

# Directed Reading

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## Section: Earth: A Unique Planet

1. List three reasons that Earth is unique.

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2. Why do scientists study the characteristics that make life on Earth possible?

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### EARTH BASICS

Use the terms from the list below to complete the sentences that follow. Each term may be used only once. Some terms may not be used.

rock	ellipse	oblate spheroid
global ocean	Earth	radius
points	diameter	mountains

3. The third planet from the sun in our solar system is

\_\_\_\_\_.

4. Formed about 4.6 billion years ago, Earth is made mostly of

\_\_\_\_\_.

5. About 70 percent of Earth's surface is covered with water, called the

\_\_\_\_\_.

6. Earth appears to be a perfect circle, but it is actually a slightly flattened sphere called a(n) \_\_\_\_\_.

7. Earth's surface is relatively smooth; that is, the distance between Earth's high and low \_\_\_\_\_ are small relative to its size.

8. Earth's average \_\_\_\_\_ is 12,756 km.

**Directed Reading *continued***

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**EARTH'S INTERIOR**

9. Define seismic waves.

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10. What have scientists learned about Earth by studying seismic waves?

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**In the space provided, write the letter of the definition that best matches the term or phrase.**

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|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| _____ 11. crust             | a. the solid, outer layer of Earth that consists of the crust and the rigid upper part of the mantle                                                             |
| _____ 12. oceanic crust     | b. the central part of Earth below the mantle                                                                                                                    |
| _____ 13. continental crust | c. the strong, lower part of the mantle between the asthenosphere and the outer core                                                                             |
| _____ 14. Moho              | d. the thin, solid, outermost layer of Earth above the mantle                                                                                                    |
| _____ 15. mantle            | e. the crust beneath the oceans                                                                                                                                  |
| _____ 16. core              | f. the lower boundary of the crust                                                                                                                               |
| _____ 17. lithosphere       | g. the layer of rock between Earth's crust and core                                                                                                              |
| _____ 18. asthenosphere     | h. the crust that makes up the continents                                                                                                                        |
| _____ 19. plasticity        | i. the solid, plastic layer of the mantle beneath the lithosphere; made of mantle rock that flows very slowly, which allows tectonic plates to move on top of it |
| _____ 20. mesosphere        | j. a dense liquid below the mantle                                                                                                                               |
| _____ 21. outer core        | k. the ability of a solid to flow                                                                                                                                |

**Directed Reading *continued***

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**EARTH AS A MAGNET**

- \_\_\_\_\_ 22. The lines of force of Earth's magnetic field extend between
- a. the North Pole and the South Pole.
  - b. the poles and the equator.
  - c. the North geomagnetic pole and the South geomagnetic pole.
  - d. the core and the crust.
- \_\_\_\_\_ 23. Earth's magnetic field extends beyond the atmosphere and affects a region of space called the
- a. mesosphere.
  - b. atmosphere.
  - c. electrosphere.
  - d. magnetosphere.
- \_\_\_\_\_ 24. The source of Earth's magnetic field may be
- a. the liquid iron in Earth's outer core.
  - b. the solid rock in the asthenosphere.
  - c. Earth's dense, rigid inner core.
  - d. The rocky mantle.
- \_\_\_\_\_ 25. Scientists have learned that, in addition to Earth, the sun and moon also have
- a. magnetic fields.
  - b. liquid outer cores.
  - c. large amounts of iron.
  - d. a magnetosphere.

**EARTH'S GRAVITY**

26. Define gravity.

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**Directed Reading** *continued*

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27. Explain Isaac Newton's law of gravitation.

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28. What is weight, and what unit is used to measure it?

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29. On Earth, how much does a kilogram of mass weigh?

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30. Explain how the location of an object affects its mass and weight.

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**Directed Reading** *continued*

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31. According to the law of gravitation, how does the force of gravity relate to an object's distance from Earth's center?

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32. Explain why a single object would weigh more at the either the North or South Pole than it would at the equator.

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