

1. Our planet consists of a solid core surrounded by several layers. The relatively
 2. thin outermost layer, called the crust, is composed of different types of rock
 3. with varying compositions. The layer beneath the crust—nearly 3,000
 4. kilometers thick—is called the mantle. Geoscientists (29) to obtain
 5. directly from this layer. The rock in Earth's crust originate in the mantle, so
 6. learning more about the mantle would help them understand how the planet's
 7. surface formed. It would also increase understanding of plate tectonics—the
 8. way pieces of the crust move. In the past, isolated chunks of the mantle have
 9. surfaced through volcanic eruptions, and small parts of the mantle have been
 10. found on the ocean floor. However, these provide little more than vague hints
 11. about the actual mantle because their chemical and physical structure is
 12. substantially altered as they make their way to the surface.

13. (29) 1 have long wanted 2 may suspend their plan
 3 cannot get permission 4 could miss the chance



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Further Questions

14. 1) What is the mantle?
 15. *It is the layer beneath the crust.*
 16. 2) What could scientists learn by studying the mantle?
 17. *It would help them understand how the planet's surface formed and increase*
 18. *understanding of plate tectonics.*
 19. 3) Have scientists obtained pieces of the mantle before?
 20. *Yes, isolated pieces of the mantle have surfaced through volcanic eruptions and*
 21. *small parts of the mantle have been found on the ocean floor.*

22. Geoscientists generally agree that drilling into the seabed (30). The first
 23. such drilling projects actually began in the 1950s. The oceanic crust—the part
 24. of the Earth's crust located beneath the oceans—is thinner than the crust
 25. beneath land masses, and scientists have managed to pierce about a third of
 26. the way through it. In light of recent technological improvements, drilling
 27. beyond the crust now seems feasible. Researchers led by U.K. geologist Damon
 28. Teagle have announced plans to drill of the coast of Costa Rica to finally reach
 29. the underlying mantle.

30. (30) 1 will not work in practice 2 carries a number of risks
 3 has damaged the mantle 4 is the way to achieve success

Further Questions

31. 4) Why is drilling into the seabed the best way to reach the mantle?
 32. *The oceanic crust is thinner than the crust beneath land masses.*
 33. 5) Where does Damon Teagle plan to drill?
 34. *He plans to drill off the coast of Costa Rica.*

35. Teagle's project is not without critics. Some scientists say the heterogeneous
36. composition of the mantle means samples taken from a single location would
37. reveal little of the mantle's overall nature. Geoscientist Erik Klemetti,
38. however, argues that (31). The earth sciences have traditionally sparked
39. little interest among the general public and received less government funding
40. than other scientific fields, and Klemetti says this is the result of geoscientists'
41. failure to "think big when it comes to projects." He believes a major effort to
42. drill all the way to the Earth's mantle could be the earth-science equivalent of
43. the first moon landing, as the mere ^{ほんの} fact we could reach such a distant frontier
44. "would be the real success."
45.

46. (31) 1 this cannot be proven 2 this is beside the point
3 Teagle should exercise caution 4 Teagle's project is too complex.

Further Questions

47. 6) Why would a sample of the mantle taken from a single location reveal little
48. of the mantle's overall nature?
49. *The mantle is heterogeneous—it is different under different parts of the world.*
50. 7) Why does Klemetti argue that geoscientists haven't received the same
51. funding as other sciences?
52. *They have failed to "think big when it comes to projects".*
53. 8) What does Klemetti mean when he says reaching the mantle would be the
54. earth-science equivalent of the first moon landing?
55. *He means that it would prove we could reach such a distant frontier and
increase public interest in the science.*

解答: (29) 1 (30) 4 (31) 2



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