Name: _____

Date: _____ Period: _____

Earthquakes

Earth Science

Packet: Earthquakes

CLASS NOTES

- Earthquakes - _____

  _____

- Most earthquakes are caused by a movement along a _____ where potential energy is given off as a seismic wave

- Fault - _____

  _____

  - Normal Fault - _____

    _____

  - Reverse Fault - _____

    _____

  - Strike-slip Fault - _____

    _____

- Epicenter - _____

  _____

- Focus - _____

  _____

- Seismograph- _____

  _____

- Seismogram - _____

  _____

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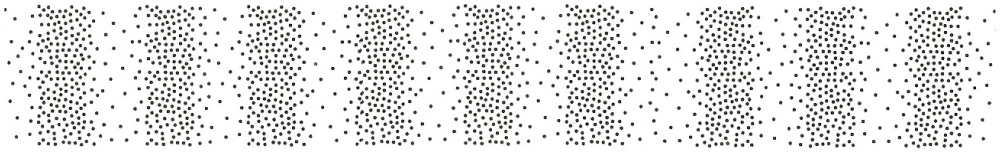
- Primary Wave [P-wave]
    - P-waves are the _____ waves
    - Travel through _____, _____, and _____
    - Compressional - _____

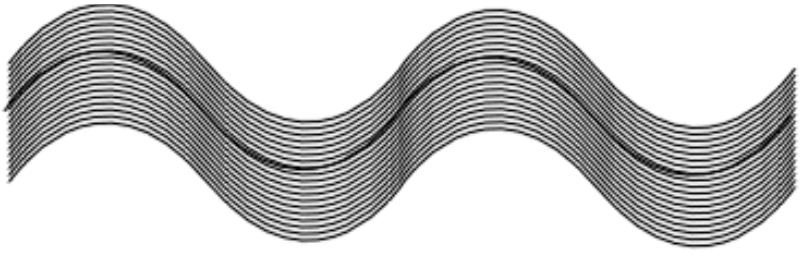
      _____



Compressional Wave [P-wave]

- Secondary Wave [S-wave]
    - S-waves are the _____ wave
    - Travel through _____ only
    - Shear - _____

      _____



Shear Wave [S-wave]

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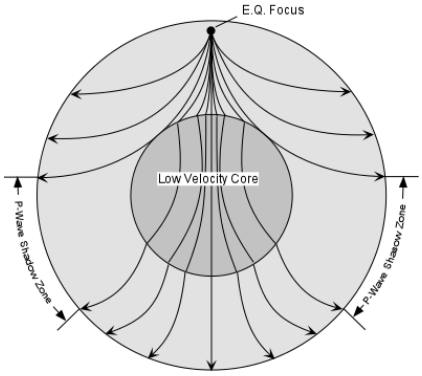
- Seismic waves radiate away from the focus
- Shadow Zone - _____

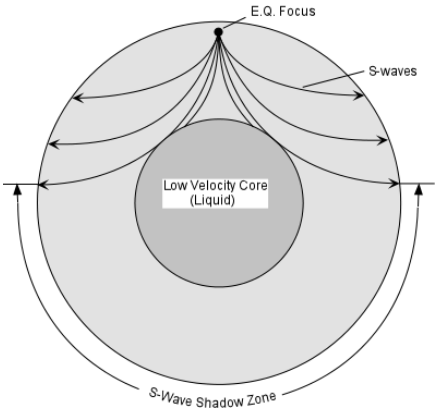
  _____

  - P-waves are _____ when they reach the liquid outer core



P-wave Shadow Zone

  - S-waves are _____ when they reach the outer core and are not transmitted through to the other side



S-wave Shadow Zone

  - Both the _____ and _____ are needed to determine the location of an earthquake's _____

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PART I QUESTIONS: MULTIPLE CHOICE

1. Earthquakes generate compressional waves [P-waves] and shear waves [S-waves]. Compared to the speed of shear waves in a given earth material, the speed of compressional waves is
    a. always faster
    b. always slower
    c. always the same
    d. sometimes faster and sometimes slower

2. What happens to P-waves and S-waves from an earthquake when they reach the outer core?
    a. S-waves are transmitted through the outer core, but P-waves are not transmitted.
    b. P-waves are transmitted through the outer core, but S-waves are not transmitted.
    c. Both P-waves and S-waves are transmitted through the outer core.
    d. Neither P-waves nor S-waves are transmitted through the outer core.

3. A huge undersea earthquake off the Alaskan coastline could produce a
    a. tsunami
    b. cyclone
    c. hurricane
    d. thunderstorm

4. The distance between an epicenter and seismograph's location can be calculated by using the
    a. arrival time of the first *P*-wave
    b. difference in arrival times between *P*- and *S*- waves
    c. amplitude of the p-wave
    d. energy released by an earthquake

5. A strong earthquake that occurs on the ocean floor could result in the formation of
    a. a tsunami
    b. a delta
    c. an El Niño event
    d. an ocean current

6. A seismic station recorded the *P*-waves, but no *S*-waves, from an earthquake because *S*-waves were
    a. absorbed by Earth's outer core
    b. transmitted only through liquids
    c. weak and detected only at nearby locations
    d. not produced by this earthquake

7. Which evidence recorded at seismic stations following an earthquake supports the inference that Earth's interior changes from solid rock to molten iron and nickel at the mantle-core boundary?
    a. P-waves arrive earlier than *S*-waves.
    b. *P*-waves and *S*-waves are both recorded at all stations.
    c. Only *S*-waves are recorded at all stations.
    d. Only *P*-waves are recorded on the opposite side of Earth.

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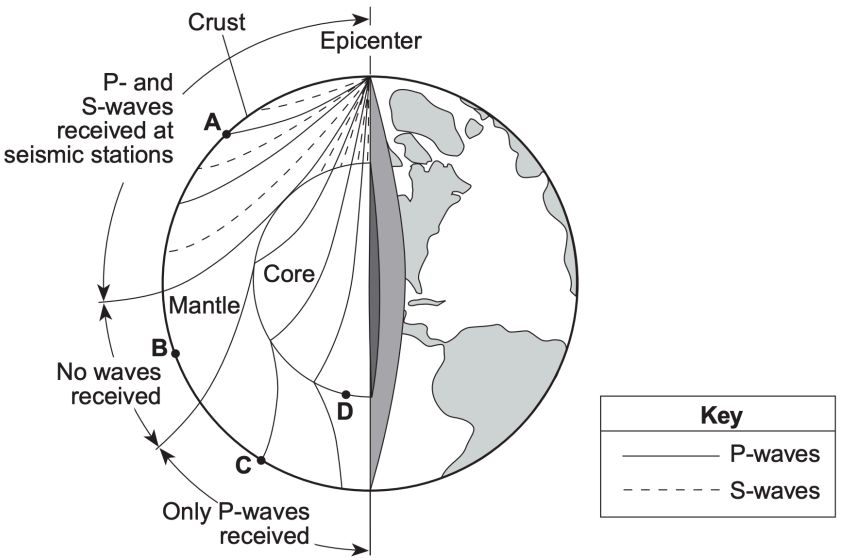
Base your answers to questions 8 through 10 on the diagram below and on your knowledge of Earth science. The diagram represents a cut-away view of Earth's interior and the paths of some of the seismic waves produced by an earthquake that originated below Earth's surface. Points A, B, and C represent seismic stations on Earth's surface. Point D represents a location at the boundary between the core and the mantle.



8. Which process prevented P-waves from arriving at seismic station B?
    a. refraction
    b. reflection
    c. convection
    d. conduction

9. Only P-waves were recorded at seismic station C because P-waves travel
    a. only through Earth's interior, and S-waves travel only on Earth's surface
    b. fast enough to penetrate the core, and S-waves travel too slowly
    c. through iron and nickel, while S-waves cannot
    d. through liquids, while S-waves cannot

10. What is the pressure and temperature at location D?
    a. 1.5 million atmospheres and 5,000º C
    b. 3.1 million atmospheres and 6,200º C
    c. 0.2 million atmospheres and 2,600º C
    d. 1.5 million atmospheres and 6,200º C