Chapter 3 ES: Earthquakes and Volcanoes

Section 1: Earthquakes

Essential Questions

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| What is an earthquake? | Earthquakes are the vibrations in the ground that result from movement along breaks in Earth’s lithosphere. |
| Where do earthquakes occur? | Most earthquakes occur in the oceans and along the edges of continents. |
| How do scientists monitor earthquake activity? | Scientists determine the magnitude of an earthquake using the Richter Scale (measuring the amount of shaking).  Scientists study the probability that an earthquake will occur in an area by studying past earthquake activity, the geology around the fault, the population density, and the building design. |
| Key Terms: |  |
| Earthquake | The vibrations in the ground that result from the movement along breaks in Earth’s lithosphere |
| Fault | A break in Earth’s lithosphere where one block of rock moves toward, away from, or past another. There are three types: strike-slip, normal, and reverse. |
| Seismic wave | The release of energy that travels as vibrations on and in the Earth. |
| Focus | The point at which seismic waves originate where rocks first move along the fault at a location inside the Earth. |
| Epicenter | The location on Earth’s surface directly above the earthquake’s focus. |
| Primary wave | P-waves cause particles in the ground to move in a push-pull motion similar to a coiled spring.  They are the fastest moving waves. |
| Secondary wave | S-waves are slower than P-waves. They cause particles to move up and down at right angles relative to the direction the wave travels. |
| Surface wave | Cause particles in the ground to move up and down in a rolling motion, similar to ocean waves. They cannot travel through liquid. |
| Seismologist | Scientists who study earthquakes. |
| Seismometer | An instrument that measures and records ground motion and can be used to determine th distance seismic waves can travel. |
| Seismogram | A graphical illustration of seismic waves. |