

# Lesson

# 3

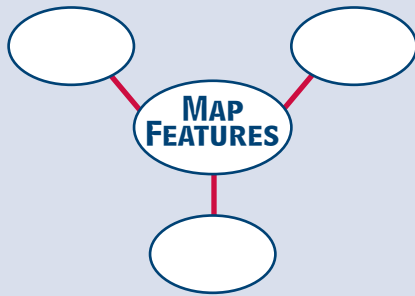
# Using Contours to Determine Elevation

## WHAT YOU WILL LEARN

To determine elevation using a contour map

## READING STRATEGY

Create a diagram like the one below. In each of the outer circles, write an example of a feature you would find on a contour map.



## TERMS TO KNOW

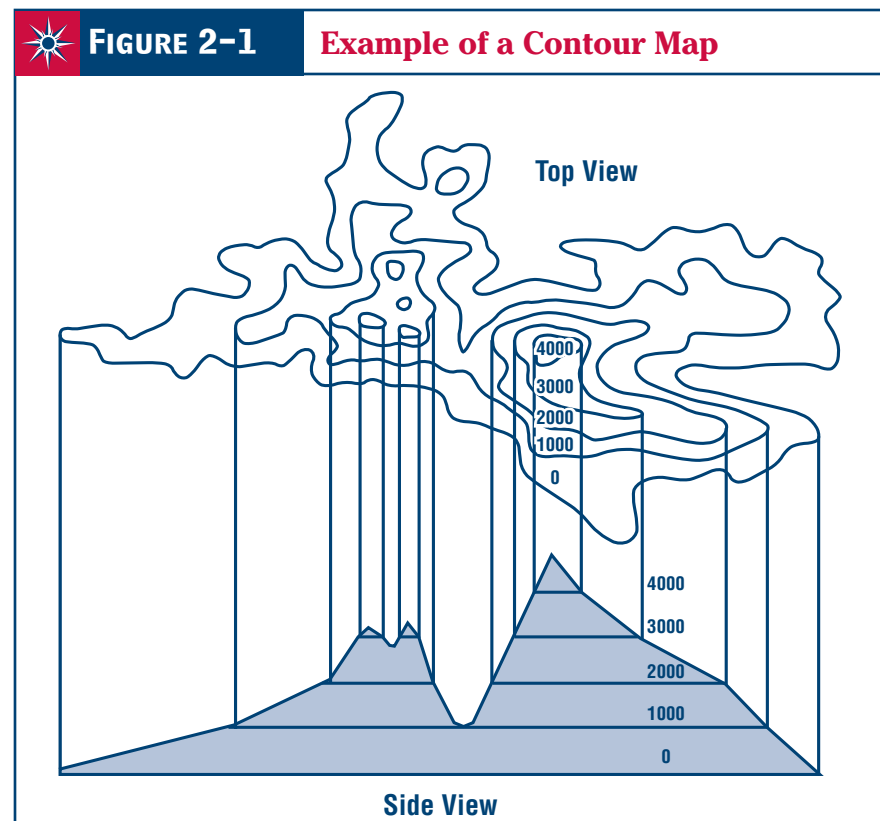
contour map, contour line, contour interval

You read in Lesson 2 how elevation maps show the height of land over large areas. But suppose you are trying to decide where to build a new road. You need to know the exact elevation of particular places in order to choose the best route. An elevation map would not be very helpful.

## Contour Maps

There is a map that does show elevation more exactly. This kind of map is called a **contour map**. A contour map has many lines on it. These lines show elevation. Each line on the map joins all the places that have the same elevation. This means that if you walked along one contour line, you would always be at the same height above sea level.

Look at **Figure 2-1**. It shows how a contour map is made. This drawing is of an island. Look at the part of the drawing marked “Top View.” This shows you how the island would look from an airplane. Look at the part of the drawing marked “Side View.” This shows you how the island would look from a boat on the water.



Notice the lines on the drawing marked “Side View.” These imaginary lines cut through the island at different elevations. The elevations are marked on the drawing. The first line is at sea level, or 0 feet. At what elevation is the next higher line? The highest?

Now look at the top view. Imagine yourself in an airplane high above the island, looking down. Imagine that you could see where all the lines that cut through the island come out. The lines would look like the top view. Each line is called a **contour line**, because it follows the shape, or contour, of the land. Each contour line joins points with the same elevation. Each line is numbered to show the height above sea level of the points joined by that line. Notice how these lines form circles or ovals—one inside the other.

By reading the numbers on contour lines, you can tell how high each line is above sea level. How high above sea level is the highest line labeled in the drawing?

In the side view of the drawing, the lines are all the same distance apart. Why is this not true on the top view? The lines are not the same distance apart because they follow the shape of the land. Look at the left-hand side of both the top view and the side view. In the side view, you can see that the island slopes up gently from the sea on the left. In the top view, you can see that the contour lines are far apart on the left side. Now look at the middle of both views. The island rises steeply in the middle, as you can see in the side view. In the top view, the contour lines are close together in the middle of the drawing.

This is one of the most important things you need to remember about the contour maps. When the lines on a contour map are close together, the land is steep. When the lines are far apart, the land is flat.

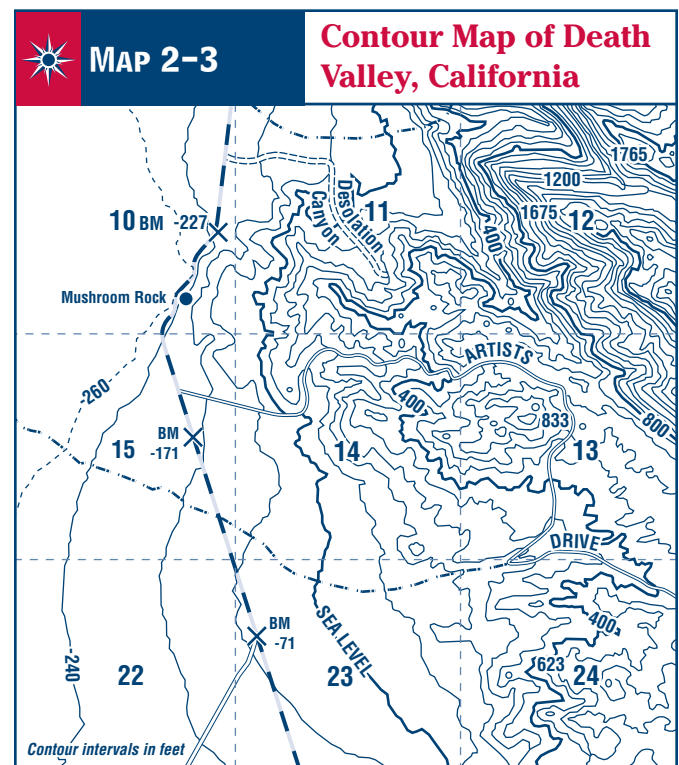
## Reading Contour Maps

To read a contour map, first identify the area shown on the map. Then look for the legend. The legend will tell you whether the contour lines are numbered in feet or meters. It will also tell you

how much elevation there is between contour lines. This is called the **contour interval**. Locate the highest and lowest numbers, which indicate the highest and lowest elevations. Finally, notice the amount of space between the lines. This will tell you whether the land is steep or flat.

Look at **Map 2-3**. It is part of a contour map of Death Valley, California. Part of Death Valley is below sea level. Can you find the dark contour line that runs across the middle of the map from top to bottom? Near the bottom of the map the line is marked “sea level.” That contour line joins the points on the map that are at 0 feet.

Now look directly to the right of the words *sea level*. Near the edge of the map you will find another contour line that is darker than the others. It is marked “400.” That line joins points on the map that are 400 feet above sea level. Now look to the left of the words *sea level*. Near the edge of the map on the left you will find a contour line marked “-240.” Notice the minus sign in front of the numbers. This means that the line joins points that are below sea level.



## Using Your Skills

### A REVIEWING KEY TERMS

Fill in the blanks with the correct words to complete the following sentences.

1. Each line on a \_\_\_\_\_ map is called a contour line.
2. Each contour line connects points with the same \_\_\_\_\_.
3. When the lines on a contour map are close together, the land is \_\_\_\_\_.
4. When the lines on a contour map are far apart, the land is \_\_\_\_\_.
5. The amount of elevation between contour lines is called the \_\_\_\_\_.
6. On a contour map numbered in meters, a contour line marked “150” connects all points on that map that are 150 meters \_\_\_\_\_ sea level.
7. On a contour map numbered in feet, a contour line marked “-100” connects all points on that map that are 100 feet \_\_\_\_\_ sea level.

### B PRACTICING MAP SKILLS

Use **Map 2-4: Contour Map of Ithaca, New York** to answer these questions.

1. Is the land around the Newman Golf Course (in cell B-5) flat or steep?  
How do you know? \_\_\_\_\_  
\_\_\_\_\_
2. What is the land like just to the west of the Ithaca Municipal Airport?  
How do you know? (Remember that if there is no compass rose on a map, north is at the top.) \_\_\_\_\_  
\_\_\_\_\_
3. Find the numbered contour line in the flat area of cell D-4. What does the number on that line mean? \_\_\_\_\_  
\_\_\_\_\_

