Name:	Period:
	Seismic Risk Maps

Earthquakes are frightening and often dangerous trembling 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.

## **Objectives**

Create a seismic-risk map of the U.S. Study the occurrence of earthquakes in the U.S. Determine which areas are earthquake-prone.

## Procedure

- 1. Choose a color to represent each of the risk zones in the legend of the map.
- 2. Color the squares of the map legend to match the color chosen for each of the 4 zones.
- 3. Zone 3 (Major Damage) will include any states in which 9 or more damaging earthquakes have occurred.
- 4. Zone 2 (Moderate Damage) will include any states in which 4-8 damaging earthquakes have occurred.
- 5. Zone 1 (Minor Damage) will include any states in which 1-3 damaging earthquakes have occurred.
- 6. Zone 0 (No Damage) will include any states in which 0 damaging earthquakes have occurred.
- 7. Plot the data from the table below. Place <u>one dot</u> in the state for each recorded earthquake. Place an <u>additional dot</u> in the state for each high intensity earthquake.
- 8. 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.
- 9. Color each state according to the legend. Example: California will be colored for Zone 3.
- 10. Answer the questions, which follow.

## Data

State	Damaging	State	Damaging	State	Damaging
	Earthquakes		Earthquakes		Earthquakes
	recorded		recorded		recorded
Alabama (AL)	2	Maine (ME)	4	Oregon (OR)	1
Alaska (AK)	12 (2*)	Maryland (MD)	0	Pennsylvania (PA)	1
Arizona (AZ)	4	Massachusetts (MA)	4 (1 *)	Rhode Island (RI)	0
Arkansas (AR)	3	Michigan (MI)	1	South Carolina (SC)	6 (1 *)
California (CA)	Over 150 (9*)	Minnesota (MN)	0	South Dakota (SD)	1
Colorado (CO)	1	Mississippi (MS)	1	Tennessee (TN)	7
Connecticut (CT)	2	Missouri (MO)	9 (2 *)	Texas (TX)	3 (1 *)
Delaware (DE)	0	Montana (MT)	10 (3 *)	Utah (UT)	9 (2 *)
Florida (FL)	1	Nebraska (NE)	3	Vermont (VT)	0
Georgia (GA)	2	Nevada (NV)	12 (3 *)	Virginia (VA)	5
Hawaii (HI)	12 (2*)	New Hampshire (NH)	0	Washington WA)	11 (2 *)
Idaho (ID)	4	New Jersey (NJ)	2 (1 *)	West Virginia (WV)	1
Illinois (IL)	10	New Mexico (NM)	0	Wisconsin (WI)	1
Indiana (IN)	3	New York (NY)	2 (1 *)	Wyoming (WY)	3
Iowa (IA)	0	North Carolina (NC)	2		
Kansas (KS)	2	North Dakota (ND)	0		
Kentucky (KY)	5	Ohio (OH)	6 (1 *)		
Louisiana (LA)	1	Oklahoma (OK)	2		

<sup>\*</sup> Number of High Intensity

## **Questions and Conclusions**

1.	In what states have damaging earthquakes occurred?
2.	In what region have damaging earthquakes been concentrated? (What parts of the U.S.?)
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?
6.	Can you be sure that an earthquake could not occur in any area? Explain your answer.
7.	Why is a seismic risk map useful? Explain your answer.
8.	What three states in the northern plains have had no damage from earthquakes?
9.	Why do you think these three states have had no damage?
10	. Name two states where the earthquake risk is the least?
	. How many damaging earthquakes have Wisconsin had? How many damaging earthquakes have Illinois d? Explain why they may be the same or different.