Benchmark Review

**What Should I Know From Each Topic?**

**Metric System/Density**

* Tools and units to measure mass, volume, length.
* Formula for density; *density = mass/volume*
* How would one find the density of an object? What tools would you use to find the density of an object.

**Scientific Method**

* Steps of the scientific method.
* Difference between a hypothesis, theory, and a law.
* If given an experimental scenario can you identify: Independent variable, Dependent variable, or constants.

**Mapping**

* Be able to use features of a map: map scale, map key, compass.
* What is GPS and how does it work? *GPS uses satellites to pinpoint latitude and longitude coordinates so we can use our cell phones or computers to find the distance from one location to another.*
* Be able to find a coordinate if given a point, and be able to find a point if given a coordinate.
* Latitude is measured North and South of the equator, which is the horizontal line at 0° between the north and south poles.
* Longitude is measured West and East of the prime meridian, which is the vertical line at 0° separating the western and eastern hemispheres.
* Lines of latitude range from 0-90° and longitude ranges from 0-180°
* What is topography? What do topographic maps show us.
* What are contour lines and what do they show us?
* What does the spacing of the contour lines tell us about the slope of the land.

**Earths Interior/Motion**

* What does the nebular hypothesis state/tell us? It states how our solar system was formed.
* Properties of each layer and be able to label the layers: Crust, Mantle, Outer Core, Inner Core
* The tilt of the earth at 23.5° helps to cause the seasons of earth.
* The equator gets nearly direct radiant energy (sunlight) all year round which is why it is warmer all year round, however the poles receive sunlight at an angle which is why they are colder on average.

**Minerals**

* Definition of a mineral or the 5 characteristics of a mineral: *A naturally occurring, inorganic, solid, with a definite chemical composition (chemical formula), and arrangement of atoms (crystal structure).*
* What are the properties that help us identify minerals: Color, Streak, Luster, Hardness, Density, Cleavage, Fracture, Specific Gravity, Fluorescence, Taste, Magnetism, Acid Test, and Radioactivity.
* Need to know the definition of each property and how to identify it using a picture.
* Must know how to read and use the Moh’s Hardness Scale
* Specific minerals and how we can identify them or special properties of minerals.

**Rocks**

* What does the rock cycle tell us: *it tells us how rocks are formed AND how all rocks can change to another type of rock.*
* The three types of rocks are igneous, metamorphic, and sedimentary and how are each type formed.
* Igneous rocks can be classified as intrusive or extrusive (what does extrusive/intrusive mean?)
* Metamorphic rocks can be classified as foliated or non-foliated (what does foliated/non-foliated mean?)
* Sedimentary rocks can be classified as clastic, non-clastic organic, or non-clastic chemical (how are each of the three classifications formed?)
* The texture of the rock tells us the size of the grains. What types of rocks are considered to have fine grains or Coarse grains and WHY!!
* What type of rock do we find fossils in? *Sedimentary*
* What type of rock is coal? *Non clastic organic sedimentary rock because it forms from the remains of plants/animals.*

**Resources**

* Renewable vs. nonrenewable resources.
* Know differences between renewable vs. nonrenewable ENERGY sources.
* What are fossil fuels? *A natural fuel such as COAL, OIL/PETROLEUM, and NATURAL GAS, formed in the geological past from the remains of living organisms (plants/animals).*
* What types of energy sources do we use here in Virginia? *Coal, natural gas, oil, hydroelectric, wind, solar, nuclear, and biomass*

**Plate Tectonics**

* Three plate boundaries and LANDFORMS you see at each!
* What causes the tectonic plate to move? *Mantle convection: convection currents, slab pull, ridge push.*
* What is sea-floor spreading, what boundary does it occur at, and what does it tell us?
* Where can volcanoes form? *Divergent boundaries, convergent boundaries with subduction, (divergent boundaries and convergent boundaries are faults/crack in the earth) and hot spots*
* Earthquakes and volcanoes typically form at the edge of plate boundaries.
* What is focus and epicenter of an earthquake and what do they tell us?
* How many seismic stations would you need to determine the epicenter of an earthquake?

**Weathering/Erosion/Soil/Water**

* What is soil?
* What is the soil profile and how does it form?
* Characteristics of each layer of soil in the soil profile.
* What is weathering? *Weathering is the breakdown of rock into smaller pieces/sediments.*
* What are the two types of weathering and describe each: *Mechanical (physical) weathering is the physical breakdown of rock into smaller pieces and chemical weathering is the disintegration of rock caused by chemical reactions.*
* What is erosion?
* How does erosion affect the earth’s surface/soil layers?
* What is a watershed? *All the land that drains into a particular set of streams/rivers.*

**Environmental Impacts**

* Be able to analyze how pollution can affect the environment we live in: atmospheric pollution, groundwater pollution, water pollution.