**Unit 1- Earth Systems and Resources** **AP Environmental Science**

**AIM:** *What are tectonic plates and how have they moved over time?* Ms. Taylor

**DO NOW:**

1. What is the Geologic Time Scale based on?
2. What 2 events characterize the Cenozoic Era (past 65 million years)?
3. What 2 events characterize the Quaternary Period (past 1.8 million years)?
4. What are the two types of crust, and how are they different?
5. Describe the consistency of the upper portions of the mantle

**Lithosphere:**

* The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** part of Earth
* Consists of the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, and the uppermost **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Asthenosphere:**

* Upper portion of the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

that has a “plastic-like” consistency

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_– “plastic like”

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**– Solid

* Earth’s lithosphere is divided into several large pieces called “**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**”
* The plates are constantly moving, a phenomena known as “**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**”
	+ 2-5 cm a year
* The plates (**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**) are able to glide on the plastic-like portion of the mantle, known as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The lithosphere glides on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Slow creeping motion of the mantle is caused by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, carrying heat from Earth’s interior to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Convection currents in the asthenosphere move plates in the **­­­­**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**The Theory of Plate Tectonics**

* The theory of plate tectonics arose out of 2 separation geological observations:
	1. *The continental drift theory*
	2. *The seafloor spreading theory*

**Continental Drift:**

* Alfred Wegner proposed that all present-day continents originally form one land-mass-­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Wegner proposed that this supercontinent began to break up **\_\_\_\_\_\_\_\_\_\_\_\_**million years ago

**Evidence to support his theory:**

* Tropical plants fossils in **\_\_\_\_\_\_\_\_\_\_\_\_\_** climates
* Continents fit like a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Coasts of different continents have same **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**of extinct species found on separated landmasses

**Plate Tectonics:**

* Earth’s lithosphere is divided into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Divisions between plates are called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**Plates interact at their boundaries:**

* There are 3 types of plate boundaries
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ boundaries
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_boundaries
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ boundaries

**Transform Boundaries:**

* Two plates slide **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**each other

**Divergent Boundaries:**

* Two plates slide **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** from each other

**Convergent Boundaries:**

* Two plates slide **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** each other
* If an oceanic plate and a continental plate are colliding, the oceanic plate will slide **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** the continental plate
	1. The oceanic plate is more **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	2. This is called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!**

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **AP Environmental Science**

**HOMEWORK: Earth Systems and Resources-** *Plate Tectonics*Ms. Taylor

1. What is the lithosphere?
2. What is the asthenosphere?
3. What are tectonic plates?
4. Which two plates meet in California?
5. What allows tectonic plates to move?
6. In which layer of the earth do convection currents occur?
7. Describe how convection causes movement in the asthenosphere.
8. What does the theory of continental drift state?
9. Name 2 pieces of evidence used to support the theory of continental drift.
10. Name two plates that interact in the Atlantic Ocean.
11. What is the term used to describe where two tectonic plates meet?
12. What is it called when two plates slide into each other?
13. What is it called when two plates slide past each other?
14. What is it called when two plates slide away from each other?
15. Which type of boundary is involved with subduction?
16. In what case would subduction occur and why?

**Vocabulary:** Lithosphere, asthenosphere, continental drift, convection currents, tectonic plates, plate tectonics, transform boundaries, convergent boundaries, divergent boundaries