

## **ES104 Video Exercise – Earth Revealed: Earthquakes**

**Watch the video and answer the following questions.**

1. What is ultimately the cause of earthquakes and release of mechanical energy in the Earth?
2. What is ultimately the cause of plate tectonics?
3. Define the term “earthquake”
4. What is a common source of earthquakes in southern California?
5. Why are earthquakes so common in California? What causes ground shaking?
6. True or False: Earthquakes can result in large amounts of damage and human deaths?
7. Define the term “fault”.
8. Define the terms “stress” and “strength” in terms of rock materials.
9. Why is it important to student earthquake behavior?
10. What are the three types of seismic waves?
11. What type of seismic wave compresses back and forth, parallel to direction of transfer?
12. What type of seismic wave causes up-and-down shear motion in rock material?

13. Do all seismic waves travel at the same velocities?
14. Compare the velocities of P and S waves, which are faster and which are slower?
15. Define the term “epicenter”
16. What is a seismograph? How it is used to analyze earthquakes?
17. What is the minimum number of seismic stations needed to determine the location of epicenters?
18. Define the term earthquake “magnitude”.
19. How many times the energy is release between each order of magnitude on the Richter scale?
20. What is the maximum magnitude of an earthquake is possible in typical rock material?
21. Compare a magnitude 4 earthquake to a magnitude 8 earthquake? Provide analogies.
22. What is the magnitude of the highest strength earthquake ever recorded? Where was it located?
23. List the types of human hazards related to earthquake activity.
24. Define wave period. Draw a diagram.
25. Define wavelength. Draw a diagram.

26. What is special about Parkfield, CA in terms of earthquake activity?
27. What is “vibrois” used for? Draw a sketch.
28. What is a creep meter?
29. What is “fault slip”? Define and how is it measured? Draw a sketch.
30. How are water wells used to determine pending earthquake activity?
31. Define the term “foreshock”
32. Define the term “aftershock”.
33. True or False: All geophysicists who study seismology are men.
34. Why is it important to study the history and behavior of fault slip and earthquake activity?
35. How many geologists does it take to screw in a light bulb?