Bellringer

What kind of seismic wave can move through solids, liquids, and gas?

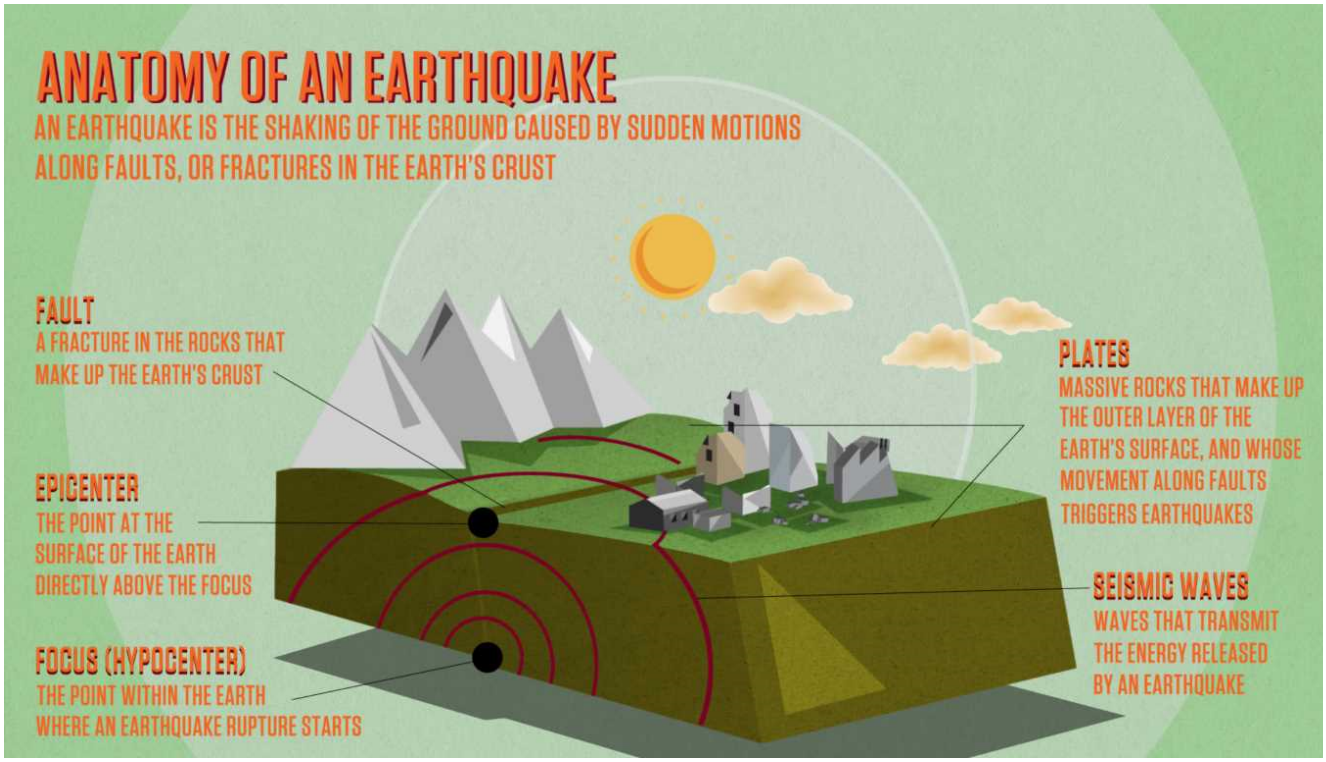
Which kind of seismic wave causes the most damage? why?

Learning Objectives:

I can create an instrument to measure a certain type of seismic wave.

I can identify different seismic waves and recreate their motion.

REVIEW


ANATOMY OF AN EARTHQUAKE
AN EARTHQUAKE IS THE SHAKING OF THE GROUND CAUSED BY SUDDEN MOTIONS ALONG FAULTS, OR FRACTURES IN THE EARTH'S CRUST
FAULT
A FRACTURE IN THE ROCKS THAT MAKE UP THE EARTH'S CRUST
EPICENTER
THE POINT AT THE SURFACE OF THE EARTH DIRECTLY ABOVE THE FOCUS
FOCUS (HYPOCENTER)
THE POINT WITHIN THE EARTH WHERE AN EARTHQUAKE RUPTURE STARTS
PLATES
MASSIVE ROCKS THAT MAKE UP THE OUTER LAYER OF THE EARTH'S SURFACE, AND WHOSE MOVEMENT ALONG FAULTS TRIGGERS EARTHQUAKES
SEISMIC WAVES
WAVES THAT TRANSMIT THE ENERGY RELEASED BY AN EARTHQUAKE

What are seismic waves?

Seismic waves are an elastic wave of energy produced from an impulse event like an earthquake triggering, volcano eruption, or explosion.

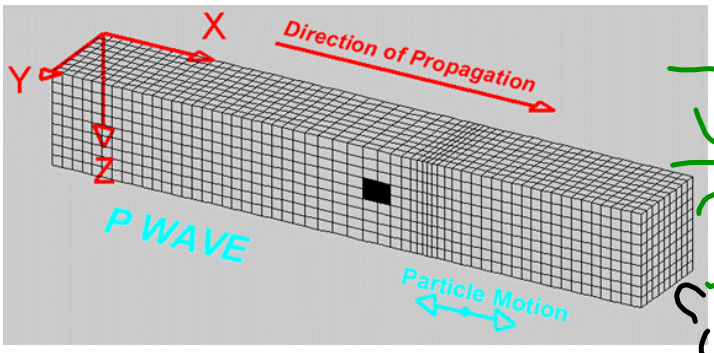
Seismic waves emanating from the focus can travel as body waves or surface waves.

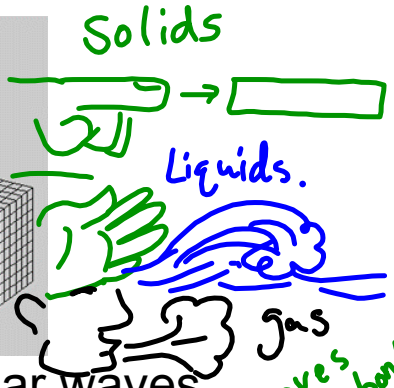
Body waves travel in all directions from the focus through the body of the Earth

Surface waves are different from body waves because they don't travel through the Earth; instead they are constrained to travel along the surface of the Earth from the epicenter.

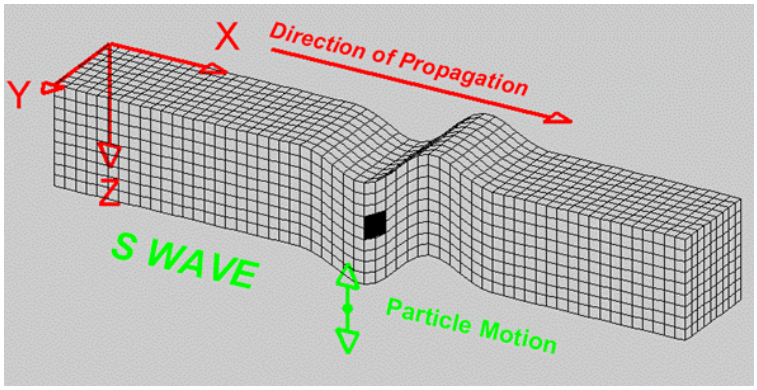
There are two types of body waves; Primary waves and Secondary.

P waves (or primary waves) travel with a velocity that depends on the elastic properties of the rock that they travel through. They are compression waves.





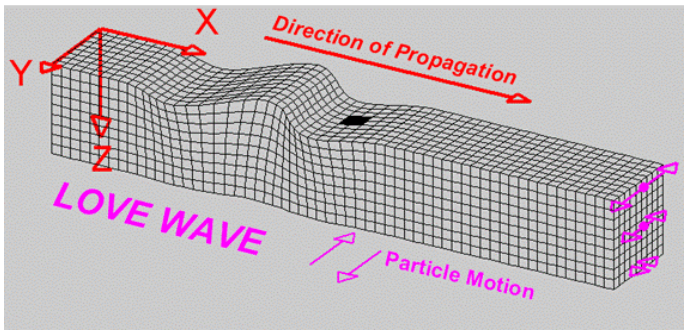
S waves (or secondary waves) are shear waves.



Surface Waves

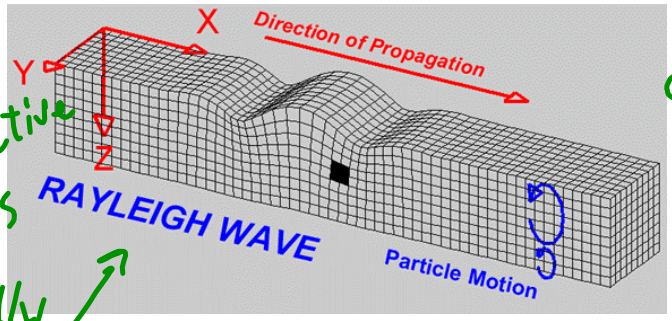
Love Waves

L waves sway side to side



Rayleigh Waves

R waves move forward and make a circular motion.



Surface Waves are Most distructive to buildings Especially

Notice the Compression & Spreading that occurs as the Wave moves thru the lines.

Do the Seismic Waves Dance!