Earth Unit 4 Lesson 1: Earth’s Layers

1. What is inside Earth?
   1. Earth is made of several layers.
   2. Each layer has its own characteristic properties.
   3. Scientists think about Earth’s layers in two ways—in terms of chemical composition and in terms of physical properties
2. What are Earth’s compositional layers?
   1. Earth can be divided into three layers based on chemical composition: the *crust*, the *mantle*, and the *core*.
   2. The outermost solid layer of Earth is the **crust**.
   3. There are two types of crust: continental and oceanic.
   4. Both types of crust are made mostly of oxygen, silicon, and aluminum.
   5. Oceanic crust is denser than continental crust because it contains almost twice as much iron, calcium, and magnesium.
   6. The **mantle** is located between the crust and the core.
   7. The mantle is a region of hot, slow-flowing solid rock.
   8. The mantle contains more magnesium and less aluminum and silicon than the crust.
   9. **Convection** is the movement of matter that results from differences in density caused by variations in temperature.
   10. Convection in the mantle causes cooler rock to sink and warmer rock to rise.
   11. The **core** extends from below the mantle to the center of Earth.
   12. Scientists think the core is made mostly of iron and some nickel.
   13. The core is the densest layer and makes up about one-third of Earth’s mass.
3. What are Earth’s physical layers?
   1. Earth is also divided into layers based on physical properties, such as whether the layer is solid or liquid.
   2. The five physical layers are the *lithosphere*, *asthenosphere*, *mesosphere*, *outer core*, and *inner core*.
   3. The outermost, rigid layer of Earth is the **lithosphere**.
   4. The lithosphere is made of the crust and the rigid, upper part of the mantle.
   5. The lithosphere is divided into pieces called *tectonic plates*.
   6. The **asthenosphere** is the layer of weak or soft mantle made of solid rock that moves very slowly.
   7. The asthenosphere is located below the lithosphere.
   8. Tectonic plates move on top of the asthenosphere.
   9. The strong, lower part of the mantle is called the **mesosphere**.
   10. Rock in the mesosphere flows more slowly than rock in the asthenosphere.
   11. The outer core is the liquid layer of Earth’s core.
   12. The outer core lies beneath the mantle and surrounds the inner core.
   13. The inner core is the solid, dense center of our planet.
   14. The inner core extends from the bottom of the outer core to the center of Earth.