

Marine Science CHAPTER 3 – Plate Tectonics

DIRECTIONS: Fill in the blanks as you read Chapter 3 and study this before the tests/quizzes.

The age of the Earth is approximately _____ years. Earth is one of the “rocky planets” which are closest to / farthest away (Circle One) from the sun, so named for their solid core and lack of thick layers of atmospheric gases. Despite the fact that Earth also was hit by asteroids and other bodies, it has relatively few craters because of _____ forces. Regarding the surface of the Earth, scientists believe the atmosphere and the water present came from _____ activity in the past. There is still a lot of water in rocks deep in the Earth.

Looking deeper at the Earth, we find a core divided into two states. The inner core is _____ due to extreme pressures, while the outer core is _____. This outer core is thought to cause Earth’s _____. Between the crust and the core is the _____, thought to be a solid that can flow like a liquid. It is divided into two “spheres” – the deeper _____ sphere and the upper _____ sphere. This upper “sphere” includes the most external layer: the _____.

Continents are made up of _____ crust material. The underlying rock is _____, which is less dense than the _____ which underlies the oceanic crust. Due to different densities, the Earth’s crust floats at different levels. The balance reached (like an iceberg floating in water) is called _____. According to this principle, the thickest continental material floats shallower / deeper (circle one).

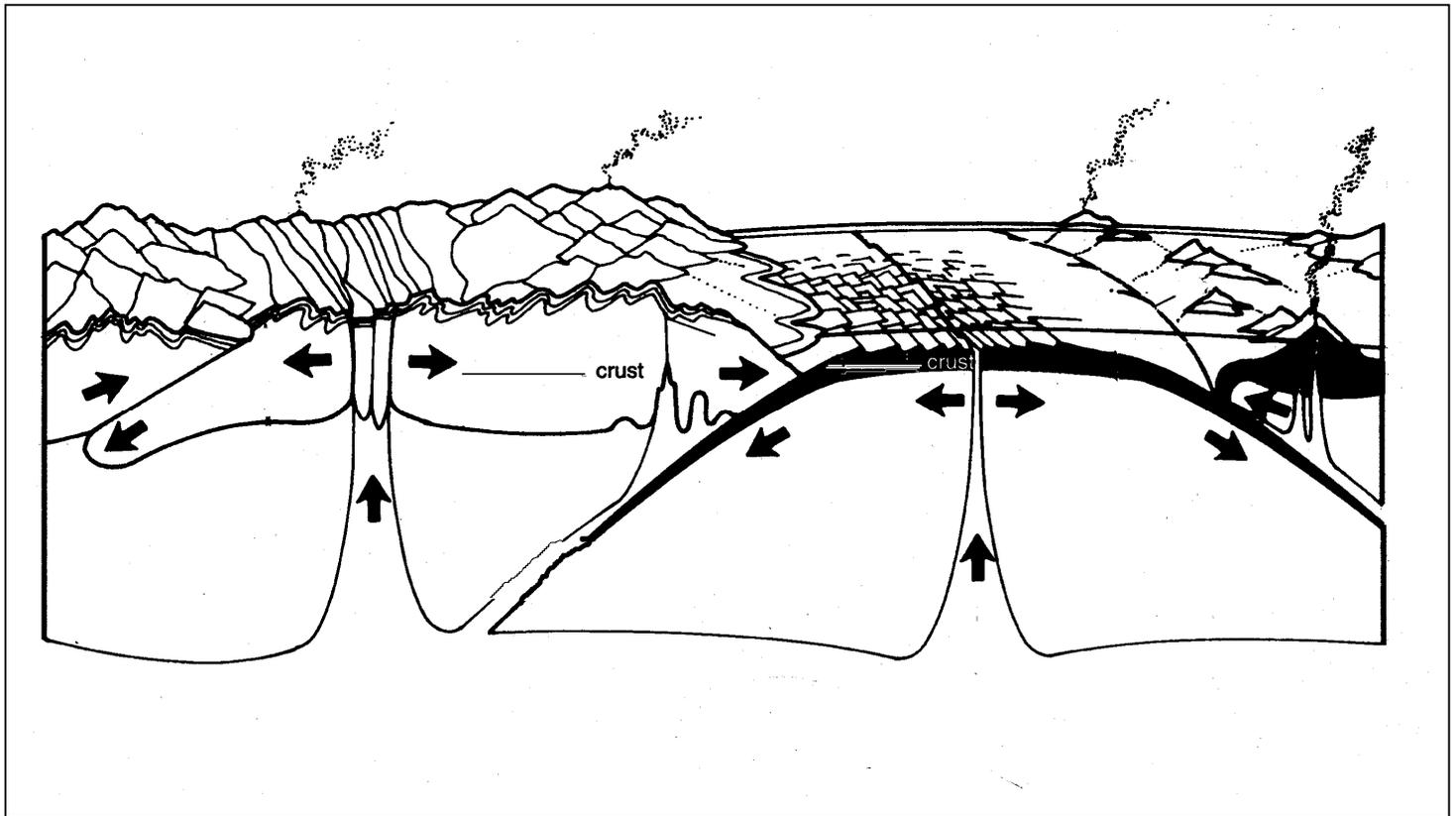
Alfred Wegener proposed the idea of “_____” about 80 years ago. His evidence included: _____ & _____.

Today, scientists believe in a new theory called _____, which involves the movement of huge “plates.” “Geopoetry” is a term to describe the ocean spreading proposed by _____ and later named sea floor spreading by _____. Vine & Matthews used magnetic anomalies to show sea-floor spreading and compare the relative ages of the rock. Bullard didn’t use the visible land as his puzzle piece edge, but instead went 500 m down; as a result his puzzle fit / did not fit (circle one) better than Wegener’s. Plate Tectonics says that plates move due to _____ in the mantle. New ocean crust is created at _____ and old ocean crust is destroyed at _____. _____ is molten rock below the surface. If it pushes up above land it is called _____ and changes chemical composition quickly. The density of the crust changes. The older / newer (circle one) the oceanic crust, the more dense it

is. Having been “distilled,” the lava creating a continent has a greater / smaller (circle one) density than the oceanic crust, so continents are _____ dense. If an oceanic crust meets continental crust at a convergent boundary, a _____ zone is formed and a trench is found. Where plates slide past each other a _____ fault is found.

ON THE DIAGRAM, label each of these:

- | | | |
|---|---|--|
| <input type="checkbox"/> Trenches | <input type="checkbox"/> Diverging plates | <input type="checkbox"/> Circle the subduction zones |
| <input type="checkbox"/> Ocean plates | <input type="checkbox"/> Mountains | |
| <input type="checkbox"/> Continental plates | <input type="checkbox"/> Ocean ridges | |
| <input type="checkbox"/> Converging plates | <input type="checkbox"/> Island arc volcanoes | |



LIST the boundary features of each type of boundary:

o-><-c _____ o-><-o _____ c-><-c _____
 divergent _____ transform _____

Why isn't Hawaii classified as Island Arc Volcanoes? How was/is it formed?

According to magnetic anomalies, the oldest crust is around _____ million years and is found nearest the mid-ocean ridge / continental shelf (circle one). _____ margins are convergent while _____ margins are like in the Atlantic.