**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 days  Scientific Investigation  Measurement  Density  Current Applications used to reinforce Earth Science concepts    **Density Lab**  **Graphing Lab**    ES.1 b,c,d: 5 days  Map Skills   * Latitude & longitude * Topographic maps * Geospatial technologies * Aerial photography & satellite images   **Mountain Topographical Map & Profile Model**    ES.4: 5 days  Minerals   * Understand how to identify major rock forming and ore minerals based on physical and chemical properties   **Mineral Identification Lab**  ES.5: 6 days  Rocks   * 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 days  Weathering & Soil and Erosion   * Geologic processes including weathering and erosion * Process of soil development   **Topsoil tour Lab**  ES.8 c,d,e,f: 8 days  Freshwater  Virginia's Watersheds  Groundwater   * Relationships between groundwater zones, including saturated and unsaturated zones and the water table   **Edible aquifer Lab** | ES.7 a,b & ES.10: 3 days  Oceanography   * 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 days  Plate 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 days  Fossils  Relative & Absolute Dating  Geologic Time    **Half-life Lab**  **Timeline Lab**    ES.7 a,b: 2 days  Virginia's Tectonic History and Physiographic Provinces    ES.6: 3 days  Renewable & Nonrenewable Energy   * Investigate and understand the difference between renewable and nonrenewable resources   ES.1 a,b,c & ES.11: 3 days  Atmosphere   * 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 days  Weather   * 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 days  Astronomy   * 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: Minerals  Day 2: Rocks  Day 3: Soil, Weathering & Erosion  Day 4: Freshwater & Groundwater  Day 5: Plate Tectonics  Day 6: Earthquakes & Volcanoes  Day 7: Fossils, Relative &Absolute Dating, Virginia's tectonic history, and Energy  Day 8: Oceanography  Day 9: Meteorology  Day 10: Astronomy  Day 11: Scientific Investigation and Maps    **All labs are required (teachers may do more labs)** |