**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.
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| ***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.
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| ***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
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| **Summarize what you learned today:** |