**Chapter 2 weather test bank**

**Multiple Choice**

*Identify the letter of the choice that best completes the statement or answers the question.*

\_\_\_\_ 1. The process of liquid water changing to gas is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | precipitation. | c. | evaporation. |
| b. | condensation. | d. | water vapor. |

\_\_\_\_ 2. What is the relative humidity of air at its dew-point temperature?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 0 percent | c. | 75 percent |
| b. | 50 percent | d. | 100 percent |

\_\_\_\_ 3. Which of the following is NOT a type of condensation?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | fog | c. | snow |
| b. | cloud | d. | dew |

\_\_\_\_ 4. High clouds made of ice crystals are called \_\_\_\_ clouds.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | stratus | c. | nimbostratus |
| b. | cumulus | d. | cirrus |

\_\_\_\_ 5. Large thunderhead clouds that produce precipitation are called \_\_\_\_ clouds.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | nimbostratus | c. | cumulus |
| b. | cumulonimbus | d. | stratus |

\_\_\_\_ 6. Strong updrafts within a thunderhead can produce

|  |  |  |  |
| --- | --- | --- | --- |
| a. | snow. | c. | sleet. |
| b. | rain. | d. | hail. |

\_\_\_\_ 7. A maritime tropical air mass contains

|  |  |  |  |
| --- | --- | --- | --- |
| a. | warm, wet air. | c. | warm, dry air. |
| b. | cold, moist air. | d. | cold, dry air. |

\_\_\_\_ 8. A front that forms when a warm air mass is trapped between cold air masses and forced to rise is called a(n)

|  |  |  |  |
| --- | --- | --- | --- |
| a. | stationary front. | c. | occluded front. |
| b. | warm front. | d. | cold front. |

\_\_\_\_ 9. A severe storm that forms as a rapidly rotating funnel cloud is called a

|  |  |  |  |
| --- | --- | --- | --- |
| a. | hurricane. | c. | typhoon. |
| b. | tornado. | d. | thunderstorm. |

\_\_\_\_ 10. The lines on a weather map connecting points of equal atmospheric pressure are called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | contour lines. | c. | isobars. |
| b. | highs. | d. | lows. |

\_\_\_\_ 11. To measure air pressure most accurately, you should use a mercury

|  |  |  |  |
| --- | --- | --- | --- |
| a. | barometer. | c. | psychrometer. |
| b. | thermometer. | d. | wind vane. |

\_\_\_\_ 12. A windsock does NOT

|  |  |  |  |
| --- | --- | --- | --- |
| a. | consist of a cone-shaped bag. | c. | measure wind direction. |
| b. | measure wind speed. | d. | allow wind to pass through it. |

\_\_\_\_ 13. Isobars indicate

|  |  |  |  |
| --- | --- | --- | --- |
| a. | pressure. | c. | snow. |
| b. | rainfall. | d. | wind speed. |

\_\_\_\_ 14. Which of the following is NOT used to collect weather-related data from the upper atmosphere?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | weather balloon | c. | psychrometer |
| b. | Doppler radar | d. | orbital satellite |

\_\_\_\_ 15. Unstable atmospheric conditions lead to the formation of lightning and thunder from towering

|  |  |  |  |
| --- | --- | --- | --- |
| a. | nimbostratus clouds. | c. | altostratus clouds. |
| b. | alto cumulus clouds. | d. | cumulonimbus clouds. |

\_\_\_\_ 16. Air's ability to hold water vapor increases as \_\_\_\_ increases.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | wind speed | c. | air pressure |
| b. | temperature | d. | All of the above |

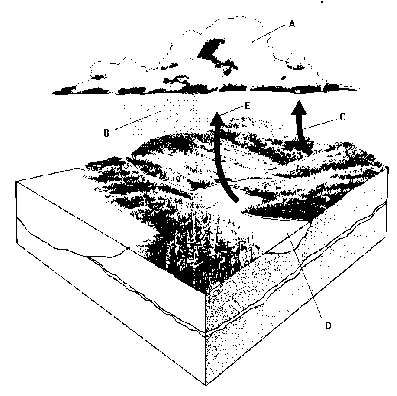
\_\_\_\_ 17. Which of the following causes the most damage during a hurricane?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | water spouts | c. | lightning |
| b. | high winds | d. | storm surges |

\_\_\_\_ 18. Lightning is seen before thunder is heard because

|  |  |  |  |
| --- | --- | --- | --- |
| a. | storm winds slow down sound waves. | c. | light travels faster than sound. |
| b. | sound is created slowly. | d. | ice crystals in clouds absorb sounds. |

Study the illustration below, and answer the questions that follow.



\_\_\_\_ 19. The illustration above is of the

|  |  |  |  |
| --- | --- | --- | --- |
| a. | water cycle. | c. | nitrogen cycle. |
| b. | carbon cycle. | d. | greenhouse effect. |

\_\_\_\_ 20. What process occurs at **A**?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | precipitation | c. | evaporation |
| b. | condensation | d. | transpiration |

\_\_\_\_ 21. What process occurs at **B**?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | precipitation | c. | runoff |
| b. | evaporation | d. | transpiration |

\_\_\_\_ 22. What process occurs at **C**?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | condensation | c. | runoff |
| b. | precipitation | d. | transpiration |

\_\_\_\_ 23. What process occurs at **D**?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | transpiration | c. | runoff |
| b. | precipitation | d. | condensation |

\_\_\_\_ 24. What process occurs at **E**?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | runoff | c. | evaporation |
| b. | precipitation | d. | condensation |

\_\_\_\_ 25. Clouds are formed by

|  |  |  |  |
| --- | --- | --- | --- |
| a. | evaporation | c. | transpiration |
| b. | precipitation | d. | condensation |

\_\_\_\_ 26. \_\_\_\_ occurs when rain, snow, sleet, or hail falls from the clouds onto the Earth's surface.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Precipitation | c. | Evaporation |
| b. | Condensation | d. | Transpiration |

\_\_\_\_ 27. \_\_\_\_ occurs when water vapor cools and changes back into liquid droplets.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Evaporation | c. | Transpiration |
| b. | Condensation | d. | Runoff |

\_\_\_\_ 28. \_\_\_\_ occurs when liquid water changes into water vapor.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Condensation | c. | Evaporation |
| b. | Transpiration | d. | Precipitation |

\_\_\_\_ 29. \_\_\_\_ is the process by which plants release water vapor into the air through their leaves.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Evaporation | c. | Condensation |
| b. | Transpiration | d. | Precipitation |

\_\_\_\_ 30. \_\_\_\_ is water, usually from precipitation, that flows across land and collects in rivers, streams, and eventually the ocean.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Runoff | c. | Relative humidity |
| b. | Humidity | d. | Condensation |

\_\_\_\_ 31. \_\_\_\_ is the amount of water vapor or moisture in the air.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Dew point | c. | Relative humidity |
| b. | Humidity | d. | Weather |

\_\_\_\_ 32. \_\_\_\_ is the amount of moisture the air contains compared with the maximum amount it can hold at a particular temperature.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Weather | c. | Relative humidity |
| b. | Humidity | d. | Dew point |

\_\_\_\_ 33. Suppose that 1 m3 of air at a certain temperature can hold 30 g of water vapor. However, you know that the air actually contains 15 g of water vapor. What is the relative humidity?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 25 percent | c. | 75 percent |
| b. | 50 percent | d. | 100 percent |

\_\_\_\_ 34. Which device measures relative humidity?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | anemometer | c. | psychrometer |
| b. | barometer | d. | thermometer |

\_\_\_\_ 35. Suppose that 1 m3 of air at a certain temperature can hold 20 g of water vapor. However, you know that the air actually contains 5 g of water vapor. What is the relative humidity?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 25 percent | c. | 75 percent |
| b. | 50 percent | d. | 100 percent |

\_\_\_\_ 36. Before condensation can occur, what must the relative humidity be?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 25 percent | c. | 75 percent |
| b. | 50 percent | d. | 100 percent |

\_\_\_\_ 37. Air can become saturated when water vapor is added to the air through

|  |  |  |  |
| --- | --- | --- | --- |
| a. | evaporation. | c. | precipitation |
| b. | transpiration. | d. | Both (a) and (b) |

\_\_\_\_ 38. Which statement best describes condensation?

|  |  |
| --- | --- |
| a. | It only occurs in cold areas. |
| b. | It occurs with no relative humidity. |
| c. | There must be a surface to condense on. |
| d. | It is the same as precipitation. |

\_\_\_\_ 39. Puffy, white clouds that tend to have flat bottoms are called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | stratus clouds. | c. | cumulus clouds. |
| b. | cirrus clouds. | d. | nimbus clouds. |

\_\_\_\_ 40. Clouds that form in layers are called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | stratus clouds. | c. | cumulus clouds. |
| b. | nimbus clouds. | d. | cirrus clouds. |

\_\_\_\_ 41. Thin, feathery, white clouds found at high altitudes are called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | stratus clouds. | c. | nimbus clouds. |
| b. | cumulus clouds. | d. | cirrus clouds. |

\_\_\_\_ 42. The most common form of precipitation is liquid water that falls from the clouds to Earth. This type of precipitation is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | snow. | c. | hail. |
| b. | rain. | d. | sleet. |

\_\_\_\_ 43. \_\_\_\_, the most common form of solid precipitation, forms when temperatures are so cold that water vapor changes directly to a solid.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Rain | c. | Sleet |
| b. | Hail | d. | Snow |

\_\_\_\_ 44. \_\_\_\_, also called freezing rain, forms when rain falls through a layer of freezing air.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Sleet | c. | Snow |
| b. | Hail | d. | Flurries |

\_\_\_\_ 45. Solid precipitation that falls as balls or lumps of ice is called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | snow. | c. | rain. |
| b. | hail. | d. | snow. |

\_\_\_\_ 46. A \_\_\_\_ air mass is a wet air mass that forms over water.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | maritime (m) | c. | polar (P) |
| b. | continental (c) | d. | tropical (T) |

\_\_\_\_ 47. A \_\_\_\_ air mass is a dry air mass that forms over land.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | polar (P) | c. | maritime (m) |
| b. | continental (c) | d. | tropical (T) |

\_\_\_\_ 48. A \_\_\_\_ air mass is a cold air mass that forms over the polar regions.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | continental (c) | c. | maritime (m) |
| b. | tropical (T) | d. | polar (P) |

\_\_\_\_ 49. A \_\_\_\_ air mass is a warm air mass that develops over the Tropics.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | polar (P) | c. | maritime (m) |
| b. | tropical (T) | d. | continental (c) |

\_\_\_\_ 50. A \_\_\_\_ air mass forms over the North Pacific Ocean and affects the Pacific Coast.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | maritime polar (mP) | c. | continental polar (cP) |
| b. | maritime tropical (mT) | d. | continental tropical (cT) |

\_\_\_\_ 51. A \_\_\_\_ air mass forms over the North Atlantic Ocean and affects New England and the eastern part of Canada.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | maritime tropical (mT) | c. | continental polar (cP) |
| b. | maritime polar (mP) | d. | continental tropical (cT) |

\_\_\_\_ 52. A \_\_\_\_ air mass develops over warm areas in the Gulf of Mexico and the North Atlantic Ocean and move across the East Coast and into the Midwest.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | continental tropical (cT) | c. | continental polar (cP) |
| b. | maritime polar (mP) | d. | maritime tropical (mT) |

\_\_\_\_ 53. A \_\_\_\_ air mass forms over the deserts of northern Mexico and in the southwestern United States. It influences weather in the United States only during the summer as it moves northeastward, bringing clear, dry, and very hot weather.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | continental tropical (cT) | c. | maritime polar (mP) |
| b. | continental polar (cP) | d. | maritime tropical (mT) |

\_\_\_\_ 54. A(n) \_\_\_\_ occurs when a cold air mass meets and displaces a warm air mass.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | occluded front | c. | cold front |
| b. | stationary front | d. | warm front |

\_\_\_\_ 55. A(n) \_\_\_\_ occurs when a warm air mass meets and overrides a cold air mass.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | stationary front | c. | cold front |
| b. | occluded front | d. | warm front |

\_\_\_\_ 56. A(n) \_\_\_\_ occurs when a faster-moving cold air mass overtakes a slower-moving warm air mass and forces the warm air up.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | stationary front | c. | cold front |
| b. | occluded front | d. | warm front |

\_\_\_\_ 57. Cooler weather usually follows a(n) \_\_\_\_ front because the warm air is pushed away from the Earth's surface.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | cold | c. | stationary |
| b. | occluded | d. | warm |

\_\_\_\_ 58. \_\_\_\_ usually bring drizzly precipitation. Afterward, weather conditions are clear and warm.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Cold fronts | c. | Occluded fronts |
| b. | Stationary fronts | d. | Warm fronts |

\_\_\_\_ 59. A(n) \_\_\_\_ has cool temperatures and large amounts of precipitation.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | stationary front | c. | occluded front |
| b. | cold front | d. | warm front |

\_\_\_\_ 60. The weather associated with a(n) \_\_\_\_ is similar to that produced by a warm front.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | occluded front | c. | stationary front |
| b. | cold front | d. | massive front |

Below are four statements describing the formation of tornadoes. However, they are all out of order. Read the statements below and answer the question that follows.

**A**) The rotating column of air works its way down to the bottom of the cumulonimbus cloud and forms a funnel cloud.

**B**) The rotating column of air is turned to a vertical position by strong updrafts of air within the cumulonimbus cloud. The updrafts of air also begin to rotate with the column of air.

**C**) Wind traveling in two different directions causes a layer of air in the middle to begin to rotate like a roll of toilet paper.

**D**) The funnel cloud touches the ground.

\_\_\_\_ 61. In what order should the statements above appear to correctly describe how a tornado forms?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | **A, B, C, D** | c. | **C, B, A, D** |
| b. | **B, C, A, D** | d. | **D, A, B, C** |

\_\_\_\_ 62. Which device is used to measure air temperature?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | barometer | c. | thermometer |
| b. | anemometer | d. | windsock or wind vane |

\_\_\_\_ 63. Which device is used to measure air pressure?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | barometer | c. | anemometer |
| b. | thermometer | d. | windsock or wind vane |

\_\_\_\_ 64. Which device is used to measure wind speed?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | thermometer | c. | barometer |
| b. | anemometer | d. | windsock or wind vane |

\_\_\_\_ 65. Which device is used to measure wind direction?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | barometer | c. | thermometer |
| b. | anemometer | d. | windsock or wind vane |

\_\_\_\_ 66. When *-nimbus* or *nimbo-* is part of a cloud's name, it means that

|  |  |
| --- | --- |
| a. | the cloud is at a high altitude. |
| b. | it is a middle cloud. |
| c. | precipitation might fall from the cloud. |
| d. | it is a low cloud. |

\_\_\_\_ 67. When *cirro-* is part of a cloud's name, it means that

|  |  |
| --- | --- |
| a. | the cloud is at a high altitude. |
| b. | it is a low cloud. |
| c. | precipitation might fall from the cloud. |
| d. | it is a middle cloud. |

\_\_\_\_ 68. When *alto-* is part of a cloud's name, it means that

|  |  |  |  |
| --- | --- | --- | --- |
| a. | the cloud is at a high altitude. | c. | it is a low cloud. |
| b. | precipitation might fall from the cloud | d. | it is a middle cloud. |

\_\_\_\_ 69. When *strato-* is part of a cloud's name, it means that

|  |  |  |  |
| --- | --- | --- | --- |
| a. | it is a low cloud. | c. | the cloud is at a high altitude. |
| b. | precipitation might fall from the cloud | d. | it is a middle cloud. |

\_\_\_\_ 70. What type of clouds would you most likely see if you were flying in an airplane at 8,000 m?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | cumulus clouds | c. | cirrus clouds |
| b. | stratus clouds | d. | altonimbus clouds |

\_\_\_\_ 71. Suppose that 1 m3 of air at a certain temperature can hold 10 g of water vapor. However, you know that the air actually contains 9 g of water vapor. What is the relative humidity?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 30 percent | c. | 75 percent |
| b. | 60 percent | d. | 90 percent |

**Completion**

*Complete each sentence or statement.*

72. One can often see the shapes of animals and people in fluffy, white \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ clouds. (cumulus or stratus)

73. Wind speed can be measured using a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (windsock or anemometer)

74. People use coasters when setting cold drinks on furniture to protect the surface from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (precipitation or condensation)

75. Fog is a type of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cloud. (cirrus or stratus)

76. A psychrometer measures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (humidity or relative humidity)

77. The terms occluded and stationary describe types of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (fronts or air masses)

78. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the condition of the atmosphere at a particular time and place.

79. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the continuous movement of water from water sources, such as lakes and oceans, into the air, onto and over land, into the ground, and back to the water sources.

80. When air holds all the water it can at a given temperature, the air is said to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

81. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the temperature to which air must cool to be completely saturated.

82. A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a large body of air that has similar temperature and moisture throughout.

83. When two different air masses meet, a boundary forms between them called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

84. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are small, intense weather systems that produce strong winds, heavy rain, lightning, and thunder.

85. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the sound that results from the rapid expansion of air along the lightning strike.

86. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a large electrical discharge that occurs between two oppositely charged surfaces.

87. A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a small, rotating column of air that has high wind speeds and low central pressure and that touches the ground.

88. A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a large, rotating tropical weather system with wind speeds of at least 119 km/h.

89. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the center of the hurricane that is a core of warm, relatively calm air with low pressure and light winds.

90. The strongest part of a hurricane is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This is a group of clouds that produce heavy rains and forceful winds that can reach speeds of 300 km/h.

91. Beyond the eye wall, spiraling bands of clouds called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ circle the center of the hurricane, producing heavy rains and high winds.

92. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a prediction of weather conditions over the next three to five days.

93. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used to find the location, movement, and intensity of precipitation as well as detect what form of precipitation a weather system is carrying.

94. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ orbiting the Earth provide the images of the swirling clouds you can see on television weather reports. They can measure wind speeds, humidity, and the temperatures at various altitudes.

95. Similar to contour lines on a topographical map, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are lines that connect points of equal air pressure rather than equal elevation.

96. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a collection of millions of tiny water droplets or ice crystals.

97. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs when saturated air cools further.

98. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an instrument used to measure the amount of rainfall and typically consists of a funnel and a cylinder.

99. When rain does NOT freeze until it hits a surface near the ground, a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or layer of ice, forms.

**Short Answer**

For each pair of terms, explain the difference in their meanings.

100. barometer/anemometer

101. tornado/hurricane

102. lightning/thunder

103. air mass/front

104. condensation/precipitation

105. relative humidity/dew point

106. What is the difference between humidity and relative humidity?

107. What are two ways that air can become saturated with water vapor?

108. What does a relative humidity of 75 percent mean?

109. How does the water cycle contribute to condensation?

110. What happens to relative humidity as the air temperature drops below the dew point?

111. How do clouds form?

112. Why are some clouds formed from water droplets, while others are made up of ice crystals?

113. Describe how rain forms.

114. How can rain and hail fall from the same cumulonimbus cloud?

115. What are the characteristics that define air masses?

116. What are the major air masses that influence the weather in the United States?

117. a. What are fronts?

b. What causes fronts?

118. What kind of front forms when a cold air mass displaces a warm air mass?

119. Explain why the Pacific Coast has cool, wet winters and warm, dry summers.

120. What is lightning?

121. a. Describe how tornadoes develop.

b. What is the difference between a funnel cloud and a tornado?

122. Why do hurricanes form only over certain areas?

123. What happens to a hurricane as it moves over land? Why?

124. What are three methods meteorologists use to collect weather data?

125. What are weather maps based on?

126. What does a station model represent?

127. Why would a meteorologist compare a new weather map with one 24 hours old?

128. Compare and contrast the processes of condensation and evaporation in the water cycle.

129. What name would you give a lacy, layered cloud above 6,000 m?

130. Compare and contrast snow, sleet, and hail.

131. If a continental polar air mass moves over Ohio in the summer, what will the weather be like?

132. Why does the continental tropical air mass that forms over northern Mexico bring clear, dry, hot weather?

133. Explain how a cold front develops.

134. What kind of weather is associated with a stationary front?

135. What is the relationship between lightning and thunder?

136. Explain why tornadoes often destroy buildings in their path.

137. Why don't hurricanes form over land?

138. Would water be a useful fluid to use in a thermometer? Explain.

139. What advantage do weather satellites have over ground-based weather stations?

140. Why are so many station models used to gather weather data in the United States?

141. Explain the relationship between condensation and dew point.

142. Describe the conditions along a stationary front.

143. What are the characteristics of an air mass that forms over the Gulf of Mexico?

144. Explain how a hurricane develops.

145. Use the following terms to create a concept map: *evaporation, relative humidity, water vapor, dew, psychrometer, clouds, fog.*

146. If both the air temperature and the amount of water vapor in the air change, is it possible for the relative humidity to stay the same? Explain.

147. What can you assume about the amount of water vapor in the air if there is no difference between the wet- and dry-bulb readings of a psychrometer?

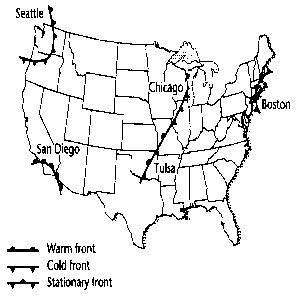
148. List the major similarities and differences between hurricanes and tornadoes.

You always see lightning before you hear thunder. That's because light travels at about 300,000,000 m/s, while sound travels only 330 m/s. One way you can determine how close you are to the thunderstorm is by counting how many seconds there are between the lightning and thunder. Usually, it takes thunder about 3 seconds to cover 1 km. Answer the following questions based on this estimate:

149. If you hear thunder 12 seconds after you see the flash of lightning, how far away is the thunderstorm?

150. If you hear thunder 36 seconds after you see the flash of lightning, how far away is the thunderstorm?

Use the weather map below to answer the questions that follow.



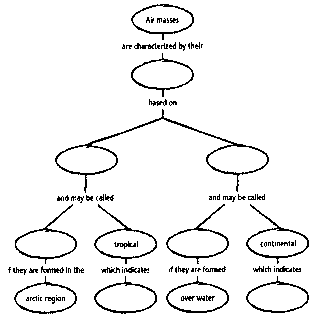
151. Where are thunderstorms most likely to occur? Explain your answer.

152. What are the weather conditions like in Tulsa, Oklahoma? Explain your answer.

153. What causes tornadoes? Explain.

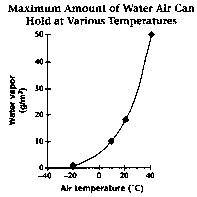
154. What causes lightning? Explain.

155. Use the following terms to complete the concept map below: *polar, source regions, warm air, maritime, dry air, temperature, moisture.*

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156. Dew is formed when small water droplets condense on grass. In what type of environment is dew NOT likely to form?

Examine the graph below and answer the questions that follow.



157. About how much moisture can air hold at 20ºC?

158. What does this graph tell you about the relationship between temperature and the amount of water vapor that air can hold?