Name _____ Date _____ Period _____ 58

EARTH'S INTERIOR AND SEISMIC WAVES

Activity 1 – Graphing Seismic Waves

Scientists know that seismic waves travel about 1 **km/s** through solid rock. If Earth is made entirely of solid rock with the same density-- seismic waves should travel at a consistent speed through Earth's interior to its core. Complete the following activity to determine if it is solid rock with the same density or if changes occur.

Wave Type	Depth (km)	Speed (km/s)
P	0	6
P	50	9
P	200	8
P	500	9
P	1000	11
P	2000	13
P	2900	14
P	2950	8
P	4000	9
P	5200	10
P	5250	11
P	5500	11
P	6000	11
P	6400	11

Wave Type	Depth (km)	Speed (km/s)
S	0	3.5
S	50	5
S	200	4
S	500	5
S	1000	6
S	2000	7
S	2900	7.5
S	2950	0
S	4000	0
S	5200	0
S	5250	3.5
S	5500	4
S	6000	4
S	6400	4

Use the information from the data table to create a line graph showing how p-waves and s-waves move through Earth's interior layers.

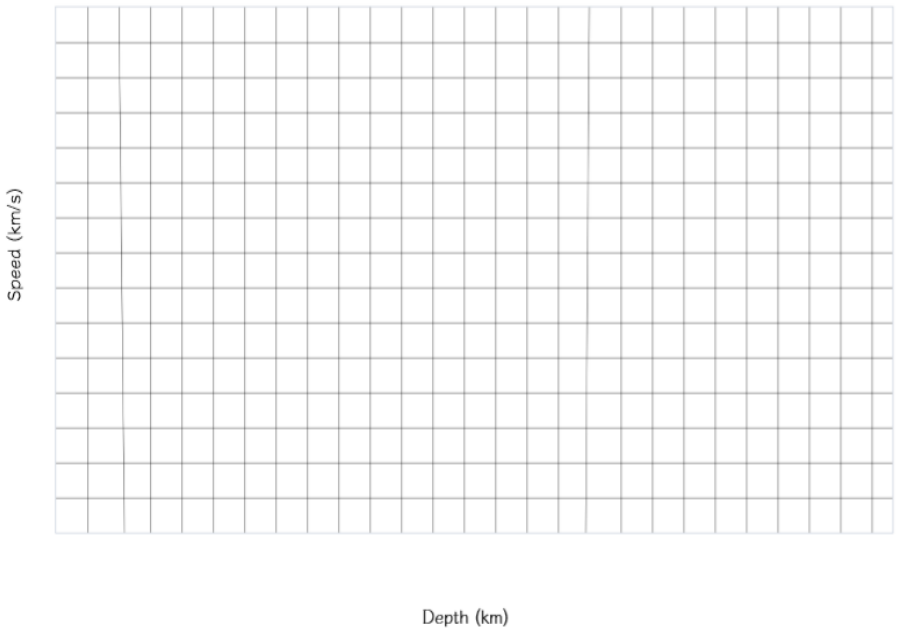
Graph Key

Assign a color to represent each type of seismic wave in the graph below

P-wave ☐

S-wave ☐

Changes in the Speed of P and S-Waves As Depth Increases



Analysis Questions

1. Did the line for p-waves move at a constant rate through the Earth's interior layers? Explain what the graph shows.

2. Did the s-waves move at a constant rate through the Earth's interior layers? Explain what the graph shows.

3. Infer what you think may have caused the waves to change and not move through the Earth's interior at a constant rate.

Activity 2 – Mapping Earth's Interior

Use the amazing book of knowledge (red science textbook) page **172,** to learn a little more about seismic waves and how they help scientists determine what it is like under our feet.

1. What are seismic waves?

2. Depending on the _____ and _____ of material they pass through, seismic waves travel at _____ speeds.

3. How does density affect the speed of the seismic wave?

4. How do scientists calculate the density and thickness of the physical layers?