CH 18 STUDY GUIDE

Vocabulary

precipitation, evaporation, condensation, sublimation, deposition, humidity, saturated, hygrometer, cirrus, cumulus, stratus, supercooled water

Understanding Concepts

1. Which gas is most important for understanding the processes that take place in the atmosphere? *Water Vapor*
2. The classification of clouds is based on their: *Height & Form*
3. What types of clouds have the highest height? *Cirrus, Cirrostratus, Cirrocumulus*
4. The precipitation that forms in a cumulonimbus cloud when small ice pellets fall through it and grow by collecting supercooled water is: Hail
5. What happens when air rises? It cools from expansion
6. As you drink an ice-cold beverage on a hot day, the outside of the glass becomes wet. Explain why this happens. *Condensation, the cold glass cooled the air around it to the dew point. 100% humidity*
7. What is the difference between condensation and precipitation? Condensation is from gas to liquid; precipitation is whatever falls out of the cloud, such as rain, snow, sleet, hail, and freezing rain.
8. Why does air cool when it rises through the atmosphere? Less air pressure causes the air to expand and cool.
9. Write a general statement relating air temperature and the amount of water vapor needed to saturate the air. Warmer air can hold more water vapor.
10. Describe the difference between clouds and water vapor. Clouds are condensation (gas to liquid) and water vapor is a gas

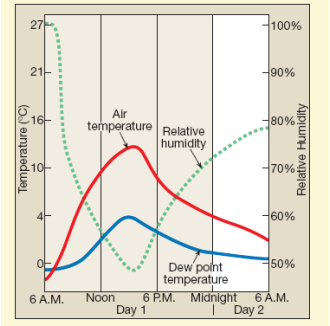
Graph Skills

Water Vapor Needed for Saturation

Temperature		Mass of water vapor per kg of air (g/kg)
°C	(°F)	
−40	(−40)	0.1
−30	(−22)	0.3
−20	(−4)	0.75
−10	(14)	2
0	(32)	3.5
5	(41)	5
10	(50)	7
15	(59)	10

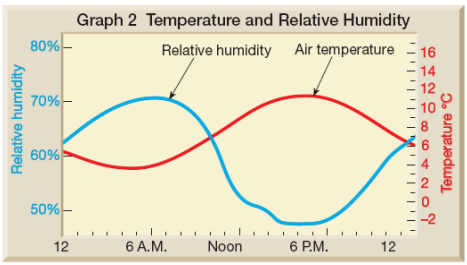
11. According to the table, how much water vapor is required to saturate a kilogram of air at each of the following temperatures?
    a. 15°C 10 g/kg
    b. 0°C 3.5 g/kg
    c. - 10°C 2 g/kg

Graph 1 Temperature and Relative Humidity



12. The graph above depicts variations in temperature and relative humidity on a spring day. Which of the following statements is true?
    d. When temperature increases, relative humidity increases.
    e. When temperature decreases, relative humidity decreases.
    f. When temperature increases, relative humidity decreases.
    g. Temperature and relative humidity are not related.

Graph 2 Temperature and Relative Humidity



13. According to this graph, when is relative humidity at its maximum? 6 am
14. When does the lowest relative humidity occur? 6 pm