**Earth Science Pacing Guide (2016-2017)**
Note: Graphing is essential throughout the course!

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| ES.1 a,b,e,f & ES.2: 2 daysScientific InvestigationMeasurementDensityCurrent Applications used to reinforce Earth Science concepts **Density Lab****Graphing Lab** ES.1 b,c,d: 5 daysMap Skills* Latitude & longitude
* Topographic maps
* Geospatial technologies
* Aerial photography & satellite images

**Mountain Topographical Map & Profile Model** ES.4: 5 daysMinerals* Understand how to identify major rock forming and ore minerals based on physical and chemical properties

**Mineral Identification Lab**ES.5: 6 daysRocks* Investigate and understand the rock cycle as it relates to the origin and transformation of rock types and how to identify common rock types based on mineral composition and textures

**Rock Identification Lab**ES.7 a & ES.8 a, b: 4 daysWeathering & Soil and Erosion* Geologic processes including weathering and erosion
* Process of soil development

**Topsoil tour Lab**ES.8 c,d,e,f: 8 daysFreshwaterVirginia's WatershedsGroundwater* Relationships between groundwater zones, including saturated and unsaturated zones and the water table

**Edible aquifer Lab** | ES.7 a,b & ES.10: 3 daysOceanography* Investigate and understand that complex, interactive physical, chemical, and biological systems and are subject to long- and short-term variations

**Ocean Floor Topography**ES.7 a, b: 14 daysPlate Tectonics, Earthquakes & Volcanoes* Investigate and understand geologic processes including plate tectonics

**Pangaea Puzzle****Seafloor Spreading Activity****Triangulation of Earthquake Epicenter Lab****S-P Time Travel Graphs of Earthquake Waves** ES.9: 5 daysFossilsRelative & Absolute DatingGeologic Time **Half-life Lab****Timeline Lab** ES.7 a,b: 2 daysVirginia's Tectonic History and Physiographic Provinces ES.6: 3 daysRenewable & Nonrenewable Energy* Investigate and understand the difference between renewable and nonrenewable resources

ES.1 a,b,c & ES.11: 3 daysAtmosphere* Scientific evidence for atmospheric compositon changes over geologic time
* Current theories related to the effects of early life on the chemical make-up of the atmosphere
* Atmospheric regulation mechanisms including the effects of density differences and energy transfer
* Potential changes to the atmosphere and climate due to human, biologic, and geologic activity
 | ES.1a,b,c & ES.12: 5 daysWeather* Observation and collection of weather data (including imagery and models)
* Prediction of weather patterns
* Severe weather occurrences, such as tornadoes, hurricanes, and major storms
* Weather phenomena and the factors that affect climate including radiation, conduction, and convection

**Reading a Weather Map Lab**ES.3 & ES.13: 7 daysAstronomy* Cosmology including the Big Bang Theory
* The origin and evolution of stars, star systems, and galaxies

**H-R Diagram/Star Classification Lab****Review of all SOL's for SOL Test: 11 days** **Suggested Review Schedule:**Day 1: MineralsDay 2: RocksDay 3: Soil, Weathering & ErosionDay 4: Freshwater & GroundwaterDay 5: Plate TectonicsDay 6: Earthquakes & VolcanoesDay 7: Fossils, Relative &Absolute Dating, Virginia's tectonic history, and EnergyDay 8: OceanographyDay 9: MeteorologyDay 10: AstronomyDay 11: Scientific Investigation and Maps **All labs are required (teachers may do more labs)**   |