*Key Vocabulary – ES9: Geologic History*

**Geologic History** – The 4.6 billion-year history of how Earth has changed over time, how life began, and how life changed as Earth’s conditions changed.

**Geologic History Diagram** – A visual way to break Earth’s history into chucks of time called eons, eras, periods, and epochs. We divide this chunks based mostly on when extinctions and/or changes in the dominant species. We know this by studying the fossil records.

**Fossil** – The remains, impression (imprint), or other evidence of a once-living thing found in sedimentary rock.

**Mold Fossil** – An imprint left behind when a body part was pushed down into soft sediment and the sediment later hardens into rock, leaving the impression. A footprint may be an example.

**Cast Fossil** – A fossil that forms when the mold is filled in by sediments or minerals, which harden into the shape of the mold.

**Original Remains** – An actual body part that has not broken down such as bone or shell.

**Relative Time/Dating** – Placing rock layers, fossils, or event in order of oldest to newest without giving an exact age or time it took place.

**Law of Superposition** – Rock layers are arranged according to when they were deposited. The oldest rock layer is on the bottom. The youngest rock layer is at the top.

**Law of Cross-Cutting** – A rock layer or column that cuts across existing layers is younger than the layers it cut through.

**Absolute Time/Dating** – Placing a number value to the age of a rock layer, fossil, or event. Example: “This fossil is 2.5 million years old.”

**Radioactive Decay** – The breakdown of certain types of atoms found in rocks (like uranium) and once-living things (like carbon-14). These elements breakdown at a very specific rate and can be used to figure out the absolute age of a rock layer or fossil.

**Marine Organism** – Plants or animals that live in the sea. Most Virginia fossils are marine fossils because most of Virginia was once underwater.

**Paleozoic Era** – The chunk of time between 540 – 225 million years ago (mya). It features many species in the oceans and the beginnings of life on land. It ended in a mass extinction. Virginia has marine fossils from this time

**Mesozoic Era** – The chunk of time between 225 – 65 million years ago (mya). It was the age of the dinosaurs and the time of Pangaea. It ended in a mass extinction. Virginia has marine fossils from this time.

**Cenozoic Era** – The chuck of time from 65 million years ago to present. It is the age of mammals and bird. Humans appeared in the Cenozoic Era. Virginia has fossils from this time.

**Mass Extinction** – When a large percent of species die. For example, when a large meteorite hit Earth 65 million years ago, it killed 75% of all plant and animal species, not just the dinosaurs. The worst mass extinction was at the end of the Paleozoic when 90% of species died.

**Global Catastrophe** – Something that will result in a mass extinction. This could include an asteroid or comet impact, very active volcanism and plate tectonics, and major climate change.