***Earth Science, 14e* (Tarbuck/Lutgens)**

**Chapter 1 Introduction to Earth Science**

1) What are the basic differences between the disciplines of physical and historical geology?

A) Physical geology is the study of fossils and sequences of rock strata; historical geology is the study of how rocks and minerals were used in the past.

B) Historical geology involves the study of rock strata, fossils, and geologic events, utilizing the geologic time scale as a reference; physical geology includes the study of how rocks form and of how erosion shapes the land surface.

C) Physical geology involves the study of rock strata, fossils, and deposition in relation to plate movements in the geologic past; historical geology charts how and where the plates were moving in the past.

D) none of the above—physical geology and historical geology are essentially the same.

Answer: B

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

2) The study of Earth's atmosphere is known as \_\_\_\_\_\_\_\_.

A) astronomy

B) oceanography

C) meteorology

D) cosmology

Answer: C

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

3) Which science is **not** used within the Earth sciences?

A) Chemistry

B) Physics

C) Biology

D) Mathematics

E) None of the above; Earth Science makes use of all of these sciences.

Answer: E

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Application/Analysis

4) Oceanography is the study of the oceans and geology is the study of the earth, so what is meteorology?

A) the study of meteors

B) the study of the Sun's impact on the upper atmosphere

C) the study of the atmosphere

D) the study of how to be a TV newscaster

Answer: C

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

5) Sedimentary rocks with marine fossils are exposed at the top of Mt. Everest. Which scientists would make most use of this observation in their study?

A) Meteorologists, because they could use the fossils as a guide to ancient climates

B) Geologists, because their elevation is related to physical geology and fossils are related to Earth history

C) Oceanographers, because the fossils can tell us about periods when the earth was covered with water to the height of Mt. Everest

D) Astronomers, because they can study how life came from outer space to Earth

Answer: B

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

6) Hurricanes and tornados are natural disasters. What branch of the Earth sciences studies the origin of these phenomena?

A) Meteorology

B) Geology

C) Oceanography

D) Astronomy

Answer: A

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

7) Hurricanes are natural disasters. Which branch of the Earth sciences studies the impact of this phenomenon on coastal environments?

A) Meteorology

B) Geology

C) Oceanography

D) Astronomy

Answer: B

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

8) Tsunamis and earthquakes have killed millions of people during human history. What branch of the Earth sciences is the main group that studies these phenomena?

A) Meteorology

B) Geology

C) Oceanography

D) Astronomy

Answer: B

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

9) If you want to buy a house in an area and you are worried there may be an earthquake hazard, who would be the best person to ask for advice on this hazard?

A) a civil engineer

B) a geologist

C) a physicist

D) an astrologer

Answer: B

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

10) The earth is estimated to be approximately 4.6 billion years old. Life appeared early in the history of Earth, but metazoans (multicelled organisms) did not appear until about 600 million years ago. If the history of Earth were compressed into a single year, when would metazoans appear?

A) late September

B) late November

C) mid-December

D) late January

Answer: B

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Application/Analysis

11) Which of the following would not typically be considered an Earth Science study?

A) studies of volcanic eruptions

B) studies of impact craters on the moon

C) studies of acid mine waters and the bacteria that live in those waters

D) chemical refining of petroleum

Answer: D

Diff: 2

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension; Application/Analysis

12) Climate change is a well-known human problem and remains controversial despite widespread scientific agreement on the issue. Although most scientists are familiar with the issues, if you were a congressman and wanted an informed analysis of the problem, which of the following would be most likely to give you the most complete analysis?

A) an astronomer

B) a meteorologist with knowledge of oceanography

C) a geologist with knowledge of astronomy

D) a physicist

Answer: B

Diff: 2

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

13) A \_\_\_\_\_\_\_\_ is a well-tested and widely accepted view that best explains certain scientific observations.

A) hypothesis

B) generalization

C) law

D) theory

Answer: D

Diff: 1

Topic: 1.2 The Nature of Scientific Inquiry

Bloom's Taxonomy: Knowledge/Comprehension

14) The primary goal of Earth Science is \_\_\_\_\_\_\_\_.

A) to develop things that will benefit mankind

B) to identify the patterns in nature and use that information to predict the future

C) to locate resources

D) to protect the environment

Answer: B

Diff: 1

Topic: 1.2 The Nature of Scientific Inquiry

Bloom's Taxonomy: Knowledge/Comprehension

15) All of the following are possible steps of scientific investigation except for \_\_\_\_\_\_\_\_.

A) the collection of scientific facts through observation and measurement

B) assumption of conclusions without prior experimentation or observation

C) the development of one or more working hypotheses or models to explain facts

D) development of observations and experiments to test the hypotheses

Answer: B

Diff: 1

Topic: 1.2 The Nature of Scientific Inquiry

Bloom's Taxonomy: Application/Analysis

16) Which of the following is **not** necessary for a hypothesis to be accepted by the scientific community?

A) It must be testable.

B) It must predict something other than the observations it was based on.

C) There must be alternative hypotheses proposed.

D) It must be based on observations or facts.

Answer: C

Diff: 1

Topic: 1.2 The Nature of Scientific Inquiry

Bloom's Taxonomy: Knowledge/Comprehension

17) The \_\_\_\_\_\_\_\_ explains how our solar system probably formed from a giant cloud of gases and dispersed solid particles.

A) protogalactic theory

B) nebular theory

C) extrastellar solar hypothesis

D) planetary compression theory

Answer: B

Diff: 1

Topic: 1.3 Early Evolution of Earth

Bloom's Taxonomy: Knowledge/Comprehension

18) Which of the following is **not** a planet?

A) Europa

B) Venus

C) Saturn

D) Neptune

Answer: A

Diff: 1

Topic: 1.3 Early Evolution of Earth

Bloom's Taxonomy: Knowledge/Comprehension

19) In the television series "Cosmos" the astronomer Carl Sagan used to say, "We are all made of star stuff." What did he mean by that?

A) All of the chemical elements were formed during the big bang when the universe began, so we are like the stars.

B) We all have to potential to be stars.

C) All of the chemical elements in our solar system were forged in an ancient star that went supernova.

D) The earth has incorporated large amounts of chemical material from the solar wind, so our bodies carry this material.

Answer: C

Diff: 2

Topic: 1.3 Early Evolution of Earth

Bloom's Taxonomy: Application/Analysis

20) In the proto-solar system nebula, gravity pulled matter together to form larger bodies. As they collided, what happened to these bodies?

A) Oblique collisions caused individual bodies to spin.

B) The objects broke apart to form asteroids, much like a neutron colliding with a heavy atom produces fission.

C) The objects temporarily broke apart and then reformed into large objects, cooling rapidly during the breakup period.

D) Immense heat was released within the colliding bodies as gravitational potential energy was converted to heat.

Answer: D

Diff: 2

Topic: 1.3 Early Evolution of Earth

Bloom's Taxonomy: Knowledge/Comprehension

21) Light elements like hydrogen and helium form a large percentage of the outer planets and Sun is made up primarily of hydrogen. Why are these elements nearly absent from the inner planets?

A) The Sun captured all of the hydrogen during its formation.

B) These light elements are blown away from the inner planets by the solar wind.

C) It is a mystery that has never been solved by science.

D) Hydrogen and helium have all been bound up by chemical reactions on the inner planets and are held in rock.

Answer: B

Diff: 2

Topic: 1.3 Early Evolution of Earth

Bloom's Taxonomy: Knowledge/Comprehension

22) Comets are made up primarily of \_\_\_\_\_\_\_\_.

A) iron-nickel alloys

B) silicate minerals, like rocks on Earth

C) frozen hydrogen

D) frozen water, carbon dioxide, and methane

Answer: D

Diff: 2

Topic: 1.3 Early Evolution of Earth

Bloom's Taxonomy: Knowledge/Comprehension

23) The Oort cloud is \_\_\_\_\_\_\_\_.

A) an unusual type of cloud formed when meteorites strike the earth

B) another name for the inner solar system, just before the Sun became hot enough for nuclear fusion

C) the outer solar system where planetesimals, rocky debris and comets orbit outside beyond the outer planets but cross into the inner solar system at times

D) the asteroid belt

Answer: C

Diff: 2

Topic: 1.3 Early Evolution of Earth

Bloom's Taxonomy: Knowledge/Comprehension

24) The \_\_\_\_\_\_\_\_ refers to the sum total of all life on Earth.

A) hydrosphere

B) atmosphere

C) biosphere

D) geosphere

Answer: C

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Knowledge/Comprehension

25) The \_\_\_\_\_\_\_\_ refers to the water-dominated parts of the earth.

A) hydrosphere

B) atmosphere

C) biosphere

D) geosphere

Answer: A

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Knowledge/Comprehension

26) The largest of Earth's spheres is the \_\_\_\_\_\_\_\_.

A) hydrosphere

B) atmosphere

C) geosphere

D) biosphere

Answer: C

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Knowledge/Comprehension

27) Soil belongs to the \_\_\_\_\_\_\_\_.

A) hydrosphere

B) atmosphere

C) geosphere

D) biosphere

E) All of the above

Answer: E

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Knowledge/Comprehension

28) The exchange of energy between the surface of the earth, the atmosphere, and space causes \_\_\_\_\_\_\_\_.

A) topography

B) temperature

C) weather

D) glaciers

Answer: C

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Knowledge/Comprehension

29) In correct order from the center outward, Earth includes which units?

A) core, inner mantle, outer mantle, crust

B) inner core, outer core, mantle, crust

C) inner core, crust, mantle, hydrosphere

D) core, crust, mantle, hydrosphere

Answer: B

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

30) The composition of the earth's inner core is thought to be \_\_\_\_\_\_\_\_.

A) basalt

B) granite

C) peridotite

D) solid iron-nickel alloy

Answer: D

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

31) The asthenosphere is actually a part of the \_\_\_\_\_\_\_\_ of the earth.

A) outer core

B) crust

C) inner core

D) mantle

Answer: D

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

32) The \_\_\_\_\_\_\_\_ is thought to be a liquid, metallic region in the earth's interior.

A) inner core

B) lithosphere

C) mantle

D) outer core

Answer: D

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

33) The \_\_\_\_\_\_\_\_ is the thinnest layer of the earth.

A) crust

B) outer core

C) mantle

D) inner core

Answer: A

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

34) The \_\_\_\_\_\_\_\_ forms the relatively cool, brittle tectonic plates.

A) asthenosphere

B) lithosphere

C) astrosphere

D) eosphere

Answer: B

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

35) Which of the following energy sources is thought to drive the lateral motions of Earth's lithospheric plates?

A) gravitational attractive forces of the Sun and Moon

B) electrical and magnetic fields localized in the inner core

C) heat transfer between the earth's interior and the surface of the earth

D) swirling movements of the molten iron particles in the outer core

Answer: C

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

36) Convergent plate boundaries are \_\_\_\_\_\_\_\_.

A) sites where cold, downgoing convective cells, the plates, descent into the mantle

B) sites where heat from the earth's interior is vented to the surface as volcanos

C) areas where two plates slide laterally past one another, generating earthquakes, like the San Andrea fault

D) sites of supervolcanos like Yellowstone

Answer: A

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

37) Oceanic crust is generated at \_\_\_\_\_\_\_\_.

A) hot spots on the sea floor, like Iceland

B) spreading ridges

C) convergent plate margins

D) transform plate margins

Answer: B

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

38) Continental shields and platforms represent \_\_\_\_\_\_\_\_.

A) sites where continents collide, analogous to warriors clashing shields

B) names given to Paleozoic mountain belts

C) sedimentary basins with inland seas shaped like a shield, like Hudson's bay

D) areas in the interior of continents that have not experienced mountain building for billions of years

Answer: D

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere; Fig. 1.21

Bloom's Taxonomy: Knowledge/Comprehension

39) Which of the following layers in the earth has the highest density?

A) Lithosphere

B) Asthenosphere

C) Lower mantle

D) Outer Core

Answer: D

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

40) The Andes Mountains in South America are formed by \_\_\_\_\_\_\_\_.

A) subduction

B) sea floor spreading

C) back-arc contraction

D) continental collision

Answer: A

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

41) The Himalayan Mountains and adjacent Tibet are a mountain system formed by \_\_\_\_\_\_\_\_.

A) subduction

B) sea floor spreading

C) back-arc contraction

D) continental collision

Answer: D

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

42) Which of the following is a reasonable approximation of the rate that plates move?

A) the rate of growth of human hair or fingernails

B) the speed a turtle walks

C) the speed of a mountain glacier

D) the speed of deep ocean currents

Answer: A

Diff: 2

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

43) What two chemical elements are most abundant in the deep interior of the earth?

A) iron and magnesium

B) magnesium and oxygen

C) hydrogen and helium

D) silicon and oxygen

Answer: A

Diff: 2

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

44) A major cause of the differences in elevation between ocean basins and continents is \_\_\_\_\_\_\_\_.

A) viscosity

B) temperature

C) density

D) mass

Answer: C

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

45) Ocean floor averages about \_\_\_\_\_\_\_\_ km depth below sea level.

A) 2

B) 4

C) 6

D) 8

Answer: B

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

46) Ocean crust is denser than continental crust because ocean crust is \_\_\_\_\_\_\_\_.

A) composed primarily of basalt

B) composed primarily of granite

C) thicker than continental crust

D) thinner than continental crust

Answer: A

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

47) Flat, stable areas of continental crust tend to be located \_\_\_\_\_\_\_\_.

A) along coastlines

B) near desert regions

C) in the interior of continents

D) in areas that receive large amounts of rainfall

Answer: C

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

48) Major mountain belts on the earth are \_\_\_\_\_\_\_\_.

A) older than smaller mountain belts because they have had enough time to grow large

B) located around the Pacific Ocean

C) over 10 km high

D) made of granite because it is low density and allows for maximum growth

Answer: B

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

49) Shield areas in continental interiors are characterized by \_\_\_\_\_\_\_\_.

A) linear chains of mountains less than 100 million years old

B) flat areas that include rocks older than 1 billion years old

C) flat river valleys that cut through older mountain ranges

D) ancient coastal regions that have become abandoned and eroded

Answer: B

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

50) Which of the following is **not** considered to be part of a typical ocean basin?

A) a linear chain of volcanoes

B) large expanses of flat plains

C) granitic intrusions

D) deep canyons

Answer: C

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

51) Deep ocean trenches typically are **not** located adjacent to \_\_\_\_\_\_\_\_.

A) transform plate boundaries

B) volcanic island arc chains

C) young continental mountains

D) abyssal plains

Answer: A

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

52) Long oceanic mountain chains typically are characterized by \_\_\_\_\_\_\_\_.

A) highly deformed sedimentary rocks

B) granitic plutons and batholiths

C) layers of igneous rocks

D) rocks older than 1 billion years old

Answer: C

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

53) Active mountain belts are most likely to be found \_\_\_\_\_\_\_\_.

A) along the margins of continents

B) in the interior regions of continents

C) scattered throughout continents

D) along only the eastern margins of continents

Answer: A

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

54) The continental shelf is located \_\_\_\_\_\_\_\_.

A) between the continental slope and continental rise

B) between the continental rise and the abyssal plains

C) seaward of the continental slope

D) landward of the continental slope

Answer: D

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

55) The most prominent features on the ocean floor are the \_\_\_\_\_\_\_\_.

A) deep-ocean trenches

B) oceanic ridges

C) seamounts

D) lava plateaus

Answer: B

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

56) A(n) \_\_\_\_\_\_\_\_ system is one in which energy moves freely in and out, but no matter enters or leaves the system.

A) closed

B) open

C) feedback

D) equilibrated

Answer: A

Diff: 1

Topic: 1.7 Earth as a System

Bloom's Taxonomy: Knowledge/Comprehension

57) Mechanisms that enhance or drive change are known as \_\_\_\_\_\_\_\_.

A) negative feedback mechanisms

B) positive feedback mechanisms

C) closed feedback mechanisms

D) open feedback mechanisms

Answer: B

Diff: 1

Topic: 1.7 Earth as a System

Bloom's Taxonomy: Knowledge/Comprehension

58) What is the source of the energy that powers the Earth system?

A) the Sun

B) heat from Earth's interior

C) both A and B

D) none of the above

Answer: C

Diff: 1

Topic: 1.7 Earth as a System

Bloom's Taxonomy: Knowledge/Comprehension

59) Which of the following is **not** a system?

A) the biosphere

B) soil, plants, rock, soil organisms, and animals

C) the study of minerals

D) the Pacific Ocean and the west coast of North America

Answer: C

Diff: 2

Topic: 1.7 Earth as a System

Bloom's Taxonomy: Application/Analysis

60) A mineralogist studies minerals and their origins. A mineralogist studying the Earth system would \_\_\_\_\_\_\_\_.

A) do the same thing, studying minerals and their origins, as any other mineralogist

B) study how minerals form rocks

C) study how minerals influence organisms living on them, how they react with water to produce soil forming minerals, or study how wind transports minerals as dust and influences climate

D) Minerals can never be used to study the Earth system.

Answer: C

Diff: 2

Topic: 1.7 Earth as a System

Bloom's Taxonomy: Application/Analysis

**Word Analysis.** Examine the words and/or phrases for each question below and determine the relationship among the majority of words/phrases. Choose the option which does not fit the pattern.

61) hypothesis theory fact observation

Answer: fact

Diff: 1

Topic: 1.2 The Nature of Scientific Inquiry

Bloom's Taxonomy: Application/Analysis

62) protosun Oort cloud planetesimals meteorites

Answer: Oort cloud

Diff: 2

Topic: 1.3 Early Evolution of Earth

Bloom's Taxonomy: Application/Analysis

63) hydrosphere biosphere atmosphere solid earth

Answer: biosphere

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Application/Analysis

64) crust mantle lithosphere core

Answer: lithosphere

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Application/Analysis

65) mountain belt shield continental interior stable platform

Answer: mountain belt

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Application/Analysis

66) abyssal plain seamount oceanic ridge continental crust

Answer: continental crust

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Application/Analysis

67) The vast majority of Earth scientists are involved in either extraction of mineral resources or energy.

Answer: FALSE

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

68) Earth Science is the only science that doesn't use mathematics beyond simple arithmetic.

Answer: FALSE

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

69) Environmental science always involves a large component of Earth Science.

Answer: TRUE

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

70) Science is based on the assumption that nature behaves in a consistent and predictable manner.

Answer: TRUE

Diff: 1

Topic: 1.2 The Nature of Scientific Inquiry

Bloom's Taxonomy: Knowledge/Comprehension

71) Scientists only use measurements that are known to be reliable and accurate.

Answer: FALSE

Diff: 1

Topic: 1.2 The Nature of Scientific Inquiry

Bloom's Taxonomy: Knowledge/Comprehension

72) A scientific theory is a tentative or untested explanation that is proposed to explain scientific observations.

Answer: FALSE

Diff: 1

Topic: 1.2 The Nature of Scientific Inquiry

Bloom's Taxonomy: Knowledge/Comprehension

73) A scientific theory is the first step in developing an idea. It is not very well tested.

Answer: FALSE

Diff: 1

Topic: 1.2 The Nature of Scientific Inquiry

Bloom's Taxonomy: Knowledge/Comprehension

74) Not all scientific hypotheses require real world observations. Some are tested through computer modeling or some other non-direct observations.

Answer: TRUE

Diff: 1

Topic: 1.2 The Nature of Scientific Inquiry

Bloom's Taxonomy: Knowledge/Comprehension

75) The "Big Bang" is an example of theory.

Answer: TRUE

Diff: 1

Topic: 1.2 and 1.3: Nature of Scientific Inquiry and Early Evolution of Earth

Bloom's Taxonomy: Knowledge/Comprehension

76) The formation of the solar system from a huge cloud of gases and dispersed particles is known as the solar galactic hypothesis.

Answer: FALSE

Diff: 1

Topic: 1.3 Early Evolution of Earth

Bloom's Taxonomy: Knowledge/Comprehension

77) According to the nebular theory, all of the bodies in the universe evolved from a rotating cloud of gases and dust about five billion years ago.

Answer: TRUE

Diff: 1

Topic: 1.3 Early Evolution of Earth

Bloom's Taxonomy: Knowledge/Comprehension

78) There are places on the deepest parts of the ocean where no light penetrates that support colonies of life.

Answer: TRUE

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Knowledge/Comprehension

79) Oceans cover slightly less than half of the earth's surface.

Answer: FALSE

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Knowledge/Comprehension

80) The lithosphere and asthenosphere are layers of Earth defined by their composition.

Answer: FALSE

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Knowledge/Comprehension

81) We can tell a lot about the internal processes in the earth by looking at the exterior of the earth.

Answer: TRUE

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Knowledge/Comprehension

82) The earth is sometimes called "The Blue Planet" because the atmosphere appears blue in sunlight.

Answer: FALSE

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Knowledge/Comprehension

83) Internally, the earth consists of spherical shells with different compositions and densities.

Answer: TRUE

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

84) The asthenosphere is the liquid layer in the upper mantle that the plates move on.

Answer: FALSE

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

85) Lithospheric plates are the tops of convection cells and subduction zones are the downgoing part of the convection cell.

Answer: TRUE

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

86) The earth's core is entirely molten iron and convection of this molten mass generates the earth's magnetic field.

Answer: FALSE

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

87) Subduction zones are downgoing convection cells in the earth but only carry oceanic material into the mantle.

Answer: TRUE

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

88) During the history of the earth there have been periods when all the continents were together in a supercontinent.

Answer: TRUE

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

89) Internally, the earth consists of spherical shells with different compositions and densities.

Answer: TRUE

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

90) The asthenosphere is a relatively cool and rigid shell that overlies the lithosphere.

Answer: FALSE

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

91) Continents are, on average, about 2 km higher than sea level.

Answer: FALSE

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

92) The waterline where the ocean meets the land is the boundary between oceanic crust and continental crust.

Answer: FALSE

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

93) Shields and stable platforms are typically found in the interior regions of a continent.

Answer: TRUE

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

94) Humans are not a part of the Earth System.

Answer: FALSE

Diff: 1

Topic: 1.7 Earth as a System

Bloom's Taxonomy: Knowledge/Comprehension

95) In an open system both energy and matter flow into and out of the system.

Answer: TRUE

Diff: 1

Topic: 1.7 Earth as a System

Bloom's Taxonomy: Knowledge/Comprehension

96) List the two broad, traditional subject areas of geologic study.

Answer: physical geology and historical geology

Diff: 1

Topic: 1.1 What Is Earth Science

Bloom's Taxonomy: Knowledge/Comprehension

97) When a hypothesis has survived extensive scrutiny and when competing ones have been eliminated, a hypothesis may be elevated to the status of a(n) \_\_\_\_\_\_\_\_.

Answer: scientific theory

Diff: 1

Topic: 1.2 The Nature of Scientific Inquiry

Bloom's Taxonomy: Knowledge/Comprehension

98) The thin, outer layer of Earth, from 7 to 40 km in thickness, is called the \_\_\_\_\_\_\_\_.

Answer: crust

Diff: 1

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Knowledge/Comprehension

99) The \_\_\_\_\_\_\_\_ is the relatively rigid zone above the asthenosphere that includes the crust and upper mantle.

Answer: lithosphere

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

100) The \_\_\_\_\_\_\_\_ is the solid, rocky shell between the crust and outer core.

Answer: mantle

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

101) The convective flow of liquid, metallic iron in the \_\_\_\_\_\_\_\_ is thought to generate Earth's magnetic field.

Answer: outer core

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Knowledge/Comprehension

102) Moving from the shoreline towards the deep-ocean basin, the continental margin includes the \_\_\_\_\_\_\_\_.

Answer: continental shelf, continental slope, continental rise

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

103) The \_\_\_\_\_\_\_\_ is the most prominent feature on the ocean floor.

Answer: oceanic or mid-ocean ridge

Diff: 1

Topic: 1.6 The Face of Earth

Bloom's Taxonomy: Knowledge/Comprehension

104) In natural systems, mechanisms that drive or enhance change are called \_\_\_\_\_\_\_\_.

Answer: positive feedback mechanisms

Diff: 1

Topic: 1.7 Earth as a System

Bloom's Taxonomy: Knowledge/Comprehension

**Critical Thinking and Discussion.** Use complete sentences, correct spelling, and the information presented in Chapter 1 to answer the questions below.

105) Earth's physical environment is traditionally divided in the hydrosphere, atmosphere, and the solid Earth. Remembering the scientific method, why do you think that scientists tend to categorize and classify various features, phenomena, and characteristics of the natural world into groups or subdivisions? Also, are there potential pitfalls or problems if we only consider the natural world as individual groups or categories rather than as a whole?

Answer: Categorizing and classifying is a way of cataloging the differences and similarities between things. We put items that are mostly similar into the same broad groups and separate items that are mostly different. From this system, we can begin to study why things are similar and what is the significance of the differences and that helps us to get to the basic processes that are of scientific interest. The pitfalls or problems are that we may not recognize similarities in objects that have been classified as different and vice versa. Also, we are likely to miss the interactions between different groups and the processes that cause those interactions when we focus on classifying things.

Diff: 3

Topic: 1.4 Earth's Spheres

Bloom's Taxonomy: Application/Analysis; Synthesis/Evaluation

106) What is the relationship of the dense oceanic crust that is produced at a divergent plate boundary to the convergence or collision of an oceanic plate and a continental plate, such as the western margin of South America in the diagram below?



Answer: The dense oceanic crust sinks underneath the more buoyant continental crust at this type of convergent plate boundary.

Diff: 1

Topic: 1.5 A Closer Look at the Geosphere

Bloom's Taxonomy: Application/Analysis