Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**-Seismic Waves Exploration-**

**Procedure**

1. Go to [*http://aspire.cosmic-ray.org/Labs/SeismicWaves/*](http://aspire.cosmic-ray.org/Labs/SeismicWaves/) *(Note: You* ***MUST*** *use Internet Explorer!!)*
2. Spend 1-2 minutes playing with the Mighty Wave Maker and answer the questions online.
3. Using the paragraph below the first set of multiple-choice questions, list **2 facts** about P-waves:
*
1. Using the paragraph below the second set of multiple-choice questions, list **2 facts** about S-waves:
*
1. Click on “Discover More About Earth’s Interior”. Follow the instructions on the website as you move through the next three slides. When you get to the *fourth slide*, label the layers of the Earth below:
2. Still on slide four, click on **one** of the houses. On your diagram, draw where the P and S waves travel (make sure to include if they bounce/refract in a different direction).

 ***\*\*\*Use a different color for each wave type and try to keep your drawing neat\*\*\****

1. What types of waves travel through the core?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. According to calculations, what have scientists predicted Earth’s core is composed of? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Why do scientists think the inner core is solid? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. What 3 things *increase* as you get closer to the center of the Earth?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. On your diagram, label the relative densities of the layers of the Earth. (*Use a different color for clarity*)

*Average Core Density:\_\_\_\_\_\_\_\_\_\_\_\_\_ (on slide 6)
Average Crust Density: \_\_\_\_\_\_\_\_\_\_\_\_ (on slide 15)
Average Mantle Density: \_\_\_\_\_\_\_\_\_\_\_ (on slide 15)*

1. Scientists have determined that the mantle is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Why have scientists given it this name?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 **Graphing**

1. With the data provided on the separate sheet, create a double line graph showing the relationship between **P-wave speed/S-wave speed** and **depth** within the Earth. Label the Crust, Mantle, Inner Core, and Outer Core based on their depth on the graph below (use the bold lines as the dividing lines between layers).



**Graph Interpretation:** Describe the relationship between the layers of the Earth and the speed of the S and P waves. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_