Earth Science Chapter 7 - Heat Inside Earth - Quiz Questions (#1- #5)

Front - Question		Back - Answer
Q1-1: is Earth's radius in kilometers? Miles? (1km = 0.62 miles)	fold	A1-1: 6,400 km .... or... 3,968 miles
Q1-2: Answer these questions about vibrations that travel through the earth: a.) What are these vibrations called? b.) What causes them? c.) What have these vibrations revealed about Earth's interior?	fold	A1-2: a. seismic waves b. earthquakes & human blasts c. That the outer core must be liquid.
Q1-3: What is a seismologist?	fold	A1-3: A scientist who detects and interprets ground vibrations at different locations on the Earth's surface.
Q1-4: During wave motion, what moves from one place to another?	fold	A1-4: A disturbance

Q1-5: What are the two general types of wave motion described in this section?	f o l d	A1-5: a) side to side; and, b) back and forth
Q1-6: Give <u>three</u> facts about each type of wave.	f o l d	A1-6: P-waves: 1) faster than S; 2) back & forth motion; 3) travel through all materials. S-waves: 1) slower than P-waves; 2) side to side motion; 3) cannot travel through liquids
Q1-7: P-waves travel at 5 km/sec and S-waves travel at 3 km/sec. A seismic station is located 30 km from where an earthquake occurred. (a). How many seconds would it take for the P-waves to reach the station? (b.) How many seconds would it take for the S-waves to reach the station?	f o l d	A1-7: a) 6 seconds b) 10 seconds
Q1-8: What can happen to seismic waves as they travel through the Earth?	f o l d	A1-8: Seismic waves can be bent, slowed down, sped up, or bounced depending on the material they encounter.
Q1-9: What are S-shadows? Create a diagram and explain it.	f o l d	A1-9: Regions where scientists cannot detect S-waves. They cannot pass through liquids.

Q1-10: What do S-shadows tell us about the interior of Earth?	fold	A1-10: The Earth's outer core is liquid.
Q2-1: Diagrams of Earth's interior show three layers. Name the 3 layers.	fold	A2-1: crust, mantle, & core
Q2-2: Use the diagram on page 145 to help you answer the following questions. (a.) What layes compose Earth's core? (b.) The upper mantle and crust make up which layer of Earth's interior? (c.) What is the name of the thickest layer of Earth's interior?	fold	A2-2: a) inner & outer core; b) lithosphere; c) lower mantle
Q2-3: How thick is the outer core in kilometers?	fold	A2-3: 2,200 km
Q2-4: Which is thicker – oceanic crust or continental crust?	fold	A2-4: continental crust

Q2-5: Is the crust brittle? (Yes or No). Why is this? Do earthquakes occur in the crust?	fold	A2-5: Yes, because it is made of cooled rock. Earthquakes occur in the crust.
Q2-6: Plates that move about Earth's surface are pieces of _____.	fold	A2-6: lithosphere
Q2-7: What is the aesthenosphere and why is it important?	fold	A2-7: It is made up of the lower mantle & is the slippery surface atop which the lithospheric plates move.
Q2-8: What material makes up most of the outer core? Is it solid or liquid? Why?	fold	A2-8: molten iron -- liquid due to the high temperature
Q2-9: What material makes up most of the inner core? Is it solid or liquid? Why?	fold	A2-9: solid iron due to high pressure

Q2-10: What very important process happens in the outer core? Why is it important?	fold	A2-10: The movement of liquid iron in the outer core creates electric currents and forms a magnetic field around Earth. This field shields us from harmful solar radiation.
Q3-1: Explain how the young Earth separated into layers. Use the term density in your answer.	fold	A3-1: Heavier materials sank and formed the core. Lighter materials rose to the surface, cooled & hardened into crust.
Q3-2: Draw a simplified diagram of Earth's interior: a.) Indicate where on the diagram you would find aluminum & silicon & iron. b.) Using the following density values (Al-2.7, Si-2.3, Fe-7.9, H_2O-1.0) to explain why water floats on the earth's surface. c.) How does the density of the mantle compare to densities of the crust & core?	fold	A3-2: a) Al & Si on the crust, Fe in the core; b) water is less dense; c) less dense than the mantle and more dense than the crust
Q3-3: What kind of rock makes up the ocean floor?	fold	A3-3: basalt
Q3-4: What kind of rock makes up the continents?	fold	A3-4: granite

Q3-5: Can rocks float? Explain.	fold	A3-5: Yes -- depends on density
Q3-6: What might happen to a mountain that would cause the crust to float higher in the mantle?	fold	A3-6: Mountains weigh a lot and push the crust down. When they erode, they become lighter and the crust floats higher.
Q3-7: What might happen to a glacier that would cause the crust to float higher in the mantle?	fold	A3-7: Glaciers weigh a lot and push the crust down. As they melt they weigh less and so the crust floats higher.
Q3-8: What process drives the lithospheric plates across the surface of the earth? Draw a diagram of this process.	fold	A3-8: Convection currents of molten rock in the mantle drive the plates across the Earth's surface.
Q3-9: What is seismic tomography?	fold	A3-9: seismic waves allow us to get a 3-D image of Earth's interior.

Q3-10: How is a CAT scan like seismic tomography?	fold	A3-10: A CAT scan uses x-rays to get a 3-D image of inside the human body. Seismic tomography uses seismic waves to get a 3-D image of the interior of Earth.
Q4-1: Seismic waves that do not pass through liquids.	fold	A4-1: S-waves
Q4-2: A scientist that detects and interprets seismic waves.	fold	A4-2: seismologist
Q4-3: Vibrations that travel through Earth.	fold	A4-3: seismic waves
Q4-4: Forward-and-backward seismic waves.	fold	A4-4: P-waves

Q4-5: Side-to-side seismic waves.	fold	A4-5: S-waves
Q4-6: Largest part of Earth's interior that is made of rock.	fold	A4-6: mantle
Q4-7: The inner iron-containing layer of Earth.	fold	A4-7: core
Q4-8: Makes up plates that move about Earth's surface. (Crust & upper mantle)	fold	A4-8: lithosphere
Q4-9: Outermost surface of Earth.	fold	A4-9: crust

Q4-10: You can create an up-and-down wave by wiggling a jump rope. What travels from one place to another during wave motion? What stays in place?	f o l d	A4-10: energy travels, the jump rope stays in place
Q4-11: For each of these statements write either P-wave or S-wave: a. Travels through all material -- b. Does NOT travel in liquids -- c. Forward-and-backward motion d. Side-to-side motion -- e. Slower -- f. Faster –	f o l d	A4-11: a) p-wave; b) s-wave; c) p-wave; d) s-wave; e) s-wave; f) p-wave
Q4-12: What causes the Earth's magnetic field? Why is the magnetic field important?	f o l d	A4-12: Powerful electric currents formed by the motion of liquid iron in the outer core. This shield us from the sun's harmful radiation.
Q4-13: Why isn't the inner core a liquid like the outer core?	f o l d	A4-13: Melting of a solid depends on pressure and temperature. Although the temperature is very high, so is the pressure -- keeping it a solid.
Q4-14: What are the differences between continental & oceanic crust?	f o l d	A4-14: Continental crust is thicker at 30km & made mostly of granite. Oceanic crust is thinner at 5km deep, is made of basalt, & is denser.

Q4-15: What do you think would happen if there were no convection in Earth's mantle?	fold	A4-15: Fewer or no mountains, no earthquakes & no volcanoes
Q4-16: Tell why these events in Jules Verne's story, Journey to the Center of the Earth, are NOT possible: a.) Entered Earth through an opening in a volcano. b.) Climbed down through many strange chambers. c.) Crossed an ocean at the center of Earth. d.) Escaped to the surface by riding a volcanic eruption.	fold	A4-16: a) Bogus -- the gases would kill you; b) Possible, but the heat would kill you; c) bogus -- the heat would vaporize water (at 212 degrees F); d) The lava would melt your escape pod & you would die.
Q5-1: Author of Journey to the Center of the Earth. Lots of scientific inaccuracies but it did get people interested in science.	fold	A5-1: Jules Verne
Q5-2: Vibrations that travel through Earth and are caused by events like earthquakes odr human-made blasts.	fold	A5-2: seismic waves
Q5-3: A scientist who detects and interprets seismic waves.	fold	A5-3: seismologist

Q5-4: A movement that begins in one location and sets things in motion farther away.	fold	A5-4: disturbance
Q5-5: Fast forward-and-backward seismic waves	fold	A5-5: P-waves
Q5-6: Slower side-to-side seismic waves	fold	A5-6: S-waves
Q5-7: The outermost surface of the earth	fold	A5-7: crust
Q5-8: The warm, soft enough to flow, solid layer of Earth between the crust and the core	fold	A5-8: mantle

Q5-9: The center of the Earth, divided into inner and outer layers.	fold	A5-9: core
Q5-10: An area that blocks s-waves from passing through	fold	A5-10: S-shadow
Q5-11: A layer of Earth that includes the crust and upper mantle	fold	A5-11: lithosphere
Q5-12: The outermost part of the lower mantle. A slushy, slippery zone that allows lithospheric plates to slide.	fold	A5-12: aesthenosphere
Q5-13: An upwelling of mantle material heated by the core that forces tectonic plates to move across Earth's surface.	fold	A5-13: plume

Q5-14: The use of seismic waves to get a 3-D view of Earth's interior.	fold	A5-14: seismic tomography
Q5-15: A boundary between Earth's crust and the upper mantle.	fold	A5-15: Mohorovivic discontinuity (Moho)
Q5-16: The transfer of heat through liquids & gases	fold	A5-16: convection
Q5-17: Mass of an object divided by its volume	fold	A5-17: density