

Ch. 9 Plate Tectonics: Study Guide

Vocabulary

8.4 Earth's Layered Structure: crust, p. 233; mantle, p. 234; lithosphere, p. 234; asthenosphere, p. 235; outer core, p. 235; inner core, p. 235;

9.1 Plate Tectonics: continental drift, p. 248; Pangaea, p. 248, plate tectonics, p. 254; divergent boundary, p. 255; convergent boundary, p. 255; transform fault boundary, p. 255, ridge, p. 258; seafloor spreading, p. 259; subduction zone, p. 261; trench, p. 261, paleomagnetism, p. 265, hot spot, p. 268

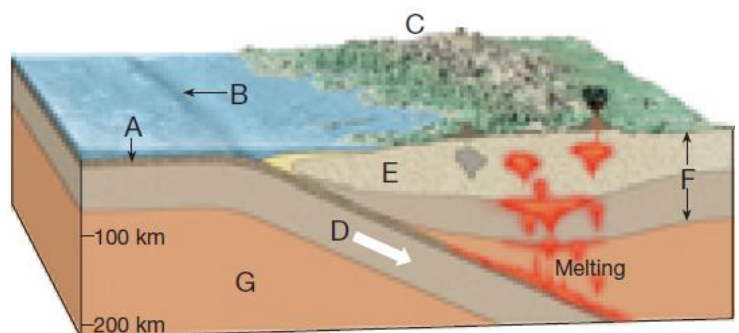
Reviewing Content

Choose the letter that best answers the question or completes the statement.

- What is the weaker, hotter zone beneath the lithosphere that allows for motion of Earth's rigid outer shell?
 - Crust
 - Asthenosphere
 - outer core
 - inner core
- Most of Earth's earthquakes, volcanoes, and mountain building occur
 - in the center of continents.
 - in the Himalayas.
 - at plate boundaries.
 - at volcanic island arcs.
- Alfred Wegener is best known for what hypothesis?
 - plate tectonics
 - seafloor spreading
 - continental drift
 - subduction
- Complex mountain systems such as the Himalayas are the result of
 - oceanic-oceanic convergence.
 - hot spots.
 - continental volcanic arcs.
 - continental-continental convergence.
- What is the type of plate boundary where two plates move together, causing one of the slabs of lithosphere to descend into the mantle beneath an overriding plate?
 - oceanic-continental convergent
 - Divergent
 - transform fault
 - continental-continental convergent
- One of the main objections to Wegener's hypothesis of continental drift was that he was unable to provide an acceptable
 - rate of continental drift.
 - date of continental drift.
 - mechanism of continental drift.
 - direction of continental drift.
- Which one of the following was NOT used as support of Wegener's continental drift hypothesis?
 - fossil evidence
 - Paleomagnetism
 - the fit of South America and Africa
 - ancient climates
- At what type of plate boundary do plates move apart, resulting in the upwelling of material from the mantle to create new seafloor?
 - Divergent
 - Convergent
 - transform fault
 - Subduction

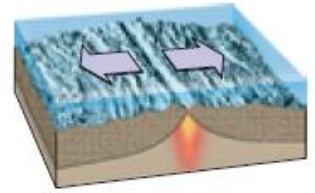
Use the diagram below to answer Questions

- What feature is labeled B?
 - a continental volcanic arc
 - a trench
 - continental lithosphere
 - an ocean ridge
- The process occurring at the location labeled D is
 - oceanic lithosphere being created.
 - continental lithosphere being created.
 - a continental-continental collision occurring.
 - oceanic lithosphere being subducted.



Understanding Concepts

- What are the three types of plate boundaries? *Convergent, Divergent, and Transform*
- Briefly explain the theory of plate tectonics. *Earth's crust is broken into plates that move*
- What type of plate boundary is shown to the right? What types of lithosphere are involved?
Divergent, Two oceanic plates.
- At what location is most lithosphere created? At what location is most lithosphere destroyed?
Divergent boundary is most lithosphere is created, Convergent boundary that causes a subduction zone is where most is destroyed.
- What feature produces volcanoes that do not occur at plate boundaries? *Hot spot*
- At what types of boundaries do subduction zones form? *Convergent boundary, oceanic and continental plates or oceanic and oceanic plates*



Critical Thinking

- Drawing Conclusions** In the Atlantic Ocean basin, where would the oldest oceanic lithosphere be found?
Closer to the continental crust or shore.
- Summarizing** Describe the evidence that supported the hypothesis of continental drift.
Continents fit like puzzle pieces
Same rocks, rock formations, fossils found on different continents
Climate data, glacier streak marks found in Africa and Australia
- Applying Concepts** Some people predict that California will sink into the ocean. Does this idea fit with the theory of plate tectonics? Explain. *No, California is on continental crust and that it is lighter than oceanic crust.*

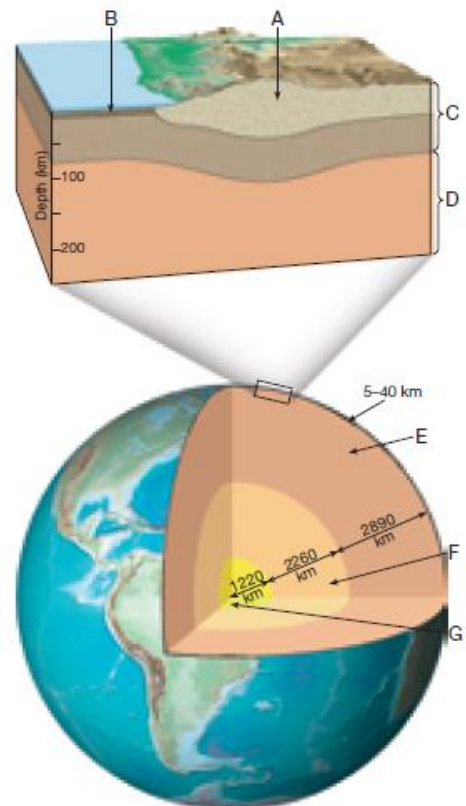
Analyze Data

Use the figure below to answer questions 20 – 22

- What layer is labeled A in the diagram? What type of rock makes up this layer?
Continental crust – granite rock

- In the diagram which letter would represent the following:

- Ocean Crust: *B*
- Continental crust: *A*
- Mantle: *E*
- Outer Core: *F*
- Inner Core: *G*
- Lithosphere: *C*
- Asthenosphere: *D*



- Describe the composition of Earth's inner and outer core.
Inner core = Solid Iron and nickel (due to pressure)
Outer core = Liquid Iron and nickel