Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_

**Dynamic Earth Interactive: Tectonic Plate Boundaries**

Use the following website to answer the questions below.

<http://www.learner.org/interactives/dynamicearth/plate.html>

1. Use the map to identify the tectonic plates.



[Grab your reader’s attention with a great quote from the document or use this space to emphasize a key point. To place this text box anywhere on the page, just drag it.]

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1. Use the **BOTTOM** map to see where the three different types of plate boundaries are found throughout the world.
   1. Identify two plates at a divergent boundary:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Identify two plates at a convergent boundary:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Identify two plates at a transform boundary:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Click on the “Slip, Slide, & Collide” Tab at the top of the page.**

1. Many of the most dramatic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ phenomena we experience on Earth — \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ eruptions, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and more — are caused by the slipping, sliding, and colliding of tectonic plates. As you might expect by now, most major geologic events occur at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between tectonic plates, where huge, massive pieces of the earth's crust \_\_\_\_\_\_\_\_\_\_\_\_. Each kind of plate boundary is associated with particular events, so if you know about the movements taking place at a plate boundary, you can often \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ what's likely to occur there — volcanoes, earthquakes, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ — in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_!

Convergent Boundaries – Colliding Plates

1. What happens to oceanic crust along a subduction zone? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is formed along the edge of a continent as the oceanic crust sinks? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What causes magma to form along a subduction zone? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Using the animation of the subduction zone, roll your mouse over the following terms and record their definition:

a.Subduction zone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.Volcano: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.Volcanic arc: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d. Trench: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. The magma formed at a subduction zone \_\_\_\_\_\_\_\_\_\_\_\_\_\_ up toward the earth's surface and builds up in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, where it feeds and creates **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** on the overriding plate. When this magma finds its way to the surface through a \_\_\_\_\_\_\_\_\_\_\_ in the crust, the volcano \_\_\_\_\_\_\_\_\_\_\_\_\_\_, expelling \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_. An example of this is the band of active volcanoes that encircle the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, often referred to as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

9. What geologic event is caused by the collision and subduction of plates? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. What is a tsunami? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. What causes tsunamis? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. How many people were killed during the Indian Ocean tsunami in December 2004? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. What happens when two continental plates collide? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. How did the Himalayan Mountains form? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. What are two peaks in the Himalayas that are more than 26.000 feet high? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Divergent Boundaries – Spreading Plates

16. Divergent boundaries in the middle of the ocean contribute to **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**. As plates made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ crust \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, a crack in the ocean floor appears. \_\_\_\_\_\_\_\_\_ then \_\_\_\_\_\_\_\_\_\_\_\_ up from the mantle to fill in the space between the plates, forming a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ called a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**. The magma also spreads \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, forming \_\_\_\_\_\_\_\_\_\_\_ ocean floor and new \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

17. When two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ plates diverge, a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rift develops. This **\_\_\_\_\_** is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ zone where the plates are pulling \_\_\_\_\_\_\_\_\_\_\_. As the crust \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_, valleys form in and around the area, as do \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, which may become increasingly \_\_\_\_\_\_\_\_\_\_. Early in the rift formation, \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_ flow into the low valleys and long, narrow \_\_\_\_\_\_\_\_\_\_\_ can be created. Eventually, the widening crust along the boundary may become thin enough that a piece of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, forming a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. At this point, water from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will rush in, forming a new \_\_\_\_\_\_\_\_\_\_ or ocean \_\_\_\_\_\_\_\_\_\_\_\_\_ in the rift zone.

**\*\*\* Play the animation of the formation of a rift valley.**

Transform Boundaries – Grinding Plates

18. How do plates move along a transform boundary? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. What is a fault? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

20. Why do transform boundaries and the resulting faults produce a lot of earthquakes? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21. What happens as the plates grind past each other? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. How does the building up of stress along a fault result in an earthquake? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. The motion of the plates at a transform boundary has given this type of fault another name — a **\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_ fault**. The best-studied strike-slip fault is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Fault in California. It is located at the boundary between the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ plates and runs roughly \_\_\_\_\_\_\_\_ miles (1,300 km) through Northern and Southern California. As the two plates grind past each other — the Pacific Plate moving \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the North American Plate moving \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ — the motion produces numerous \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ along the fault. While many are small and cause only minor trembling, the San Andreas Fault has also been the site of major events: the 1857 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ earthquake, the 1906 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ earthquake and \_\_\_\_\_\_\_\_\_, and the 1989 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ earthquake. Many scientists believe that the San Andreas Fault is due to unleash another large earthquake — a "\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_" — in the coming decades.

**\*\*\* Play the “Plate Interactions Challenge”**