*Key Vocabulary – ES 7: Plate Tectonics*

**Geologist -** Someone who studies the inside and surface of Earth.

**Paleontologist** – Someone who studies fossils & the history of Earth through fossil records

**Volcanologist** – Someone who studies volcanoes

**Theory of Plate Tectonics** – The theory that the surface of Earth has been shifting for billions of years.. This theory explains how the continents and ocean floor came to look like they do including how and where mountains, volcanoes, and earthquakes occur.

**Continental Drift** – The slow movement and rearrangement of the continents as a result of plate tectonics.

**Lithosphere** – The crust & hard upper part of the mantle. It is broken into moving pieces called plates

**Asthenosphere** – The plastic-like layer of the mantle just underneath the lithosphere. The lithosphere slides across the asthenosphere.

**Continental Plate** – An old, thick, low-density plate made of silicates. The original surface when Earth cooled.

**Oceanic Plate** – A newer, thin, more-dense plate usually made of iron-rich basalt. This is the ocean floor and is created and recycled along plate boundaries.

**Convergent Plate Boundary** – The area where two or more tectonic plates ran into each other. The types of structures that could be seen at a convergent plate boundary include folded and faulted mountains. Areas that also have subduction may include oceanic trenches, volcanic mountain ranges, and volcanic island arcs.

**Continental Collision** – When continental plates run into each other slowly over time. Mountains like the Appalachians were formed this way.

**Subduction** – When an oceanic plate slides under another tectonic plate. Oceanic plates are denser than continental plates, and that is why the oceanic plate slides under when the two plates converge. When two oceanic plates converge, the older, denser plate will subduct under the younger, less dense plate.

**Subduction Zone** – The area where two plates come together and one slides under. It is a feature of a convergent boundary and forms oceanic trenches.

**Oceanic Trench** – A feature of a convergent boundary, it is a deep underwater trench where an oceanic plate subducts under another plate.

**Divergent Plate Boundary** – The area where two tectonic plates pull apart.

**Rifting** – The pulling apart of two plates or the splitting open of one plate. It leaves a valley behind or a volcanic ridge.

**Rift Valley** – A valley on land formed from the land pulling apart at a divergent boundary.

**Fissure Volcanoes** – Volcanoes that form at a divergent boundary. As the land or ocean floor pull apart, lava fills in the space and can make these volcanoes.

**Flood Lavas** – Where lava oozes out onto the surface and covers large areas. This lava can make horizontal layers. It comes out at divergent boundaries.

**Seafloor Spreading** – The ocean floor spreads away from a divergent boundary, sending older ocean floor away as new ocean floor comes up as lava at the divergent boundary. This is similar to how a conveyor belt works.

**Mid-Ocean Ridge** – A long line of underwater volcanoes formed as lava comes up at a divergent boundary in the middle of the ocean. Very easily seen by satellites at the Mid-Atlantic Ridge.

**Ridge** – Any long line of connected mountains and/or volcanoes.

**Transform Plate Boundary** – The area where two plates rub against each other.

**Strike-slip Fault** – A break in the earth where the two sides rub up against each other. It is a feature of a transform plate boundary. Earthquakes happen at faults. The San Andres fault in California is a famous strike-slip fault.

**Physiographic Province** - a physical area of land like a mountain range or a plateau. Virginia has 5 physiographic Provinces: 1) Costal Plain, 2) Piedmont, 3) Blue Ridge Mountains, 4) Valley & Ridge, and 5) Appalachian Plateau.

**Topography** - What the surface of the Earth is like in that area.

**Unconsolidated** – Loose, as in sediments that have not packed down into sedimentary rock.

**Crystalline Basement Rock** – Ancient igneous or metamorphic rock underground. Sediments or sedimentary rock lies on top of this layer. Basement rock is usually granite – which is igneous.

**Folded Rock** – Where compression forms a wavy, up & down pattern in the crust, like when you slide two ends of a piece of paper together.

**Faulted Rock** – Where a break in the rock occurs. This can occur when the crust pulls apart producing a “normal” fault or when the crust pushes together producing a “reverse” fault.

**Composition** – What something is made of

**Structure** – The way something is built or looks like

**Topographic** – What the surface of Earth is like

**Geologic History** – The history of Earth in terms of how the land, oceans, and atmosphere have changed over long periods of time. Fossils of once-living things help geologist figure out what Earth was like during specific time periods.

**Volcanism** – Volcanic activity…if, when, and how volcanoes form and erupt.

**Geothermal Activity** – The heat of Earth’s interior. We are usually interested in how this heat comes to the surface. This could involve, magma, lava, and hot water.

**Seismic Wave** – A wave of energy made by and earthquake

**Density** – A measure of how packed in the matter is. Density = Mass divided by Volume.

**Viscosity** – A measure of how thick a fluid is or how the fluid resists flowing. Lava has a higher viscosity than water because lava does not flow as easily as water. Different types of lava have different viscosities.

**Magnetic Record** – As lava erupts at a divergent boundary, the iron atoms in the lava point to magnetic north before cooling & locking into place. Magnetic north switches about every 200,000 years. The iron in the ocean floor keeps a record of the direction at the time that section of ocean floor cooled from lava into rock.

**Volcano** – An opening where magma erupts onto Earth’s surface

**Hot Spot** – A specific area where heat comes up from the deep. It stays in one spot as the tectonic plate above it slowly slides across. Examples of hot spots are Hawaii where the hot spot made the volcanic islands, and Yellowstone where the hot spot causes geysers.

**Fault** – A break or crack in Earth’s crust along which movement of the crust has occurred.