

LAB

2

Laboratory
Activity

Earthquakes

Seismologists—the scientists who study earthquakes—have found that certain areas are more likely to have earthquakes than others. The risk is greater in these areas because they lie over active geologic faults. Maps that pinpoint earthquakes all over the world show that the greatest seismic belt borders the Pacific Ocean. Every state in the United States has had at least one earthquake, but some states have had stronger and more frequent earthquakes than others.

A magnitude-5 earthquake is classified as moderate, a magnitude-6 earthquake is large, and a magnitude-7 earthquake is major. An earthquake with a magnitude of 8 or larger is classified as great.

Strategy

You will study the occurrence of strong earthquakes in the United States by plotting earthquakes on a map.

You will determine which areas of the United States are most likely to have strong earthquakes.

Procedure

1. Plot the data from Table 1 in the Data and Observations section on Map 1. Place one dot in the state for each recorded earthquake. Use an atlas or other reference to help you locate the states.
2. Count the number of dots within each state and write that number within the state's borders.

Data and Observations

Table 1

Some Earthquakes in the United States with a
Magnitude of 7 and Above

State	Year	Magnitude	State	Year	Magnitude
Alaska	1964	9.2	California	1872	7.8
Alaska	1957	8.8	California	1892	7.8
Alaska	1965	8.7	Missouri	1811	7.7
Alaska	1938	8.3	California	1906	7.7
Alaska	1958	8.3	Nevada	1915	7.7
Alaska	1899	8.2	Missouri	1812	7.6
Alaska	1899	8.2	California	1992	7.6
Alaska	1986	8.0	California	1952	7.5
Missouri	1812	7.9	California	1927	7.3
California	1857	7.9	Nevada	1954	7.3
Hawaii	1868	7.9	Montana	1959	7.3
Alaska	1900	7.9	Idaho	1983	7.3
Alaska	1987	7.9	California	1922	7.3

Laboratory Activity 2 (continued)**Questions and Conclusions**

1. In what regions have damaging earthquakes been concentrated?

2. From the table, which earthquake(s) can be classified as great?

3. What does a concentration of damaging earthquakes indicate about the underlying rock structure of the area?

4. Can you be sure that an earthquake could not occur in any area?

5. According to the map, is it likely that a damaging earthquake will occur in your state?

6. The earthquakes in 1811 and 1812 in Missouri occurred near the Mississippi River. The soil near the river tends to be wet. Do you think liquefaction took place during the earthquakes? Why or why not?

Strategy Check

- _____ Can you observe where most damaging earthquakes have occurred in the United States?
- _____ Can you predict the parts of the United States most likely to experience strong earthquakes?

Laboratory Activity 2 (continued)**Map 1**