

Earthquakes

10.1 and 10.2

Name _____
Date _____
Block _____

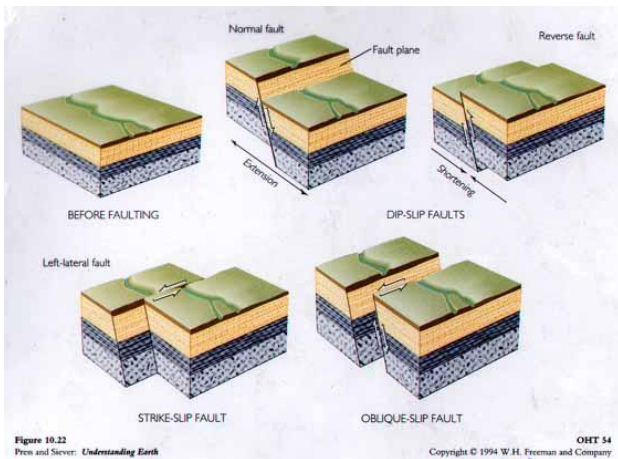
Causes of Earthquakes

● An earthquake happens every _____ in the world. Most are very small and unnoticeable.

● An Earthquake is a shaking of the Earth's crust caused by a release of energy.

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● Most are caused by strain built up at boundaries between _____



● Friction prevents the plates from moving, and the pressure builds up like a spring deforming the plates. Finally the strain becomes too great, and the stored energy is _____

Called the ' _____ '.

● The point where the earthquake actually starts is the ' _____ ' – usually several kilometers underground.

● The point on the earth's surface directly above the focus is the ' _____ '.

● The more _____ the earthquake, the more _____ it can cause.

Types of Waves

● Energy released from an earthquake travels in _____.

○ _____ travel through the earth

● ' _____ ' and ' _____ ' waves

○ _____ travel along the surface of the earth – produced by

Body waves

● ' _____ ' and ' _____ ' waves

Body waves

● 'Primary' or 'P' waves are _____ waves, and can travel through any type of matter – solid (rock), and liquid (magma and water)

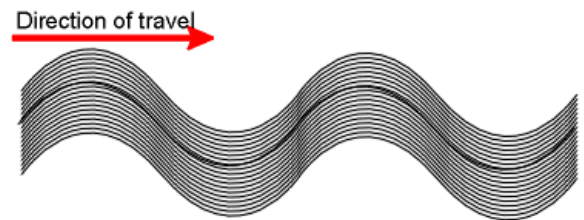
● 'Shear' or '_____ ' waves or 'S' waves travel at right angles to the direction the waves are travelling.

○ Won't travel through liquids, only solids.

Speed of the waves is faster in rigid, more dense materials and slower in less rigid/dense materials. In solid materials, S waves travel a bit more than half speed of P waves.



Push-pull (compressional) wave



Shake (shear) wave

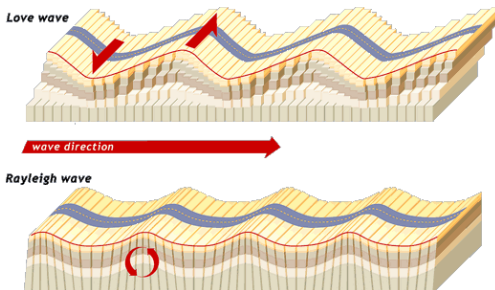
Surface Waves

● '_____ ' waves cause particles of material to move _____ – like a sideways 'S' wave.

● '_____ ' waves move more slowly than Love waves

● Similar to ripples from a stone dropped in a pond.

● These types of waves travel more slowly than body waves, but the effects can be felt far away from the epicenter, and they can cause considerable damage.



Locating and Measuring Earthquakes

● A '_____ ' detects and records waves produced by earthquakes.

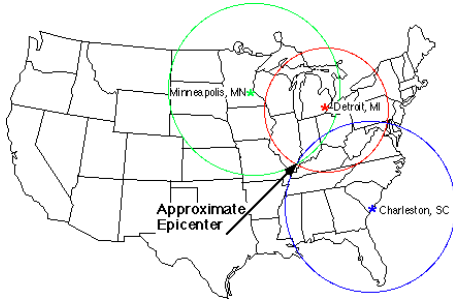
○ Different types detect different types of waves/motion

● A '_____ ' is the record sheet that comes out of the seismograph. It consists of a pen that draws on a rotating drum. If the drum moves, the pen will draw '_____ '.

○ The bigger the 'Zig Zag', the more _____.

Locating the Epicenter

● In order to find the origin point of the earthquake, _____ recording station is used. Using the data collected from each station, one can find the _____ by looking at where the data overlaps.



Earthquake magnitude

- The ‘ _____ ’ of an earthquake is how much _____ is released.
- One widely used method is the ‘ _____ ’ scale developed by Charles Richter in _____.
- Each whole number represents a _____ fold increase – for example, magnitude 2 is 31 times more powerful than magnitude 1. Magnitude 3 is (31 x 31) times more powerful than 1, etc.
- The Richter scale is limited in that it doesn’t accurately indicate the amount of _____ released.
- Another way to describe this is ‘ _____ magnitude’ which measures the energy released at the earthquake’s source.