

EARTHQUAKES REVIEW SHEET

Earthquake Locations

- Where do earthquakes occur?
 - Earthquakes occur along plate boundaries where two chunks of lithosphere scrape together
 - The **focus** is the location where the energy is released
 - The **epicenter** is location on the earth's surface directly above the focus
- **Faults** are cracks along which rocks slide

Seismic Waves

- Seismic Waves– during an earthquake, several types of waves are generated. The vibrations felt are actually called seismic waves that are traveling through the Earth.

P-Waves

- **Primary Wave (Compression Wave)**
- Travels **ph**astest so it arrives at a seismic stations **p**hirst
- Push-pull wave: rock vibrates forward and backward in the same direction that the wave travels
- Pass through solids, liquids (magma), and gasses

S-Waves

- **Secondary Wave**– arrives at a seismic station second.
- Slow wave– not as fast as the P-wave.
- Shake wave (**Shear Wave**)– vibrates side-to-side.
- Solids wave– only travels through Solids.

Seismographs

- Instrument that detects and records seismic waves
- By studying a seismogram, we can determine a seismic wave's distance and size

Seismic Waves Traveling Throughout the Earth

- P-Waves travel through solids, liquids, and gasses
- S-Waves travel only through solids
- Seismic waves travel faster through denser material.
- Because of this, the path traveled by a seismic wave is bent towards the surface.
- Properties of the material (such as density and pressure) that the waves pass through can be inferred by the speed and angle that the waves travel.
- The layers of the earth are determined by the jumps in velocity and “echoes” of seismic waves.
- The **MOHO** is a boundary between the crust and the upper mantle where the velocity of waves jumps up sharply. This sharp increase in velocity is called a discontinuity.
- A **shadow zone** occurs on the opposite side of the earth from an earthquake because of the liquid outer core.
- S-Waves are stopped all together as they are absorbed by the liquid outer core. The P-Waves are refracted (bent) as they change velocities in different density materials. This creates a zone in which no waves are picked up at all.

STUDY THE ESRTs !! PRACTICE P/S WAVE PROBLEMS !!