

Chapter 1--Knowing the Ocean World

Student: _____

1. A nautical trade route for commerce between Europe and Asia made the arduous overland journey nearly obsolete. The development of this nautical route was largely necessitated by the transference of power in Constantinople to the Turks in 1453. What things occurred in Europe that helped people accomplish this goal of a nautical trade route around the southern tip of Africa?
 - A. knowledge of the ocean outside the Mediterranean Sea.
 - B. invention of the world's first magnetic compass in Europe circa 1200AD.
 - C. a marine science and navigational center established in Portugal by Henry the Navigator.
 - D. a and b.
 - E. a and c.

2. Aboard the schooner Fram in 1893, Fridtjof Nansen discovered that _____.
 - A. Antarctica is covered by glacial ice and snow.
 - B. Iceland is a surface expression of the Mid-Atlantic Ridge.
 - C. salinity of the world's oceans varies dramatically with changes in latitude.
 - D. the arctic region is not a continent.

3. As presently mapped, the deepest point in the world ocean is in the _____.
 - A. Arctic Ocean
 - B. Atlantic Ocean
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4. The primary goal of the famous marine science expedition of 1872 aboard the HMS Challenger was to _____.
 - A. establish the feasibility of using submarines for research and defense.
 - B. confirm the validity of Charles Darwin's evolutionary findings aboard the HMS Beagle in the 1830s.
 - C. test the idea that life could not exist below about 1800 feet (550m).
 - D. map the location and direction of ocean bottom currents.

5. The ancestors of the main ethnic groups of the Oceanian peoples who presently populate the islands of the central and southwest Pacific are referred to as _____.
 - A. Polynesian
 - B. Indonesian
 - C. Micronesian
 - D. Melanesian

6. The average salinity of the World Ocean is _____. (Clue: There's more than one right way to wash dishes as long as they come out clean, or, as Shakespeare explains, "What's in a name? That which we call a rose by any other word would smell as sweet." Romeo and Juliet, Act II, Scene ii, Lines 1-2)
- A. 3.4 parts per hundred
 - B. 34 parts per thousand
 - C. 34,000 parts per million
 - D. all of the above
7. Earth largest reservoir of water is found in the _____.
- A. atmosphere
 - B. world ocean
 - C. glacial ice pack
 - D. interior of the planet
8. What is the order of the scientific method?
- A. Laws, hypothesis, question, theory, experiment
 - B. Hypothesis, question, theory, experiment, laws
 - C. Question, hypothesis, experiment, theory, laws
9. Between 1405 and 1433 who commanded the greatest fleet of ships to ply the world ocean on a voyage of peace and discovery that the world had ever known?
- A. Vasco de Gama of Italy
 - B. The Swedish Vikings
 - C. Bjarni Herjulfsson of Greenland
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10. A(n) _____ is a test that simplifies observation in nature or in the laboratory by manipulating or controlling the conditions under which the observations are made.
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11. Who was the first person in western history to accurately calculate the circumference of the Earth?
- A. Christopher Columbus
 - B. Eratosthenes
 - C. Joseph D. McGregor
 - D. Aristotle
 - E. Ptolomy

12. How many million square kilometers does the ocean cover on Earth's surface?
- A. 613 million square kilometers
 - B. 316 million square kilometers
 - C. 361 million square kilometers
 - D. none of the above is correct
13. More than ____% of water on or near Earth's surface is contained in the world ocean; less than ____% is held in land ice, ground water, and all the freshwater lakes and rivers.
- A. 97, 3
 - B. 90, 10
 - C. 87, 13
 - D. 80, 20
14. The average ocean depth is ____ times greater than the average land elevation.
- A. 3
 - B. $4\frac{1}{2}$
 - C. 5
 - D. $5\frac{1}{2}$
15. Which one of the following best describes a person who studies and observes wave dynamics, currents, and ocean-atmosphere interactions.
- A. Marine geologist
 - B. Physical oceanographer
 - C. Marine biologist
 - D. Chemical oceanographer
 - E. Marine engineer
16. A ____ summarizes in principle observations of events in nature that occur with unvarying uniformity; a ____ is a statement that provides an explanation for the observations.
- A. hypothesis, experiment
 - B. experiment, hypothesis
 - C. law, theory
 - D. theory, law
17. In the western hemisphere, progress in applied marine science began at the ____ in Egypt.
- A. Library of Alexandria
 - B. Eratosthenes of Cyrene
 - C. Celestial navigation
 - D. Voyaging

18. What is the name for lines drawn parallel to the equator at equal intervals of 60 nautical miles?
- A. Longitude
 - B. International Date Line
 - C. Latitude
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19. Who established a center at Sagres, Portugal for the study of marine science and navigation for great wealth and successful trade?
- A. Christopher Columbus
 - B. John Harrison
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 - D. Prince Henry the Navigator
20. The magnetic compass, which points to the north magnetic pole was invented in ____ in the fourth century B.C..
- A. Egypt
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21. Determining longitude needs ____.
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22. Who discovered worldwide patterns of surface winds and ocean currents?
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23. Sea power is the means by which a nation extends its ____ onto the world ocean.
- A. economical capacity
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24. Who stressed the interdependence of military and commercial control of seaborne commerce, and the ability of safe lines of transportation and communication to influence the outcomes of conflicts? His book had profound consequences for the development of the modern world.
- A. Matthew Maury
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25. Which one of the following is a satellite which carries a color scanner called SeaWiFS. It measures the distribution of chlorophyll at the ocean surface, which gives a measure of marine productivity?
- A. AQUA
 - B. GPS
 - C. EASTAR
 - D. TOPEX
26. The ocean holds more than 97% of the water on or near Earth's surface, whereas, the Earth's fresh water sources (near-surface water, glaciers, lakes and rivers, and atmospheric water) comprise less than 3%.
- True False
27. The average land elevation is $4\frac{1}{2}$ times greater than the average ocean depth.
- True False
28. The scientific method is used for finding irrefutable absolute truth in nature.
- True False
29. The Library of Alexandria, which was established in the third century BCE (before common era), was the locus for the study of marine science in the western hemisphere.
- True False
30. The magnetic compass, a very important navigational instrument because it points to the magnetic north pole, was invented in Greece in the fourth century BCE, long before it was created in China.
- True False
31. Finding new sea routes for trade and exploration helped to expand people's understanding of the ocean. Fueled by potential material goals rather than "pure" science, Prince Henry the Navigator of Portugal was able to establish a marine school of navigation. Henry's students were among the first since the ancient Greeks to be correct in assessing Earth's round shape, as well as estimating its circumference.
- True False

32. James Cook, captain of the British Royal Navy, was also the first marine scientist to accurately record his observations while on extended voyages of discovery. He also avoided the common pitfall of exaggeration while reporting those results.
- True False
33. Longitude is easier to determine than latitude while at sea; therefore, finding accurate latitude was to the key to successful oceanic exploration and mapmaking.
- True False
34. Marine science is also an important pursuit for military interests. Alfred Mahan, an American naval officer and historian, analyzed the importance of sea power which helped to develop the naval hardware, strategy, and tactics for modern warfare.
- True False
35. Scientists are interested in oceanographic conditions at Earth's poles. One of the reasons being that the permanent ice found deep below the surface in the polar regions might contain ancient organisms which might help to understand the history of Earth.
- True False
36. Which group or groups of ancient people had the most significant impact on modern ocean science. Why? Which of these ancient seafaring peoples would you most like to go back in history to visit?
37. Create an hypothetical experiment in which you use the steps of the scientific method to reach a conclusion and support of a fundamental physical property.

Chapter 1--Knowing the Ocean World **Key**

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Answer not provided.

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Answer not provided.

38. Describe in detail one method of calculating the circumference of the Earth.

Answer not provided.

39. Where would you choose to go on a voyage of discovery? How would you equip your journey, and what are some of the things you would be looking for?

Answer not provided.

40. Research the different methods used by the two original Antarctic polar expeditions led by Roald Amundson and Robert Falcon Scott in 1911. What may have been factors in one of the groups dying on the return trip?

Answer not provided.