red. Bodies of water are colored blue, and forested areas are colored green.
- Contour lines are brown or black.

Geologic Maps

- Geologic maps are designed to show the distribution of geologic features, such as the types of rocks found in a given area and the locations of faults, folds, and other structures.

Rock Units on Geologic Maps

- On geologic maps, geologic units are distinguished by color. Units of similar ages are generally assigned colors in the same color family, such as different shades of blue.
- In addition to assigning a color, geologists assign a set of letters to each rock unit. This set of letters symbolizes the age of the rock and the name of the unit or the type of rock.

Other Structures on Geologic Maps

- Other markings on geologic maps are contact lines. A *contact line* indicates places at which two geologic units meet, called *contacts*.
- The two main types of contacts are faults and depositional contacts.
- Geologic maps also indicate the strike and slip of rock beds. *Strike* indicates the direction in which the beds run, and *dip* indicates the angle at which the beds tilt.

Soil Maps

- Scientists construct soil maps to classify, map, and describe soils, based on surveys of soils in a given area.

Soil Surveys

- A soil survey consists of three main parts: text, maps, and tables.
- The text includes general information about the geology, topography, and climate of the area.
- The tables describe the types and volumes of soils in the area.
- The maps show the approximate locations and types of the different soils.

Uses of Soil Maps

- Soil maps are valuable tools for agriculture and land management.
- Soil maps are used by farmers, agricultural engineers, and government agencies.
- The information in soil maps and soil surveys helps developers and agencies identify ways to conserve and use soil and plan sites for future development.

Maps in Action

Topographic Map of the Desolation Watershed

