

## Honors Worksheet: Earthquakes and Mountain Building

name: \_\_\_\_\_

\*Answer in complete sentences. Work alone. Music is OK.

1. Read page 228, and then list 3 factors that contributed to the severity of the 2010 earthquake in Haiti.
2. \*Explain what is meant by the phrase “elastic rebound” and tell how “rock behaves elastically”.
3. \*Faults that are experiencing no active creep may be considered safe. Rebut or defend this statement.
4. \*Read box 8.1. Why are seismic waves able to travel farther with less weakening in the eastern USA?
5. Which type of seismic wave causes the greatest damage to buildings? \*Why?
6. \*Read “Locating the source . . . ” (p. 234-236) and look at all the diagrams. Explain what is meant by the term “triangulation” as it is used in this context.
7. \*Read “Magnitude Scales” (p. 237-239). Explain why the Moment Magnitude Scale is favored over the Richter Scale.
8. What type of plate boundary is associated with the largest earthquakes?
9. In your own words list 4 factors that affect the amount of destruction caused by seismic vibrations.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

10. Which factor was most responsible for the damage shown in . . . .

8.18? \_\_\_\_\_ . . . 8.19? \_\_\_\_\_

11. Look at figure 8.22. In what 3 ways is the wave changing as it approaches the coast?

12. According to the table on p. 246, when and where was the deadliest earthquake in the world?

13. \*Look at figure 8.27. Explain what a megathrust earthquake is and tell why seismic gaps are dangerous.

14. Look at the graphics on page 253. Use the seismogram along with figure 8.11 to determine how far this seismograph was from the epicenter.

\_\_\_\_\_ Miles \_\_\_\_\_ km

15. Answer question #4 on page 253.

16. \*Answer questions #6 on page 253.

17. Answer question #17 parts a, b, and c.

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

18. \*Look at figure 10.2 on page 300. How did geologists figure out that there was a fault there (without seeing the actual crack)?

19. Look at the photo and diagram of the Sheep Mountain Anticline on page 302. What is the age of the rocks that make up the mountain relative to the rocks around the mountain?

20. \*Look at figure 10.7 on page 303. Explain what happened here.

21. What is shown in figure 10.12 and how did it form during an earthquake?

22. \*Read "The Principle of Isostasy" (p. 317-319). Look at the diagrams on page 318. Where did the material labeled "Deposition" come from, and what effect is it having on the sea-floor crust beneath it?

23. \*What is causing the "uplift" in the middle diagram on page 318?

24. \*Describe and explain the uplift that has occurred in Canada's Hudson Bay region in the last 8,000 years.

25. \*Explain the "gravitational collapse" shown in figure 10.28.