5. In what layer of the Earth is the asthenosphere?
   a) the crust
   b) the lithosphere
   c) the upper mantle
   d) the lower mantle

2. Which of the following did NOT support the idea that all of the continents were once one super-continent?
   a) South America and Africa look like they can fit into each other
   b) The mid-ocean ridges between continents
   c) The similar types of life along the coasts of South America and Africa
   d) The magnetic orientation of cooled magma (rock) deposits

3. GPS satellites allow the precision motion of the plates. And the motion PER YEAR is comparable to:
   a) the diameter of a hair (about 0.05 mm/year)
   b) the growth of a human fingernail (about 1 cm/year)
   c) the height of a typical human
   d) the length of the largest dinosaur

1. In what direction do plates move at divergent boundaries?
   a) parallel to each other
   b) anti-parallel to each other
   c) towards each other
   d) away from each other

3. In the video it was said that one of the most famous divergent plate boundaries is:
   a) the African rift valley
   b) Death Valley in the US
   c) the Turpan depression in western China
   d) the Jordan River valley in the middle east

4. In the video what example was given of a body of water in the rift formed by a hot spot?
   a) the Mediterranean Sea
   b) the Red Sea
   c) the Persian Gulf
   d) Lake Baikal

5. In the video an ultimate example of divergent plate boundaries was said to be:
   a) the Andes Mountains in South America
   b) the mid-Atlantic ridge (in the Atlantic ocean)
   c) the Mississippi valley in the US
   d) the Tigris-Euphrates valley in the middle east
video: Plate Tectonics - Geological features of Convergent Plate Boundaries

1. In what direction do plates move at convergent boundaries?
   a) towards each other
   b) away from each other
   c) parallel to each other
   d) anti-parallel to each other

2. What does subduction mean?
   a) One plate moves to the right or left to avoid the other plate
   b) One plate moves under the other plate (which is then pushed upwards)
   c) Two plates push each other upwards (forming high plateaus/mountains)
   d) Two plates push each other downwards (forming a rift valley)

3. Regions of subduction are characterized by:
   a) earthquakes
   b) volcanoes
   c) trenches
   d) all the above
   e) a) and b)

4. Which mountain range was formed due to the subduction of the Nazca Plate?
   a) The Rocky Mountains
   b) the Himalayas
   c) The Appalachians
   d) the Andes

5. The Mariana trench was created by the interaction of which plates?
   a) The Pacific and Philippine plates
   b) The African and Eurasian plates
   c) The North American and Nazca plates
   d) The Eurasian and Indian plates

6. The Himalaya mountains were created by the interaction of which plates?
   a) The Pacific and Philippine plates
   b) The African and Eurasian plates
   c) The North American and Nazca plates
   d) The Eurasian and Indian plates

7. How deep is the Mariana trench?
   a) 110 m
   b) 1100 m
   c) 11 km
   d) 110 km

video: Structure of the Earth

1. How thick is the continental crust?
   a) 10-30 km
   b) 30-60 km
   c) 60-90 km
   d) 90-120 km

2. How thick is the mantle?
   a) 1400-1500 km
   b) 1900-2000 km
   c) 2400-3500 km
   d) 2900-3000 km

3. What is immediately below the crust?
   a) lithosphere
   b) asthenosphere
   c) lower mantle
   d) outer core

4. What is immediately below the lithosphere?
   a) crust
   b) asthenosphere
   c) lower mantle
   d) outer core

5. About how thick is the outer core?
   a) 120 km
   b) 1,200 km
   c) 2,200 km
   d) 4,100 km

6. About how thick is the inner core?
   a) 120 km
   b) 1,200 km
   c) 2,200 km
   d) 4,100 km

video: Plates Moving Due to Convection in Mantle

1. What type of heat transfer involves internal currents in fluids?
   a) conduction
   b) convection
   c) radiation
   d) advection

2. What type of heat transfer currents are present in the mantle?
   a) advection
   b) radiation
   c) convection
   d) conduction

3. Convection currents are mostly in the:
   a) crust
   b) lithosphere
   c) asthenosphere
   d) lower mantle

4. What is thought to be the dominant cause for plate motion?
   a) Convection currents in the mantle drag on the lithosphere
   b) Convection currents in the core drag on the mantle
   c) Radiation in the mantle pushes the lithosphere upwards
   d) Radiation in the core pushes the mantle upwards

video: Hawaiian Islands Formation

1. Where is the most likely place to find mountains or volcanoes?
   a) At convergent plate boundaries
   b) When one plate is being subducted beneath another
   c) At divergent plate boundaries
   d) both a and b

2. What is the example of islands that have formed AWAY from plate boundaries (above a stationary "hot spot" under lithospheric plates)?
   a) Mariana islands
   b) Hawaiian islands
   c) Aleutian islands
   d) Canary islands

3. What is the oldest rock observed in the Hawaiian island of Kaua’i?
   a) 5.5 thousand years old
   b) 11 thousand years old
   c) 5.5 million years old
   d) 11 million years old
4. What is the oldest rock observed on the big island of Hawaii?
   a) 350 thousand years old
   b) 700 thousand years old
   c) 350 million years old
   d) 700 million years old

5. Where is the "stationary hot spot" under the Hawaiian islands currently located?
   a) under the big island of Hawaii
   b) under Kaua’i
   c) under Maui
   d) under O’ahu

6. Where was the Hawaiian "hot spot" BEFORE it formed the Hawaiian islands?
   a) under the Solomon islands
   b) under the Mariana islands
   c) under the Samoan islands
   d) under the northwestern (leeward) islands

7. Why did the video suggest that Kila’i is much smaller than the big island of Hawaii?
   a) it sat over the "hot spot" for a much shorter period of time
   b) it is known that the Pacific plate is moving more slowly now than in the past
   c) rain and weather has eroded Kaua’i from a "big" island down to its current size
   d) the rock of Kaua’i is heavier than the rock forming the big island so the height of Kaua’i is less than the big island

---

The mesosphere extends to a depth of about:
   a) 200km
   b) 660km
   c) 2900km
   d) 5100km

---

video: How we know about the Earth’s core

1. What types of substances can P-waves travel through?
   a) solid
   b) liquid
   c) air (gases)
   d) all of the above

2. What types of substances can S-waves travel through?
   a) solid
   b) liquid
   c) air (gases)
   d) all of the above

3. What types of waves can travel through the inner and outer core?
   a) P-waves
   b) S-waves
   c) both a and b
   d) none of the above

4. What is the mechanical character of the outer core?
   a) solid
   b) liquid
   c) very high pressure gas
   d) none of the above

5. What pattern of waves are used to detect the OUTER core?
   a) the refraction pattern of the P-waves
   b) the S-wave shadow
   c) both a and b
   d) none of the above

6. What types of waves can we use to detect the INNER core?
   a) the refraction pattern of the P-waves
   b) the S-wave shadow
   c) both a and b
   d) none of the above

7. What is the region called where NO seismic waves are observed?
   a) the S-wave shadow
   b) the P-wave shadow
   c) a) and b)
   d) there is no region shielded from the combination of P- and S-waves

---

Printed by Friday January 24, 2014