

How We Know the Layers of the Earth Activity

Objective

1. Explain how scientists infer that the Earth has interior layers with discernable properties using patterns of primary (P) and secondary (S) seismic wave arrivals.

Go to my website and click on the link titled “How We Know the Layers of the Earth Activity”. As you go through the activity answer the following questions to help you understand the layers of the earth.

1. What are seismic waves and where do they travel?
2. How do scientists track earthquakes?
3. What are the 2 different types of body waves?
4. How do P waves travel? In the simulation, how do the dots move?
5. Do the dots travel parallel or perpendicular to the wave travel?
6. P waves are able to travel through what phases of matter?
7. How do S waves travel? In the simulation, how do the dots move?
8. Do the dots travel parallel or perpendicular to the wave travel?
9. S waves are able to travel through what phases of matter?
10. Which type of wave travels faster?
11. What types of events can cause P waves and S waves?
12. What does it mean if a wave is reflected?
13. What does it mean if a wave is refracted?

Click on the “Discover more about the Earth’s Interior” link. As you go through the activity answer the following questions.

14. What type of wave travels farthest?

15. What type of wave is refracted?

16. What type of wave(s) travel through the exact center of the Earth?

17. Since no P waves can travel through the center of the earth, scientists think the inner core must be _____.

18. What happens to the density, pressure and temperature as you move toward the center of the earth?

19. Are P waves able to travel through the mantle?

20. Are S waves able to travel through the mantle?

21. Is the mantle liquid or solid?

22. Write a paragraph that summarize how scientists know about the different layers of the earth.