Name _____ Date _____ Class _____

SECTION 12-2 REVIEW AND REINFORCE

Measuring Earthquakes

◆ Understanding Main Ideas

Answer the following questions in the spaces provided.

1. What are seismic waves?

_____

_____

2. In what order do the three types of seismic waves arrive at a seismograph?

_____

_____

3. Which type of seismic wave produces the most severe ground movements?

_____

4. Describe the moment magnitude scale and explain why it is useful in measuring earthquakes.

_____

_____

_____

5. How do geologists locate the epicenter of an earthquake?

_____

_____

_____

◆ Building Vocabulary

Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

_____ **6.** focus

_____ **7.** epicenter

_____ **8.** surface waves

_____ **9.** seismograph

_____ **10.** magnitude

a. records ground movements caused by seismic waves as they move through the Earth

b. slowest seismic waves that produce the most severe ground movements

c. the point beneath Earth's surface where rock under stress breaks and triggers an earthquake

d. a measurement of earthquake strength

e. the point on the surface directly above where an earthquake occurs

Name _____ Date _____ Class _____

SECTION 12-2 ENRICH

Comparing the Richter and Moment Magnitude Scales

The Richter scale rates earthquakes based on the size of their seismic waves, as measured by seismographs. The moment magnitude scale rates earthquakes based on the total amount of energy they release. To determine the moment magnitude rating, seismologists measure the surface area of the ruptured fault and how far the land moved along the fault. An earthquake's Richter rating and moment magnitude rating are not always the same. The table below shows the ratings on both scales for some famous earthquakes.

Date	Location	Magnitude	
		Richter scale	Moment magnitude scale
1811–1812	New Madrid, midwestern US	8.7	8.1
1906	San Francisco, California	8.3	7.7
1960	Arauco, Chile	8.3	9.5
1964	Anchorage, Alaska	8.4	9.2
1971	San Fernando, California	6.4	6.7
1985	Mexico City, Mexico	8.1	8.1
1989	San Francisco, California	7.1	7.2
1994	Northridge, California	6.4	6.7
1995	Kobe, Japan	6.8	6.9

Answer the following questions on a separate sheet of paper.

1. Which earthquake was strongest according to the Richter scale? Which was strongest according to the moment magnitude scale?
2. Which earthquakes had the same or close to the same ratings on both scales?
3. Which earthquakes were rated more than 0.5 points stronger on the moment magnitude scale than they were rated on the Richter scale?
4. Which earthquakes were rated more than 0.5 points stronger on the Richter scale than they were rated on the moment magnitude scale?
5. Why can the same earthquake have different ratings on the two scales?