

11. The origin of most earthquakes occur here.
12. Huge wave in the ocean caused by an earthquake.
13. Two kinds of waves produced by an earthquake.
14. The magnitude of an earthquake is measured with this.
15. The intensity of an earthquake is expressed by this scale.

Choices:

- a) Transverse
- b) San Andreas
- c) Crust and Mantle
- d) Strike-Slip
- e) Tsunami
- f) Seismograph
- g) Dip-S Law
- h) Focus
- i) Hayward Fault
- j) Seismogram
- k) Mercalli
- l) Core of the Earth
- m) Surface and Body
- n) Richter Scale

## Answers

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15. K
14. N
13. M
12. E
11. C
10. F
9. H
8. D
7. G
6. D

# The Physical Geography Series

## *Earthquakes and How They Are Measured*

**KG1153**

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**TEACHER'S GUIDE**

## Glossary

**Fault-** A fracture in the earth's crust along which two blocks in the crust have slipped with respect to each other.

**Focus-** The actual location where the earthquake takes place in the earth's crust or mantle.

**San Andreas Fault-** Large, horizontal strike-slip fault in California which runs from Los Angeles to San Francisco.

**Epicenter-** The point on the earth's surface directly above the earthquake's focus.

**Seismograph-** Instrument used to record vibrations in the earth.

**Seismogram-** The actual recorded paper showing the seismic vibration.

**Focal Depth of the Earthquake-** The depth from the earth's surface to the region where the earthquake actually happens.

**Tsunami-** Japan's dreaded "Huge Wave" which takes place when an earthquake occurs under an ocean.

**Primary or P Waves -** Compressional waves which reach the surface first.

**Secondary or S Waves-** These are shear waves, which reach the surface after "P"-waves.

**Magnitude-** The measure of the amount of energy released from an earthquake. The Richter Scale is a logarithmic scale from 1 to 10 and is used to measure magnitude.

**Intensity-** This is a subjective measure which describes how severe a shock was felt at a particular location.

## Suggested Teaching Activities

- Using a large world map, have the students place pins or markers into the areas that have recently had earthquake activity. Does a pattern develop?
- Using a map of the United States show where there is earthquake activity. Where would you expect most seismic activity in the United States? (California, Nevada, Alaska)
- Contact your state Geological Survey and request information on earthquake activity in your area. Many states also have information on what you should do to prepare for an earthquake. Also check your local telephone directory for many areas have such information.
- Locate the nearest seismograph in your area. Many universities have such monitoring devices.
- After the video is presented to the class discuss the following:  
An earthquake's destructiveness depends on many factors including:
  - Distance from the Epicenter
  - Soil Conditions
  - Focal Depth
  - Design of Buildings
- Build a model of a seismograph. Such information is available in science textbooks and encyclopedias.
- Using blocks of wood or cardboard boxes illustrate the following types of faults:
  - Dip/slip
  - Strike/slip
  - Normal fault
  - Reverse fault
  - Thrust fault

## Quiz

- The area on the surface of the earth above the focus of an earthquake is known as the:
    - Seismic Zone
    - Epicenter
    - Fault
    - Zone of Weakness
  - One of the greatest earthquakes in U.S. history, which took place during 1811-1812, was located in:
    - Los Angeles, California
    - San Francisco, California
    - New Madrid, Missouri
    - Cincinnati, Ohio
  - One of the most destructive U.S. earthquakes in history took place in 1906 in:
    - Alaska
    - Pennsylvania
    - California
    - Hawaii
  - Most earthquakes in the world occur in a circle around the Pacific Ocean known as:
    - The Earthquake Zone
    - The Pacific Zone
    - The Circle Of Death
    - The Ring Of Fire.
  - Vibrations caused by an earthquake are called:
    - Seismograms
    - Seismic Waves
    - Faults
    - Zones Of Shaking.
- Match the following statements with the correct answer:**
- Horizontal movement along a fault.
  - Vertical movement along a fault.
  - Famous large fault which runs from Los Angeles to San Francisco.
  - Origination point of an earthquake.
  - Scientific instrument used to measure earthquakes.