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| Earthquake Cornell Notes | |
| Rocks Move along Faults | * An \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a shaking of the ground caused by the sudden movement of large blocks of rock along a \_\_\_\_\_\_\_\_\_\_\_. Earthquakes occur along faults. * A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a fracture, or break, in Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, along which blocks of rock \_\_\_\_\_\_\_\_\_\_ past each other. |
| Earthquakes | * A \_\_\_\_\_\_\_\_\_\_\_\_\_ release of stress in the lithosphere causes an earthquake. * Shaking and trembling of the earth’s crust. * The \_\_\_\_\_\_\_\_\_\_\_ travel in all directions * More than 1,000,000 occur a year or one every 30 seconds * Earthquakes continue until all the energy is used up * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Earthquakes on the ocean floor: causing waves to become greater than 20 meters high |
| Occurrence of Earthquakes | * About 80 percent 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 \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Fault 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) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Normal Faults | Here the block of rock above the fault \_\_\_\_\_\_\_\_ slides down relative to the other block. Stress that \_\_\_\_\_\_\_ rocks apart causes normal faults. Example - Great Rift Valley of Africa. |
| Reverse Faults | Here the block of rock above the fault plane moves \_\_\_\_\_\_ relative to the other block. Stress that \_\_\_\_\_\_\_\_\_ rocks together causes reverse faults. These faults can occur near collision-zone boundaries between plates. Example - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mountains have many earthquakes along reverse faults. |
| Strike-Slip Faults | Here blocks of rock move \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on either side 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 San Andreas Fault is a strike-slip fault. |
| Seismic Waves | Energy from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ travels through Earth. The energy travels as **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ waves** which are vibrations caused by earthquakes. Seismic waves from even small earthquakes can be recorded by sensitive instruments around the world. |
| Focus and Epicenter | All earthquakes start \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Earth’s surface. The focus of an earthquake is the point \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ where rocks first begin to move. Seismic waves travel outward from the earthquake’s focus. The epicenter is the point \_\_\_\_\_ Earth’s surface directly \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the focus. |
| Seismic Waves | Earthquakes produce three types of seismic waves: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_, secondary waves, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_. Each type moves through materials differently. In addition, the waves can reflect, or bounce, off boundaries between different layers. The waves can also \_\_\_\_\_\_\_\_\_\_\_ as they pass from one layer into another. Scientists learn about Earth’s layers by studying the \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of seismic waves traveling through Earth. |
| Primary or P Waves | * Primary waves are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(5 km or 3mi/sec) and arrive first at the epicenter * Can travel through \_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_ * They are push-pull waves |
| Secondary or S Waves | * the second seismic waves to arrive at any particular location after an earthquake, * travel through Earth’s interior at about \_\_\_\_\_\_\_\_\_\_ the speed of primary waves. * Can travel through solids, but **NOT** through liquids and gases * Move in \_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_ motion |
| Surface or L Waves | * seismic waves that move along Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, not   through its interior.   * make the ground roll up and down or shake from side to side. * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ moving seismic waves * Travel on top of Earth’s surface * cause the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ground movements and the most damage as they \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 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 32 times more energy. |
| Damage from Earthquakes | * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Damage to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Can cause fires (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 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by an earthquake collapse during shaking caused by aftershocks. |
| Liquefaction | Earthquakes can cause \_\_\_\_\_\_\_\_\_\_\_\_ liquefaction, 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 silt and contains a large amount of water. As the shaking temporarily changes the wet soil, structures either sink down into the soil or flow away with it. |
| Tsunamis | A special type of wave, can make water rise more than the height of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ building. This wave, known as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, is a water wave triggered by an earthquake, volcanic eruption, or landslide. Tsunamis are sometimes called tidal waves. |
| Summary:   1. What causes earthquakes? 2. What are the three types of faults that occur in the Earth’s Lithosphere? Circle the one that most often causes earthquakes. 3. What three types of waves move out from an earthquake? Circle the type of wave that causes the most damage. 4. What is the difference between the focus and the epicenter of an earthquake? 5. What is liquification? In what types of soil does it happen?      1. How are tsunamis formed?      1. Write one sentence that can summarize all of your notes above. | |