* *Rocks Move along Faults*

 An ***earthquake*** is a shaking of the ground caused by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of large blocks of rock along a fault. Earthquakes occur along faults. A ***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*** is a fracture, or break, in Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, along which blocks of rock move past each other.

* *Earthquakes*

A sudden release of stress in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ causes an earthquake. Shaking and trembling of the earth’s crust. The waves travel in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. More than \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occur a year or one every 30 seconds. Earthquakes continue until all the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is used up. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Earthquakes on the ocean floor: causing waves to become greater than 20 meters high.

* *Occurrence of Earthquakes*

About \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of all earthquakes occur in a belt around the edges of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. In the United States, the best-known fault in this belt is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in California. San Andreas Fault – This is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Boundary that runs from the Gulf of California through the San Francisco area.

* *Kinds of Faults*

The three main types of faults are: 1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, 2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and 3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ faults.

* *Normal Faults*

 Here the block of rock above the fault plane \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ relative to the other block. Stress that pulls rocks apart causes normal faults. Example - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of Africa.

* *Reverse Faults*

 Here the block of rock above the fault plane \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ relative to the other block. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that presses rocks together causes reverse faults. These faults can occur near collision-zone boundaries between plates. Example - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have many earthquakes along reverse faults.

* *Strike-Slip Faults*

 Here blocks of rock move \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the fault plane. Stress that pushes blocks of rock \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ causes earthquakes along strike-slip faults. These faults can occur where plates scrape past each other. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a strike-slip fault.

* *Seismic Waves*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from earthquakes travels through Earth. The energy travels as ***seismic waves*** which are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_caused by earthquakes. Seismic waves from even small earthquakes can be recorded by sensitive instruments around the world.

* *Focus and Epicenter*

 All earthquakes start beneath Earth’s surface. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of an earthquake is the point underground where rocks first begin to move. Seismic waves travel outward from the earthquake’s focus. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the point on Earth’s surface directly above the focus.

* *Seismic Waves*

 Earthquakes produce three types of seismic waves: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Each type moves through materials differently. In addition, the waves can \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or bounce, off boundaries between different layers. The waves can also bend as they pass from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Scientists learn about Earth’s layers by studying the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of seismic waves traveling through Earth.

* *Primary or P Waves*

Primary waves are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and arrive \_\_\_\_\_\_\_\_\_\_\_\_\_\_ at the epicenter. Can travel through solids, liquids, and gases. They are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ waves.

* *Secondary or S Waves*

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ seismic waves to arrive at any particular location after an earthquake, travel through Earth’s interior at about \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of primary waves. Can travel through solids, but ***NOT*** through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Move in up-down motion.

* *Surface or L Waves*

Seismic waves that move along Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, not through its interior. Make the ground \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Slowest moving seismic waves. Travel on top of Earth’s surface. Cause the largest ground movements and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as they bend and twist the surface. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**-an instrument that constantly records ground movements. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- Paper record of waves also used to determine an earthquakes magnitude or strength. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- scientists who study earthquakes. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** a scale that allows scientists to determine earthquake strength based on many readings. 1-10 are levels at which an earthquake is measured based on amount of damage caused; Levels above 7 are destructive. Each increasing number has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ more energy.

* *Damage from Earthquakes*

Loss of life, Damage to buildings, Can cause \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (broken natural-gas lines, electrical power lines, or overturned stoves.)

* *Aftershocks*

 An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a smaller earthquake that follows a more powerful earthquake in the same area. Sometimes structures weakened by an earthquake \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ during shaking caused by aftershocks.

* *Liquefaction*

 Earthquakes can cause \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, a process in which shaking of the ground causes soil to act like a liquid. For a short time the soil becomes like a thick soup. Liquefaction occurs only in areas where the soil is made up of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and contains a large amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. As the shaking temporarily changes the wet soil, structures either sink down into the soil or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* *Tsunamis*

 A special type of wave, can make water rise more than the height of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This wave, known as a tsunami, is a water wave triggered by an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Tsunamis are sometimes called tidal waves.