Chapter 8 - Plate Tectonics - Quiz Questions (#1- #6)

Front - Question		Back - Answer
Q1-1: Who was Alfred Wegener?	fold	A1-1: German climatologist who wrote 1915 book, Origins of the Continents and Oceans, and hypothesized that Earth's continents were once connected as a large supercontinent called Pangaea.
Q1-2: Alfred Wegener thought that all continents were once connected. Explain three (3) observations that led to this belief.	fold	A1-2: (1) Eastern US coal beds match southern Europe coal beds; (2) South America plant fossils match plant fossils in Africa, India, Australia, & Australia; (3) Reptile fossils in South America match with ones in Africa; (4) Early mammal fossils in South America match those in Africa; (5) North American mountain ranges match those in Africa & South America; (6) Warm, dry climate evidence in Antarctica
Q1-3: Why did scientists reject Wegener's idea of continental drift?	fold	A1-3: Wegener could not identify a force strong enough to push continents.
Q1-4: The development of the theory of plate tectonics is a good example of the application of the scientific process. a. How did Wegener follow this process? b. When scientists rejected continental drift, were they using the scientific process? Why or why not?	fold	A1-4: (a) He made observations and then stated a hypothesis; (b) Yes, since they could not prove his hypothesis, they had to conclude that it was not correct.

Q1-5: List the animal fossils found on each continent based on the graphics on page 160.	f o l d	A1-5: North America - none; South America - Cynognathus, Mesosaurus, and Lystrosaurus; Europe - none; Africa - Cynognathus, Lystrosaurus, Mesosaurus; Asia - Lystrosaurus; Australia - none; Antarctica - Lystrosaurus
Q1-6: A long time ago, glaciers covered parts of some of the continents. Why aren't glaciers on these continents today?	f o l d	A1-6: The continents have moved more towards the equator.
Q2-1: Explain why magnetic patterns are important evidence for plate tectonics.	f o l d	A2-1: Parallel patterns of magnetic stripes occur in rocks on either side of mid-ocean ridges. New rock appears at the center of the ridge. This helps to prove sea floor spreading
Q2-2: How were mid-ocean ridges discovered?	f o l d	A2-2: Harry Hess, a geophysicist and naval officer discovered them while mapping the ocean floor.
Q2-3: What was Harry Hess' hypothesis regarding the ocean floor and how it was made?	f o l d	A2-3: That new sea floor is made at the mid-ocean ridges. Newer rock is less dense. The older rock far away from the ridge is more dense and so sinks back into the mantle at subduction trenches, pulling the plate behind it.

Q2-4: What two discoveries supported Hess' hypothesis?	f o l d	A2-4: (1) matching magnetic patterns on either side of mid-ocean ridges; and, (2) younger rock in the center and older rock farther away from the ridge.
Q2-5: What is the study of lithospheric plates called?	f o l d	A2-5: Plate tectonics
Q2-6: Over what surface do lithospheric plates move?	f o l d	A2-6: aesthenosphere
Q2-7: Name the two types of lithospheric plates & describe them.	f o l d	A2-7: granitic continental plates and basaltic oceanic plates
Q2-8: What are some questions that are answered by tectonic plates?	f o l d	A2-8: This theory helps explain earthquakes and volcanoes

Q2-9: What is the source of energy that drives the movement of plates?	fold	A2-9: Heat from the core of the Earth
Q2-10: Do lithospheric plates move quickly or slowly? Explain.	fold	A2-10: Slowly -- about as fast as a fingernail grows
Q2-11: Describe the process of subduction in your own words. What causes it to happen?	fold	A2-11: Heavier, denser plates sink into mantle and slide under less dense and lighter plates (usually continental)
Q2-12: Name an island chain formed by a mantle plume hot spot. Describe the process of how it forms.	fold	A2-12: Hawaiian Islands. Mantle plume stays in one place and as ocean plate moves northwest across it, magma squirts up through plate to create a new lava island.
Q2-13: What effect is the mid-Atlantic ridge having on the country of Iceland?	fold	A2-13: It is splitting it apart. A rift is appearing in the middle of the country. It is the cause of Iceland's geothermal activity.

Q2-14: When Pangaea broke apart it is thought it divided into two continents. What were they called and what do the names mean?	f o l d	A2-14: Laurasia split into Laurentia (North America) and Eurasia; Gondwana - named by Eduard Suess after a region in eastern India.
Q3-1: What are the three types of plate boundaries and what does each do in relation to other plate boundaries?	f o l d	A3-1: (a) Convergent - coming together; (b) Divergent - separating; (c) Transform - sliding past each other
Q3-2: What kind of boundary is a mid-ocean ridge?	f o l d	A3-2: Divergent boundary
Q3-3: What is pillow lava and where is it found?	f o l d	A3-3: Round-type lava flows created under water. Water cools the surface of lava and hot lava underneath causes the surface to balloon out
Q3-4: What is a place (on land) where divergent boundaries can be found? Give an example of a divergent boundary on land.	f o l d	A3-4: African rift boundary and the Red Sea

Q3-5: What happens when ocean plates come together? What landform does this event create?	f o l d	A3-5: One subducts under the other and a trench is formed
Q3-6: What two (2) features of a plate determine whether a plate will subduct under another plate?	f o l d	A3-6: The age of the plate and whether it is made of granite or basalt
Q3-7: Which is more buoyant, a continental plate or oceanic plate?	f o l d	A3-7: Continental plate
Q3-8: What happens when two continental plates collide? Give an example of continents colliding today.	f o l d	A3-8: Land crumples and forms mountains (Himalayan Mountains)
Q3-9: Why are transform faults harder to find than divergent and convergent boundaries?	f o l d	A3-9: They leave few clues to show their location and they don't occur in a single straight line.

Q3-10: What are three clues to finding transform faults?	fold	A3-10: (1) offsets; (2) earthquakes; (3) small valleys or ponds
Q4-1: What does the term -- metamorphism -- mean?	fold	A4-1: To change the form of something
Q4-2: What two things can cause metamorphic rock formation?	fold	A4-2: Heat and pressure
Q4-3: What is contact metamorphism?	fold	A4-3: When rocks come into contact with magma without much pressure being involved
Q4-4: Look at the rock images on page 175. Which image is most likely to be a metamorphic rock? Explain your answer.	fold	A4-4: Sample A -- wavy lines indicate high pressure

Q4-5: Metamorphic rocks are commonly formed at what kind of plate boundary?	fold	A4-5: convergent plate boundaries
Q4-6: In which location would you be most likely to find a metamorphic rock?	fold	A4-6: On a mountain
Q4-7: At what type of boundary can limestone be metamorphosed into marble?	fold	A4-7: At a convergent plate boundary
Q4-8: a. Formed from particles of sand & soil; b. Formed after a volcano erupts; c. Formed at a subduction zone	fold	A4-8: (a) sedimentary; (b) igneous; (c) metamorphic
Q5-1: Means “all land” & is the name for the great landmass that existed 245 million years ago.	fold	A5-1: Pangaea

Q5-2: Idea that the continents move aorund on Earth's surface.	fold	A5-2: continental drift
Q5-3: The study of Earth's lithospheric plates.	fold	A5-3: plate tectonics
Q5-4: Layer of Earth made of granite.	fold	A5-4: continental plates
Q5-5: The sinking process that completes the lower mantle convection cell.	fold	A5-5: subduction
Q5-6: What moves over the aesthenosphere?	fold	A5-6: lithospheric plates

Q5-7: Undersea features where new ocean floor is created.	fold	A5-7: mid-ocean ridges
Q5-8: Idea that Hess proposed.	fold	A5-8: sea-floor spreading
Q5-9: Thin layer made of basalt.	fold	A5-9: oceanic plates
Q5-10: Rises to the surface & may create a volcano.	fold	A5-10: mantle plume
Q5-11: Type of boundary where mountains form.	fold	A5-11: convergent boundary

Q5-12: Type of boundary where mid-ocean ridges form.	fold	A5-12: divergent boundary
Q5-13: Type of boundary where earthquakes & offsetting occur.	fold	A5-13: transform boundary
Q5-14: Feature created when one lithospheric plate subducts under another.	fold	A5-14: trench
Q5-15: Type of rock created when sedimentary rocks are exposed to intense heat and pressure.	fold	A5-15: metamorphic rock
Q5-16: How do fossils support the idea of continental drift?	fold	A5-16: Fossils are records of plants and animals that lived on continents in the past. Their age and distribution indicate continents that at one time were next to each other.

Q5-17: Where would you find the oldest and youngest rocks on the sea floor?	fold	A5-17: Oldest - furtherest away from the ridge; Youngest - closest to the ridge
Q5-18: List the 3 types of plate boundaries. California's San Andreas Fault represents which type of boundary?	fold	A5-18: Convergent, divergent, transform; transform
Q6-1: The idea that continents move around on Earth's surface.	fold	A6-1: continental drift
Q6-2: An ancient, huge landmass composed of earlier forms of today's continents; an ancient supercontinent.	fold	A6-2: Pangaea
Q6-3: Theory explaining how plates on the Earth's surface move.	fold	A6-3: plate tectonics

Q6-4: Published Origins of Continents and Oceans in 1915 to explain continental drift.	f o l d	A6-4: Alfred Wegener
Q6-5: A long chain of undersea mountains	f o l d	A6-5: mid-ocean ridge
Q6-6: The remains or impression of a living thing of a former geologic age, preserved in stone	f o l d	A6-6: fossil
Q6-7: Hypothesis that new sea floor is created at mid-ocean ridges.	f o l d	A6-7: sea floor spreading
Q6-8: Large pieces of Earth's lithosphere that move over the aethenosphere.	f o l d	A6-8: lithospheric plate

Q6-9: Thin, dense lithospheric plates that are made of basalt and form the ocean floor.	fold	A6-9: oceanic plate
Q6-10: Thick, less-dense lithospheric plates that are made of granite and form the continents.	fold	A6-10: continental plate
Q6-11: A process that involves a lithospheric plate sinking into the mantle and pulling the plate behind it.	fold	A6-11: subduction
Q6-12: Heated lower mantle rock that rises toward the lithosphere because it is less dense than surrounding mantle rock.	fold	A6-12: mantle plume
Q6-13: A lithospheric plate boundary where two plates move apart.	fold	A6-13: divergent boundary

Q6-14: A lithospheric plate boundary where two plates come together.	fold	A6-14: convergent boundary
Q6-15: A lithospheric plate boundary where two plates slide by each other.	fold	A6-15: transform boundary
Q6-16: A divergent boundary that forms on land.	fold	A6-16: rift valley
Q6-17: A valley in the ocean created where one lithospheric plate subducts under another.	fold	A6-17: trench
Q6-18: Evidence of a transform fault where the movement of the fault will break or "offset" the feature.... as in a zigzag creek.	fold	A6-18: offsetting

Q6-19: A scientist who studies how lithospheric plates move and change shape.	fold	A6-19: geodynamacist
Q6-20: A rock formed from another kind of rock due to heat and pressure.	fold	A6-20: metamorphic rock
Q6-21: When magma comes in contact with another type of rock, causing a change in structure due to high heat.	fold	A6-21: contact metamorphism
Q6-22: Rocks that are made of sediments.	fold	A6-22: sedimentary rock
Q6-23: Rocks that are formed from magma or lava.	fold	A6-23: igneous rock

Q6-24: A Cluster of tar pits in the urban heart of Los Angeles, CA. Asphalt or tar *(brea* in Spanish) has seeped up from the ground in this area for tens of thousands of years. The tar is often covered with water. Animals that came to drink the water fell in, sank in the tar, died, and were preserved.	fold	A6-24: La Brea tar pits
Q6-25: Latin name for sabre-toothed cat.	fold	A6-25: Smilodon Californicus