**UNIT 1: INTRODUCTION TO ENVIRONMENTAL SCIENCE**

**Chapter 3, Section 1: The Geosphere**

**Standards: SEV1a, SEV1e**

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| ***Why is the Earth classified as a “system”?*** | * A system consists of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that work together. * Parts of the Earth: |
| ***What makes up the geosphere?*** | * All the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on Earth’s surface. * Scientists divide the geosphere into   + COMPOSITIONAL layers   + PHYSICAL layers. |
| ***What are the COMPOSITIONAL parts of the geosphere?*** | * Density, temperature & pressure \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as you go towards center. * Crust   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layer (5-70 km thick)   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ elements   + Less than \_\_\_\_\_\_\_\_\_\_\_\_ of Earth’s mass   + Thicker beneath \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and thinner under ocean. * Mantle   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layer (2,900 km thick)   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ material * Core   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sphere (3,400 km radius)   + Sphere of hot, dense \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| ***What are the PHYSICAL parts of the geosphere?*** | * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + Crust and uppermost mantle   + Consists of tectonic plates * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + Mantle rock that moves slowly. Solid yet plastic   + Allows tectonic plates to move * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + Lowest part of mantle * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_core   + Liquid nickel and iron * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ core   + Solid nickel and iron   + 4,000-5,000ºC   + Enormous pressure |
| ***How are the layers of Earth determined?*** | * Scientists use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to “see” and learn about Earth’s interior. * Seismic waves react differently when they hit or pass thru a material. |
| ***Plate tectonics*** | * Tectonic plates glide on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Major plates:   + Pacific, N. American, S. American, African, Eurasian, Antarctic * Geologic activity occurs along plate boundaries   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- pull apart- get volcano or ridge     - EX: Mid-Atlantic ridge where N. American plate and Eurasian plate moving in opposite directions.   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- push together- get mountain     - EX: Himalayans when Indian plate hit Eurasian plate   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_- plates rub against each other- get earthquake     - EX: Where N. American plate rubs against Pacific plate get earthquakes in CA. |
| ***Earthquakes*** | * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in Earth’s crust caused by sudden stress break along a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. * If it happens under water it can cause \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   + EX: Indonesian tsunami in 2004 * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- used to quantify amount of energy (magnitude) released by quake. * \_\_\_\_\_\_\_\_ magnitude is smallest * \_\_\_\_\_\_\_\_ is greatest recorded (Chile in 1960) * Difference between 1 whole number and another on the scale is \_\_\_\_\_\_\_   + EX: Magnitude 6.0 is 31.7 times greater than 5.0. * Quakes of \_\_\_\_\_\_\_\_\_\_\_\_\_ or greater cause widespread damage * Hazards   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + Damage depends on type of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_     - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ soil = more damage (liquefaction)   + Buildings built to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ so can sway with vibrations. |
| ***Volcanoes*** | * Mountain built from magma that rises from the Earth’s interior to the surface. * Where plate diverges or converges * On land or under ocean * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- eruption causes magma, ash, gases to burst from volcano * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- magma leaks out slowly * Local Effects   + Local \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ affected   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ loss   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_     - Can create mudflow     - Bury homes, crops     - Respiratory illness * Global Effects   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ changes     - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ particles reflect light, cool temperature     - Ash blocks \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- snowed in New England in July b/c of 1815 Mt. Tambora volcano in Indonesia   + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| ***Erosion*** | * \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of surface material like rocks and soil * Older a mountain range the more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, weathered it is   + EX: Appalachian Mtns are older than Rockies * Caused by |
| **Summarize what you learned today:** | |