6th Grade Science SOL Review

Standard: 6.8 – Interrelationships in Earth/Space Systems

1. What consists of the Sun, moon, Earth, other planets and their moons, meteors, asteroids, and comets?
   The Solar System

2. What invention has allowed scientists to learn more about our solar system?
   Telescope

3. What forces keep the planets in motion around the sun?
   Gravity and Inertia

4. Name the four inner planets in order?
   Mercury, Venus, Earth, and Mars

5. Name the four outer planets in order?
   Jupiter, Saturn, Uranus, and Neptune

6. Which set of planets have rocky surfaces?
   Inner Planets

7. Which set of planets are the largest?
   Outer Planets

8. What divides the inner and the outer planets?
   The asteroid belt

9. What is the smallest planet?
   Mercury

10. What is the largest planet?
    Jupiter

11. What is the term for a planet moving around the Sun or a moon moving around a planet?
    Revolution or Revolving

12. How long does it take the Earth to go around the Sun?
    About one year.

13. What is the term for a planet spinning on its axis?
    Rotation or Rotating

14. How long does it take the Earth to make one spin on its axis?
    24 hours (One day)

15. What does the rotation of the Earth cause?
    Night and Day

16. What causes the Sun to appear to move across the sky?
    The Earth’s rotation

17. What causes the seasons on Earth?
    The tilt of the Earth’s axis

18. The Northern Hemisphere is tilted towards the Sun. What season is it?
    Summer

19. The Northern Hemisphere is tilted away from the Sun. What season is it?
    Winter

20. Do the Northern and Southern Hemispheres every have the same season at the same time?
    No. They always have opposite seasons.

21. Why is daytime shorter in the winter than in the summer?
    Tilt of the Earth’s axis

22. What causes the phases of the moon?
    The Moon’s revolution around the Earth

23. What are the four major phases of the moon?
    Full Moon, 1st Quarter, New Moon, Last Quarter

24. How long does it take the moon to go through its phases?
    About one month

25. What causes the tides on Earth?
    The gravitational pull of the moon

26. What kind of tide is it if a beach area is directly aligned with the moon?
    High tide

27. How often does a beach area normally have high tide each day?
    Twice

28. What are three major characteristics that make Earth different from the other planets?
    Frozen and Liquid Water, Life, and a protective atmosphere that contains oxygen

29. What type of eclipse is it when the moon blocks the Sun’s rays from reaching the Earth?
    Solar Eclipse

30. What type of eclipse is it when the Earth blocks the Sun’s rays from reaching the moon?
    Lunar Eclipse
Standard 6.9 - Resources

31. What are three things that people are dependent on?
   A healthy environment plus clean air and water.

32. What do we call resources that will eventually run out?
   Nonrenewable resources

33. What do we call resources that can be replaced by nature?
   Renewable resources

34. What are some examples of nonrenewable resources?
   Coal, oil, natural gas, and nuclear power

35. What are some examples of renewable resources?
   Water, sunlight, and timber

36. What is the wise and careful use of natural resources called?
   Conservation

37. Who establishes regulations and programs to improve the quality of the air, water, and soil?
   The government

38. What are some things individuals can do to help conserve resources and protect the environment?
   Reduce, reuse, and recycle

39. What is one of the biggest concerns with using nuclear power?
   Storing nuclear waste

40. Pollution prevention and waste management are much cheaper than _____.
   Cleanup

Standard 6.2 – Energy

41. What is kinetic energy?
   The energy of motion

42. Give an example of kinetic energy?
   A football flying through the air

43. What is potential energy?
   Stored energy within an object

44. Give an example of potential energy?
   An apple sitting on a table

45. What is another name for the energy that comes from coal and oil?
   Fossil fuels

46. What are some alternate sources of power besides fossil fuels?
   Wind, water, solar, and wood

47. Describe the energy transformation that takes place in a flashlight?
   Chemical => Electrical => Light and Heat

48. Describe the energy transformation that takes place with fossil fuels in a car?
   Chemical => Thermal => Mechanical

49. What form of energy do plants need during photosynthesis to produce chemical energy?
   Light

50. What source of energy is our society most dependent upon?
   Fossil fuels

6.3 – The Atmosphere

51. What source of energy is responsible for the motion of the atmosphere, the oceans, and many processes at the Earth’s surface like photosynthesis?
   The Sun

52. What is the transfer of energy from the Sun to the Earth’s atmosphere called?
   Radiation

53. What three types of light waves make up solar radiation?
   Infrared, Visible light, and Ultraviolet

54. How molecules in air or water move when they are heated?
   Faster and farther apart

55. What is the process called where warm air rises and cool air falls?
   Convection

56. What causes the air in the atmosphere and the water in the oceans to circulate?
   Radiation and Convection

57. What would happen if the Earth absorbed more heat than it released?
   The Greenhouse Effect

58. What greatly reduces the Sun’s energy that reaches the Earth?
   The sunlight is reflected, scattered, or absorbed by the atmosphere or the surface.
59. What is formed when bodies of water absorb heat and water evaporates?
   Clouds

60. When land and water is strongly heated what can form?
   Thunderstorms and Hurricanes

**Standard 6.4 – The Atom**

61. What is the basic building block of all matter?
   *The atom*

62. What type of charge does a proton have?
   *Positive*

63. What type of charge does a neutron have?
   *Neutral (no charge)*

64. What type of charge does an electron have?
   *Negative*

65. What is the center of the atom called?
   *The nucleus*

66. What two particles are located in the nucleus?
   *Protons and neutrons*

67. What is a substance called that is made of only one type of atom?
   *An element*

68. What makes the atoms of each element different?
   *The number of protons*

69. What is used to represent an element?
   *A chemical symbol*

70. The following elements form most of the Earth’s crust, atmosphere, oceans, and living matter. What is the chemical symbol for:

   - Silicon - Si
   - Aluminum - Al
   - Iron - Fe
   - Sodium - Na
   - Calcium - Ca
   - Potassium - K
   - Magnesium - Mg
   - Hydrogen - H
   - Oxygen - O
   - Nitrogen - N
   - Carbon - C

71. What are two or more elements that chemically combine called?
   *A compound*

72. What is used to represent a compound?
   *A chemical formula*

73. What is the chemical formula for water?
   *H₂O*

74. What is the number that represents the number of atoms in a chemical formula called?
   *Subscript*

75. Identify the elements and number of atoms present in the bond: O₂
   *O₂ – Two atoms of Oxygen*

76. Identify the elements and number of atoms present in the bond: CO₂
   *CO₂ – One atom of Carbon and Two atoms of Oxygen*

77. Identify the elements and number of atoms present in the bond: CaCO₃
   *CaCO₃ – One atom of Calcium, One atom of Carbon, and Three atoms of Oxygen*

78. What is used to represent a chemical reaction?
   *A chemical equation*

79. What do all chemical equations have to do?
   *Balance*

80. Are these equations balanced?

   \[
   \begin{align*}
   2 \text{H}_2 + \text{O}_2 & \rightarrow 2 \text{H}_2\text{O} \\
   \text{CH}_2 + 2 \text{O}_2 & \rightarrow \text{CO}_2 + 2 \text{H}_2\text{O} \\
   \text{HCl} + \text{NaOH} & \rightarrow \text{NaCl} + \text{H}_2\text{O}
   \end{align*}
   \]

**Standard 6.5 – Water**

81. Water is a unique compound because it can exist as a - solid, liquid, and gas

82. What allows water molecules to “stick together” like magnets?
   *One side of a water molecule is positive while the other is negative and opposites attract.*

83. What is water often called because many substances will dissolve in it?
   *The universal solvent*

84. The climate near large bodies of water is often milder compared to other area. Why?
   *Lakes often absorb heat during the summer and slowly release it during the winter.*
85. At the same volume, does ice or liquid water have more mass?

   Ice floats in liquid water so ice has less mass and density than liquid water.

86. What does water do when it freezes?

   Water is the exception to the rule because it expands when it freezes.

87. What is the freezing point of water on the Celsius scale?

   0° Celsius

88. What is the boiling point of water on the Celsius scale?

   100° Celsius

89. What are three examples of physical weathering by water?

   Rain, ice, and snow

90. What is an example of chemical weathering by water?

   Acid rain

91. How does water cause physical changes in rocks and concrete?

   Freezing water can expand and cause rocks and concrete to crack.

92. What percent of the water on the Earth is salt water?

   97%

93. What percent of the water on the Earth is non-frozen, freshwater?

   Less than 1%

94. What is the rock layers beneath the Earth’s surface that contain water called?

   Aquifers

95. Where else do we find a large amount of water stored besides oceans, lakes, rivers, streams, and aquifers?

   Bodies of living things

96. Where were the first human settlements established?

   Near springs, rivers, and lakes

97. Water is essential for agriculture. What type of system is designed to provide water to crops?

   An irrigation system

98. What type of power is generated by the flow of water through power plants like the Hoover Dam?

   Hydroelectric Power

99. What is one disadvantage of using hydroelectric power?

   There are a limited number of locations with large water supplies.

100. What caused many of the disease outbreaks before the 1800’s?

    Containment of public wells and drinking water by human waste and open sewers.

Standard 6.6 – Air

101. What element is the most abundant element found in the air?

    Nitrogen

102. What other elements and compounds are found in the air?

    Oxygen, Carbon Dioxide, Argon, and Water

103. What does air pressure and temperature both do as you increase altitude?

    Air pressure and temperature decrease

104. What is moisture in the air called?

    Humidity

105. What layer of the atmosphere contains most of the air and does most of the weather take place?

    Troposphere

106. What three things have the most effect on the weather conditions?

    Heat energy, air pressure, and water vapor

107. What kind of information can be found on a weather map to help forecast the weather?

    Air pressure, Temperature, Wind Direction and Speed, Boundaries between Fronts

108. What does a barometer measure and how does it help predict the weather?

    A barometer measures air pressure. High pressure indicates fair weather and low pressure indicates precipitation.

109. How does each type of cloud look and what kind of weather do they indicate?

    Cumulus: puffy => fair weather
    Stratus: low, flat blanket => possible rain or snow
    Cirrus: thin, wisplike strands => change in the weather

110. What layer of the atmosphere protects us from harmful ultraviolet light, but is being harmed by pollution?

    Ozone layer
111. What is the name for a living community and the nonliving factors that affect it?
   An ecosystem

112. What is the health of an ecosystem directly related to?
   Water Quality

113. What are some ways water quality is measured?
   pH, temperature, salinity, dissolved oxygen, turbidity (cloudiness), and the presence of macroinvertebrate organisms

114. What is the name for the land that water travels across as it moves to a stream or lake?
   A watershed

115. Rivers and streams generally have wide, flat, border areas onto which water spills out at times of high flow. What are these border areas called?
   Flood plains

116. Where do the watersheds in Virginia lead to?
   The Chesapeake Bay, the North Carolina sounds, or the Gulf of Mexico

117. What are areas called where freshwater and saltwater meet and are mixed by the tides?
   Estuaries

118. Estuaries provide habitats for many organisms while serving as resting and nesting areas for many others. Where is the United States’ largest estuary?
   The Chesapeake Bay

119. What kind of human activity can cause an increase or decrease erosion due to water?
   Plowing fields increase erosion while planting trees decreases erosion.

120. What is the relationship between the speed of water and the size of sediment carried?
   The faster the water flows, the bigger the sediment it can carry.