Name, Date, Period:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Types of Seismic Waves

Website Lab: sunshine.chpc.utah.edu/Labs/SeismicWaves

**A. P Waves**

1. Two other names for these waves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Move as a region of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. We made the dots move \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4. The wave moves in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ direction as particle movement.

5. Thus, it is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ movement between the movement of the particles and advancement of the wave.

6. These waves are similar to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ waves. (Clap of thunder makes windows rattle.)

7. They move very fast through interior regions of Earth that are \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ &

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

8. They can move through both the liquid and solid regions of the interior of the Earth – in which do they move faster? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. They can also move along the crust since it is a solid. How about ocean water? \_\_\_\_\_\_\_\_ How about air? \_\_\_\_\_\_\_\_\_\_

**B. S Waves**

1. They move like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Think of a clear glass bowl of jello sitting on top of a cell phone that is vibrating.)

2. We made the dots move \_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_.

3. The wave moves forward ( ) while the particles move up & down ( ).

4. Thus, it is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ movement between the movement of the particles and the advancement of the wave.

5. They move through only \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

6. They cannot move through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ because it gets stopped by this phase of matter.

**C. Both P & S Waves**

1. Both are generated by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , large meteor impacts, and man-made explosions.

2. The move along the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as well as into the Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. They do not travel in a straight line. That means that they can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (bent).

4. They do not travel at a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ speed.

5. P & S waves have allowed scientists to determine \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the internal structure of the Earth.

6. Because they travel at different speeds through different regions of the Earth and then sometimes back to the surface at another location, they are used to determine the exact location of an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (known as the epicenter).

7. They carry \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which is transferred to the solid crust, which results in earthquake damage.

Key

**A. P Waves**

1. Two other names for these waves \_\_\_\_pressure or primary\_\_\_\_\_\_\_\_\_\_\_.

2. Move as a region of \_\_\_\_compression\_\_\_\_\_\_\_\_\_\_\_.

3. We made the dots move \_\_\_\_left\_\_\_\_\_\_ & \_\_\_\_\_right\_\_\_.

4. The wave moves in the \_\_\_same\_\_\_\_\_ direction as particle movement.

5. Thus, it is \_\_\_\_parallel\_\_\_\_\_ movement between the movement of the particles and advancement of the wave.

6. These waves are similar to \_\_\_sound\_\_\_\_ waves. (Clap of thunder makes windows rattle.)

7. They move very fast through interior regions of Earth that are \_\_solid\_\_\_ \_\_\_rock\_\_\_ &

\_\_\_liquid\_\_\_ \_\_\_rock\_\_\_.

8. They can move through both the liquid and solid regions of the interior of the Earth – in which do they move faster? \_\_\_\_\_\_solids\_\_\_\_\_\_

9. They can also move along the crust since it is a solid. How about ocean water? \_\_yes\_ How about air? \_\_yes\_\_\_

**B. S Waves**

1. They move like \_\_\_vibrations\_\_\_. (Think of a clear glass bowl of jello sitting on top of a cell phone that is vibrating.)

2. We made the dots move \_\_up\_\_ & \_\_down\_\_.

3. The wave moves forward ( arrow going forward ) while the particles move up & down ( two arrows, one up and one down ).

4. Thus, it is \_\_\_\_perpendicular\_\_\_\_\_\_ movement between the movement of the particles and the advancement of the wave.

5. They move through only \_\_\_\_solids\_\_\_\_\_\_\_.

6. They cannot move through \_\_\_\_\_liquids\_\_\_\_\_\_\_ because it gets stopped by this phase of matter.

**C. Both P & S Waves**

1. Both are generated by \_\_\_earthquakes\_\_\_\_\_\_ , \_\_\_\_\_volcanoes\_\_\_\_\_\_ , large meteor impacts, and man-made explosions.

2. The move along the \_\_crust\_\_\_ as well as into the Earth’s \_\_\_interior\_\_\_\_.

3. They do not travel in a straight line. That means that they can be \_\_\_\_refracted\_\_\_\_\_\_ (bent).

4. They do not travel at a \_\_\_\_constant\_\_\_\_ speed.

5. P & S waves have allowed scientists to determine \_\_\_\_indirectly\_\_\_\_\_ the internal structure of the Earth.

6. Because they travel at different speeds through different regions of the Earth and then sometimes back to the surface at another location, they are used to determine the exact location of an \_\_\_\_earthquake\_\_\_ (known as the epicenter).

7. They carry \_\_\_energy\_\_\_\_\_ which is transferred to the solid crust, which results in earthquake damage.