

Name: _____ Date: _____ Period: _____

Plate Tectonics: Identifying Plate Boundary Types and Associated Landforms

Directions: Read the following text. Afterward, identify the plate boundaries A-E on the tectonic plate map on the back-side of this page and complete the following Plate Boundary chart and questions. If you need additional information, you can find it in the textbook, your notes, and/or the plate boundary graphic organizer. **20 points - Due at the end of the period.**

An easy way to visualize plate movement is to think of a conveyer belt that moves luggage from an airplane to a baggage cart. The conveyer belt represents the underlying asthenosphere, and the luggage represents Earth's lithospheric plates. The luggage is moved along by the conveyer belt until it is dumped into the baggage cart, the same way that plates are moved until they are subducted (sink) into Earth's interior. Although this analogy is a good way to visualize how plate movement takes place, it is limited. The major limitation is that, unlike the luggage, the plates consist of continental and oceanic crust, which have different densities. Oceanic crust is always denser than continental crust, and because of this, only oceanic crust is subducted into Earth's interior where it is destroyed and returned to Earth's surface as magma. This is why we can find rocks over 4 billion years old on land, but the oldest ocean floor is about 200 million years old: the oceanic crust is always subducted beneath the continental crust.

As the plates move away or toward each other, they create a series of characteristic features that we can see at the surface or ocean bottom, such as mountains, volcanoes, mid-ocean ridges, arc islands, and deep ocean trenches. This movement at the boundaries of tectonic plates is also responsible for events such as earthquakes and tsunamis. Prior to the theory of plate tectonics, scientists thought that that these features and events were all separate and unrelated. The theory of plate tectonics is such a powerful discovery because it ties together all of these seemingly unrelated features and events with one explanation. It also reminds us that, even though we usually see our planet as relatively static, it is actually a dynamic system that is always changing, just not on the timescale of human life!

Plate Boundary	Plate Boundary Type (if convergent, specify which type of convergent)	Features that Exist at Boundary	Events that Occur at Boundary
A			
B			
C			
D			
E			

Questions:

1. What is the difference between oceanic and continental crust? What effect does this have when the two plates interact?

2. Plate tectonics is sometimes referred to as the "Unifying Theory of Geology." Geology is the study of solid Earth, the rocks of which it is composed, and the processes by which it evolves. Why do you think that the Theory of Plate Tectonics is referred to in this way?

3. What do you think Earth would look like if plate tectonics did not exist? Why do you think this?
