

## Unit 2 Study Guide: Faults and Earthquakes

### Faults

**Fault:** A fracture (break) in the Earth due to compressional stress being stronger than the rock. The stress causes the rock to break into two separate pieces.

Diagram and describe the different type of faults using the terms "Hanging wall" and "Footwall" in your descriptions. Determine the type of stress that is occurring at each of the faults (compression, tension, or shearing):

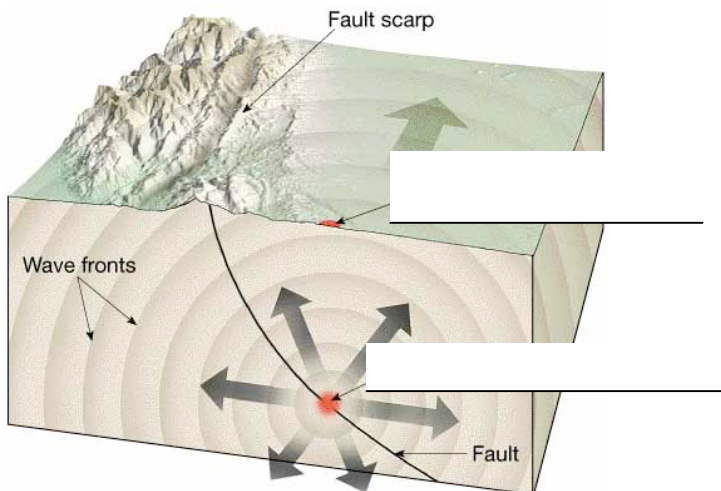
Reverse Fault

Normal Fault

Strike-Slip Fault

### Earthquakes

In the following diagram label the focus and the epicenter.



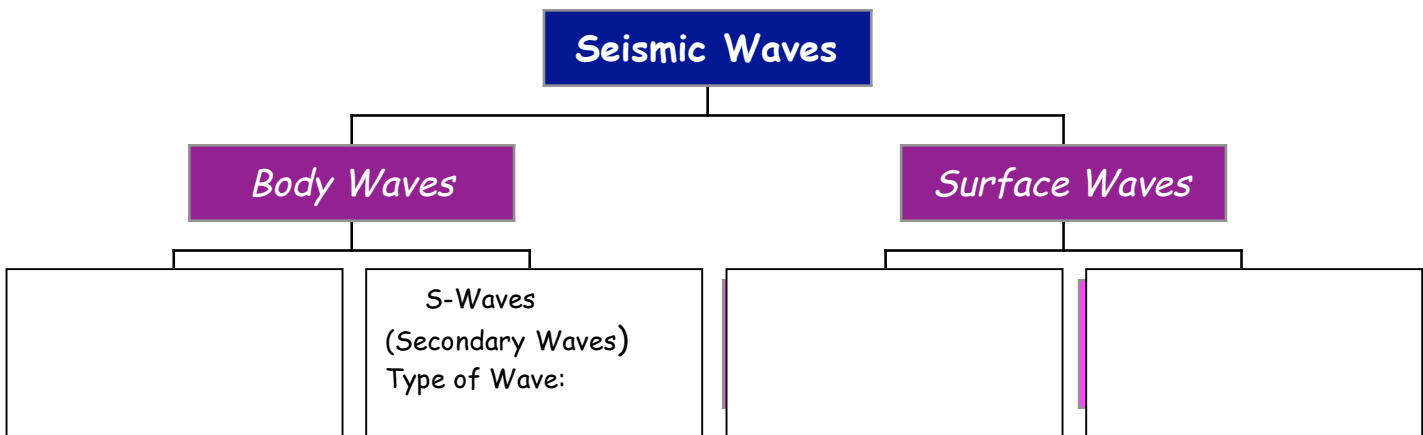
Know the relationship between the distance from the epicenter and the amount of damage.

Compare and Contrast the Richter Scale and the Mercalli Scale. Know which scale is an objective measurement and which is a subjective measurement.

An earthquake with a magnitude of 8.0 has \_\_\_\_\_ times more *shaking* than an earthquake with a magnitude of 5.0 on the Richter scale.

An earthquake with a magnitude of 8.0 has \_\_\_\_\_ times more *energy* being released than an earthquake with a 5.0 magnitude.

### Seismic Waves



Complete the diagram above.

Below your answers in the diagram write the types of motions that are created by each of the Body Waves and Surface Waves.

When referring to Body waves know the *type* of wave that it is (longitudinal or transverse).

Which type of seismic wave is the first to register on a seismogram?

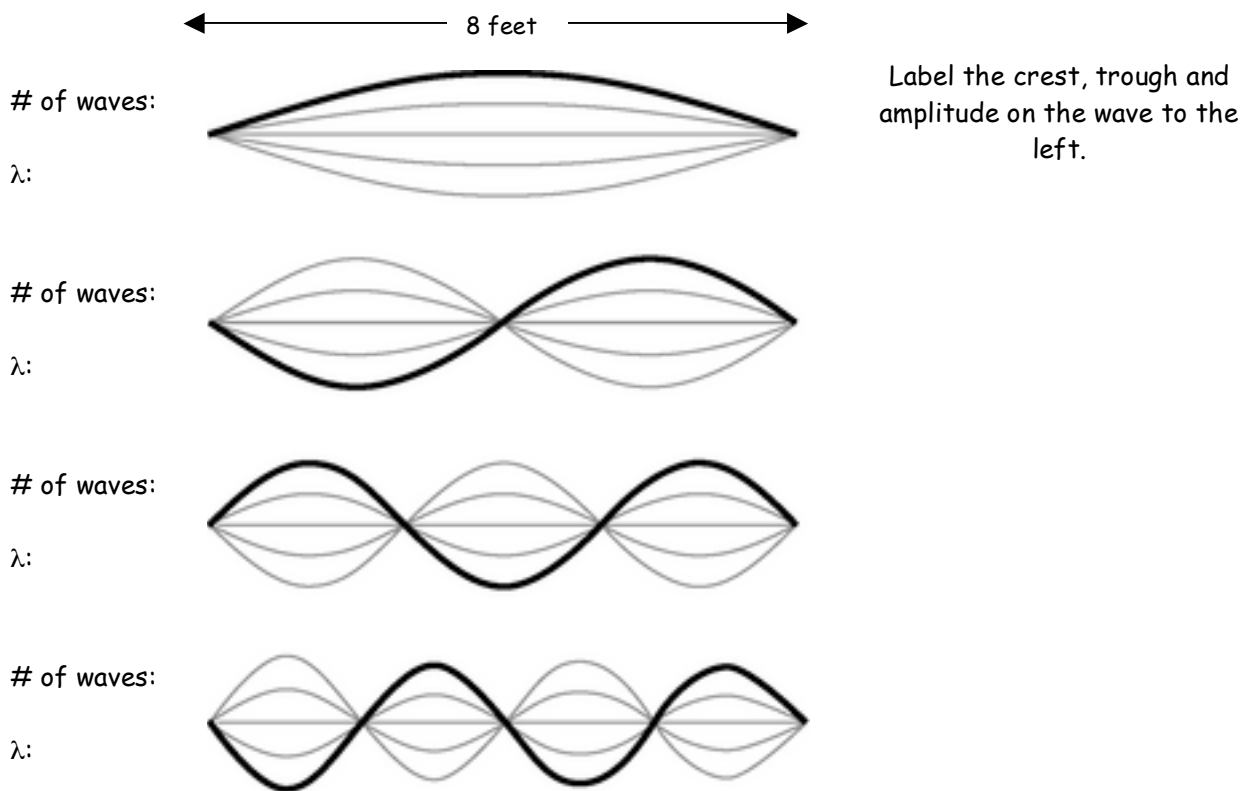
Which seismic wave arrives second?

Be able to calculate the S-P time interval using a seismogram.

Know the different types of materials that p-waves and s-waves are able to travel through and how that gives evidence to the differentiation of the Earth.

## Waves:

On the diagram below, indicate how many full waves are shown and calculate the wavelength.



Explain *reflection* and *refraction* wave behaviors.

## Differentiation of the Earth:

What causes the earth to be separated into layers? Explain the scientific principle and the scientific force that are at work.

How were seismic waves used as evidence that the earth is differentiated?

Know the key features of each of the layers of the Earth, specifically what each is made of, and how their temperatures and densities compare to each other.

Put the layers of the earth in order starting from the very center and working your way out:  
Mantle, Inner Core, Outer Core, Crust

Which is more dense, the continental crust or the oceanic crust?

Which two layers of the earth are not molten? Explain why they are solid.