

Chapter 1

Introduction to Planet “Earth”

Matching. Match the term or person with the appropriate phrase. You may use each answer once, more than once or not at all.

- | | |
|-----------------------|---|
| _____ 1. Balboa | A. made important observations about drift of sea ice |
| _____ 2. Eratosthenes | B. used ecological approach to solve fisheries problem |
| _____ 3. Magellan | C. established temporary settlement in North America |
| _____ 4. Ptolemy | D. incorrectly concluded that no life exists in deep ocean |
| _____ 5. Vikings | E. first European explorer to Pacific Ocean |
| | F. mapped the Mediterranean Sea for the Greeks |
| | G. important observations on ocean chemistry |
| | H. led voyage that first circumnavigated the globe |
| | I. first determination of Earth’s circumference |
| | J. mapped world with Roman knowledge showing latitude and longitude |
| | K. led voyage that first used the marine chronometer |

Answers: 1-E, 2-I, 3-H, 4-J, 5-C

Key Questions: 4 & 5

Skill: knowledge

Difficulty: Level 1

Matching. Match the term or person with the appropriate phrase. You may use each answer once, more than once or not at all.

- | | |
|------------------|--|
| _____ 6. core | A. Big Bang |
| _____ 7. crust | B. composed of iron and nickel, liquid outer layer and solid inner layer |
| _____ 8. galaxy | C. gaseous and dusty space cloud |
| _____ 9. mantle | D. Milky Way |
| _____ 10. nebula | E. outermost portion of the Earth, basalt and granite |
| | F. rich in ferromagnesian minerals, between crust and core |
| | G. solar winds |

Answers: 6-B, 7-E, 8-D, 9-F, 10-C

Key Questions: 9, 11 & 12

Skill: knowledge

Difficulty: Level 1

True-False Questions. Read each question carefully, write “T” if the statement is true, and write “F” if the statement is false.

11. Early Polynesians only traveled within sight of land.

Answer: False

Key Question: 3
Skill: knowledge
Difficulty: Level 1

12. Vikings led by Thor Heyerdahl established temporary colonies in North America.

Answer: False
Key Question: 4
Skill: knowledge
Difficulty: Level 1

13. Significant oceanographic knowledge was acquired during the Middle Ages.

Answer: F
Key Question: 5
Skill: knowledge
Difficulty: Level 1

14. The Ming Dynasty ships used magnetic compasses similar to those used today.

Answer: T
Key Question: 4
Skill: knowledge
Difficulty: Level 1

15. Christopher Columbus established trade routes from Europe around Africa to India.

Answer: False
Key Question: 5
Skill: knowledge
Difficulty: Level 1

16. The Earth's crust solidified around 4.5 billion years ago.

Answer: True
Key Question: 10
Skill: knowledge
Difficulty: Level 1

17. When the Earth cooled, the layers of the earth separated based on density differences.

Answer: True
Key Question: 10 & 11
Skill: knowledge
Difficulty: Level 1

18. Earth developed the first ocean by about 4 million years ago.

Answer: True
Key Question: 16
Skill: knowledge
Difficulty: Level 1

19. In general, the chemical composition of ocean water has remained constant through geologic time.

Answer: True
Key Question: 16
Skill: knowledge
Difficulty: Level 1

20. The mantle could not have produced enough water to fill the oceans.

Answer: False

Key Question: 16
Skill: knowledge
Difficulty: Level 1

21. The salinity of the oceans has been steadily increasing.

Answer: False

Key Question: 16

Skill: knowledge

Difficulty: Level 1

22. Free oxygen was present in the Earth's primordial atmosphere.

Answer: False

Key Question: 15

Skill: knowledge

Difficulty: Level 1

23. Production of the first free oxygen in the atmosphere caused organisms living at that time to flourish.

Answer: False

Key Question: 15

Skill: knowledge

Difficulty: Level 1

24. Carbon dating is used to determine the absolute age of a rock or fossil.

Answer: True

Key Question: 21

Skill: knowledge

Difficulty: Level 1

25. Heterotrophic organisms can make their own food from inorganic carbon sources.

Answer: False

Key Question: 19

Skill: knowledge

Difficulty: Level 1

Multiple Choice. Choose the one **best** answer from the choices provided.

26. The four principle oceans of the Earth are the:

- a. Atlantic, Arctic, Mediterranean, and Pacific Oceans.
- b. Atlantic, Arctic, Indian, and Pacific Oceans.
- c. Atlantic, Antarctic, Mediterranean, and Pacific Oceans.
- d. Antarctic, Caspian, Indian, and Pacific Oceans.
- e. Antarctic, Arctic, Indian, and Pacific Oceans.

Answer: B

Key Question: 1

Skill: knowledge

Difficulty: Level 1

27. One distinction between an "ocean" and a "sea" is that a sea:

- a. Contains more shallow water.
- b. Is composed of salt water.
- c. Is smaller than an ocean.
- d. May be enclosed by either land or ocean currents.
- e. All of the above are correct.

Answer: E

Key Question: 1

Skill: comprehension

Difficulty: Level 2

28. All of the following are **TRUE** concerning the deepest part of the ocean *except*:
- The bottom of the trench was visited by Piccard and Walsh in the *Trieste* in 1960.
 - The deepest part of the ocean is located in a trench off the coast of Japan.
 - The depth of the trench exceeds the height of Mount Everest.
 - The depth of the trench is estimated at 12,500 meters.
 - The trench is called the Mariana Trench.

Answer: D

Key Question: 2

Skill: knowledge

Difficulty: Level 1

29. The correct arrangement of astronomical bodies from **oldest** to **youngest** is:
- galaxy, solar system, planet.
 - planet, galaxy, solar system.
 - planet, solar system, galaxy.
 - solar system, galaxy, planet.
 - solar system, planet, galaxy.

Answer: A

Key Question 9

Skill: application

Difficulty: Level 3

30. The **nebular hypothesis** suggest that:
- all bodies in the solar system formed from an enormous gas cloud.
 - Earth's moon is an asteroid captured by the Earth's gravity.
 - galaxies such as the Milky Way form independent of one another.
 - the Earth was formed a cosmic explosion, a "big bang".
 - the moon is derived from a protoplanet.

Answer: A

Key Question 9

Skill: knowledge

Difficulty: Level 1

31. . The separation of the Earth into layers was the result of the:
- decrease in temperature downward toward the core.
 - differing densities of the rock and mineral materials.
 - gravitational force created by the rotating Earth.
 - initial collection of materials and their position in Earth.
 - presence of water at Earth's surface.

Answer: B

Key Question 11

Skill: knowledge

Difficulty: Level 1

32. Oceanic crust is primarily:
- basalt.
 - carbonate sedimentary rocks.
 - clay minerals.

- d. granite.
- e. siltstone.

Answer: A

Key Question 13

Skill: knowledge

Difficulty: Level 1

33. Which of the following statements regarding continental and oceanic crust is **TRUE**?
- a. Continental crust and oceanic crust have equivalent densities.
 - b. Continental crust is thicker and denser than oceanic crust.
 - c. Continental crust is thinner and denser than oceanic crust.
 - d. Continental crust is thicker and less dense than oceanic crust.
 - e. Continental crust is thinner and less dense than oceanic crust.

Answer: D

Key Question 13

Skill: comprehension

Difficulty: Level 2

34. Earth's primordial atmosphere most likely included:
- a. ammonia, carbon dioxide, and water vapor.
 - b. carbon dioxide, water vapor, sulfur dioxide, and methane.
 - c. hydrogen, helium, and oxygen.
 - d. nitrogen, ozone, and sulfur dioxide.
 - e. all of the above.

Answer: B

Key Question 15

Skill: knowledge

Difficulty: Level 1

35. Free oxygen in our atmosphere is important to the development and maintenance of life on Earth because oxygen:
- a. combines with iron in volcanic rocks.
 - b. can form ozone and block some UV radiation.
 - c. is necessary for photosynthesis to occur.
 - d. reduces atmospheric temperature.
 - e. was very abundant in our early atmosphere.

Answer: C

Key Question 20

Skill: comprehension

Difficulty: Level 2

36. Organisms that breakdown organic molecules to release energy are called:
- a. autotrophic organisms.
 - b. bacteria.
 - c. biotic organisms.
 - d. fungi.
 - e. heterotrophic organisms.

Answer: E

Key Question 19

Skill: knowledge

Difficulty: Level 1

37. Radioactive isotopes can sometimes be used to determine the:
- a. absolute age of the rock.

- b. chemical composition of the rock.
- c. formation method.
- d. metamorphism.
- e. relative age of the rock.

Answer: A

Key Question 21

Skill: comprehension

Difficulty: Level 2

Word Analysis. Examine the five words and/or phrases and determine the relationship among the majority of words/phrases. Choose the one option that does not fit the pattern.

38. a. Baltic b. Black c. Caspian d. Indian e. Mediterranean.

Answer: D

Key Question: 1

Skill: analysis

Difficulty: Level 4

39. a. Erastosthenes b. Herodotus c. Ptolemy d. Pytheas e. Strabo

Answer: E

Key Question: 3

Skill: analysis

Difficulty: Level 4

40. a. Cook b. Cosmas c. Darwin d. Herodotus e. Mercator

Answer: C

Key Question: 4, 5, & 6

Skill: analysis

Difficulty: Level 4

41. autotrophic b. chemosynthesizers c. cyanobacteria d. heterotrophs e. sulfur bacteria

Answer: D

Key Question: 19

Skill: analysis

Difficulty: Level 4