

**Chapter 9****LABORATORY MANUAL****● Earthquakes 29**

Earthquakes are frightening and often dangerous tremblings of Earth. Seismologists, scientists who study earthquakes, note that certain areas are earthquake-prone and likely to have damaging disturbances of Earth's crust. The risk of such disturbances in these areas is great because they lie over active geologic faults. Maps that pinpoint earthquakes all over the world show that the world's greatest seismic belt borders the Pacific Ocean. Every state in the United States, however, has had at least one earthquake of varying destructiveness. Seismologists believe that most earthquakes indicate active faults. Thus, once an earthquake has occurred, another may be possible.

**Strategy**

You will make a seismic-risk map of the United States.

You will study the occurrence of earthquakes in the United States.

You will determine which areas are earthquake-prone.

**Materials**

pencils (colored)

**Procedure**

1. Choose a color to represent each of the risk zones in the legend of the map on page 71.
2. Color the squares of the map legend to match the color chosen for each zone.
3. Plot the data from Table 29-1 on the map. Place one dot in the state for each recorded earthquake. Place two dots in the state for each high intensity earthquake.
4. Since California has such a large number of earthquakes, simply write the number of earthquakes on the state. In parentheses, write the number of high intensity earthquakes.
5. Color each state according to the legend. Example: California will be colored for Zone 3.

**Data and Observations (See page 70.)****Questions and Conclusions**

1. In what states have damaging earthquakes occurred? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
2. In what region have damaging earthquakes been concentrated? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
3. What does a concentration of damaging earthquakes indicate about the underlying rock structure of the area? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

4. Based on this map, in which states might future earthquakes occur? \_\_\_\_\_

5. In which state is earthquake risk highest? \_\_\_\_\_

## Earthquake Locations

Table 29-1

State	Damaging earthquakes recorded	State	Damaging earthquakes recorded
Alabama	2	Montana	10 (3 high intensity)
Alaska	12 (2 high intensity)	Nebraska	3
Arizona	4	Nevada	12 (3 high intensity)
Arkansas	3	New Hampshire	0
California	over 150 (8 high intensity)	New Jersey	2 (1 high intensity)
Colorado	1	New Mexico	5
Connecticut	2	New York	5 (1 high intensity)
Delaware	0	North Carolina	2
Florida	1	North Dakota	0
Georgia	2	Ohio	6 (1 high intensity)
Hawaii	12 (2 high intensity)	Oklahoma	2
Idaho	4	Oregon	1
Illinois	10	Pennsylvania	1
Indiana	3	Rhode Island	0
Iowa	0	South Carolina	6 (1 high intensity)
Kansas	2	South Dakota	1
Kentucky	5	Tennessee	7
Louisiana	1	Texas	3 (1 high intensity)
Maine	4	Utah	9 (2 high intensity)
Maryland	0	Vermont	0
Massachusetts	4 (1 high intensity)	Virginia	5
Michigan	1	Washington	11 (2 high intensity)
Minnesota	0	West Virginia	1
Mississippi	1	Wisconsin	1
Missouri	9 (2 high intensity)	Wyoming	3

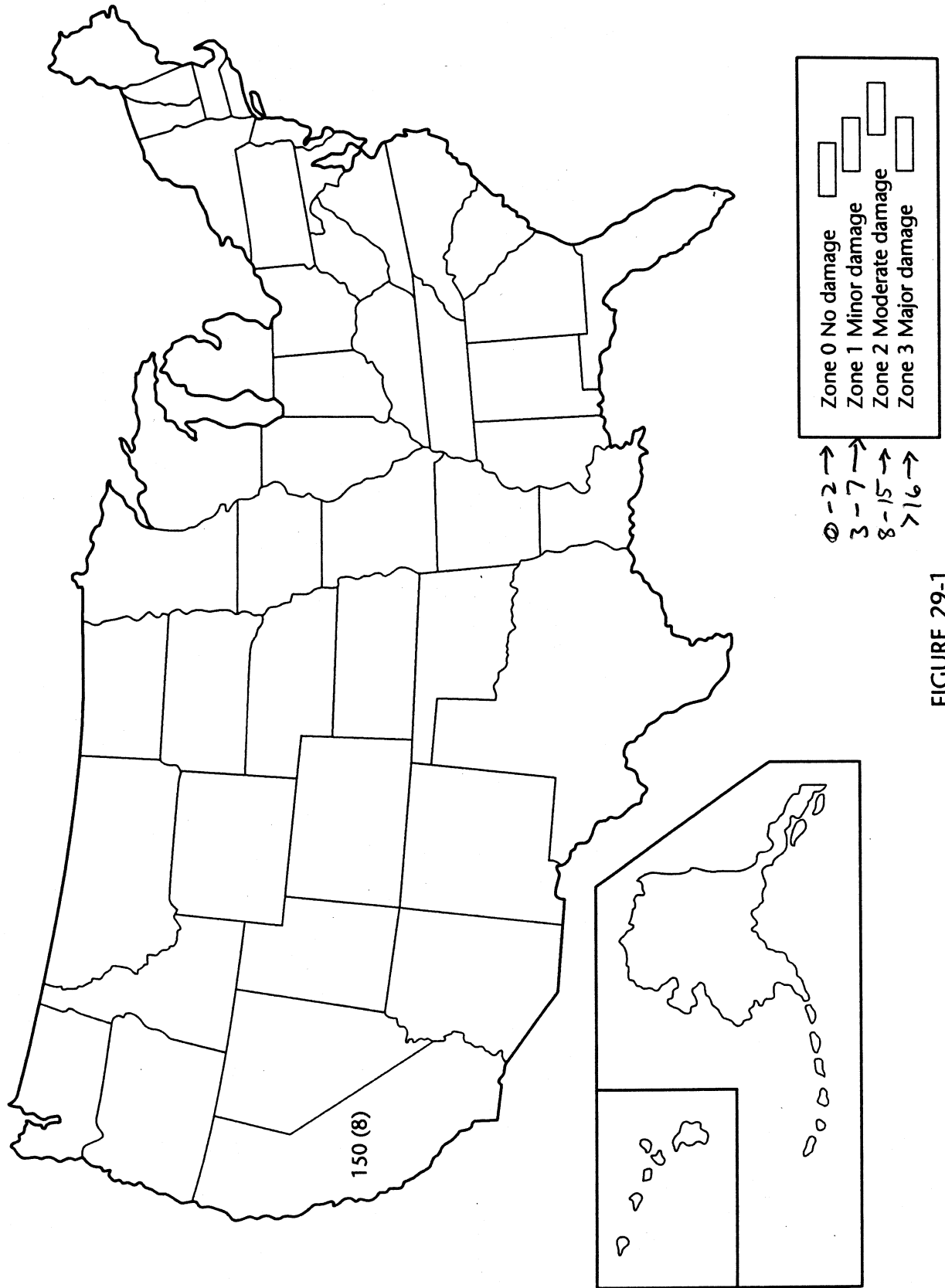


FIGURE 29-1

6. Can you be sure that an earthquake could not occur in any area? \_\_\_\_\_  
Why? \_\_\_\_\_  
\_\_\_\_\_
7. Why is a seismic risk map useful? \_\_\_\_\_  
\_\_\_\_\_
8. Why do you think three states in the northern plains have had no damage from earthquakes?  
\_\_\_\_\_
9. Name two states where the earthquake risk is the least. \_\_\_\_\_  
\_\_\_\_\_

### Strategy Check

- \_\_\_ Can you predict the degree of seismic risk for various parts of the United States?
- \_\_\_ Can you observe where most damaging earthquakes have occurred?
- \_\_\_ Can you predict the parts of the United States likely to experience other earthquakes?