Ch 11 Atmosphere Assessment

Reviewing Vocabulary

Match the definition in Column A with the term in Column B.

Column A		Column B
_____	**1.** The temperature to which air must be cooled at constant pressure to reach saturation	**a.** latent heat
_____	**2.** The gas formed by adding a third oxygen atom to an oxygen molecule	**b.** stability
_____	**3.** Heat that is stored in a substance	**c.** ozone
_____	**4.** An air mass's ability to resist rising	**d.** radiation
_____	**5.** All forms of water that fall from clouds	**e.** dew point
_____	**6.** The transfer of energy through space by electromagnetic waves	**f.** precipitation

Compare and contrast each pair of related terms. In other words, how are they the same and how are they different.

heat, temperature

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_____

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humidity, relative humidity

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_____

condensation, evaporation

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conduction, convection

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Understanding Main Ideas (Part A)

In the space at the left, write true *if the statement is true; if the statement is false, change the italicized word or phrase to make it true.*

_____ **1.** The atmosphere is composed mostly of *helium* and oxygen, with traces of other gases such as carbon dioxide and water vapor.

_____ **2.** The stratosphere is important because it contains *nitrogen*, which blocks harmful ultraviolet radiation from the Sun.

_____ **3.** Both temperature and pressure generally *decrease* with height in the troposphere.

_____ **4.** The amount of water vapor in a given volume of air is its *relative humidity*.

_____ **5.** The height in the atmosphere at which condensation occurs is the *lifted condensation level*.

_____ **6.** A temperature inversion is a *decrease* in temperature with height in the atmosphere.

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

7. Condensation nuclei are particles of atmospheric dust around which

a. ozone collects.
b. cloud droplets form.
c. evaporation occurs.
d. winds form.

8. In orographic lifting, clouds form when moist winds

a. flow over the sea.
b. become drier.
c. encounter mountains.
d. warm up the ground.

9. Cloud droplets collide to form larger droplets in a process called

a. coalescence.
b. convection.
c. condensation.
d. composition.

10. What is the constant movement of water between the atmosphere and Earth's surface?

a. precipitation cycle
b. water cycle
c. cloud cycle
d. atmosphere cycle

Understanding Main Ideas (Part B)

Answer the following questions.

1. Compare and contrast cumulus and cirrus clouds.

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_____

2. What is moving air called? Thoroughly explain why air moves in the atmosphere(troposphere)?

_____

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_____

3. Explain how a temperature inversion might form on a clear winter night.

_____

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4. A temperature inversion hangs over a city area. Is the formation of a towering cumulonimbus cloud likely? Explain your answer.

_____

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5. Compare and contrast the troposphere and the stratosphere.

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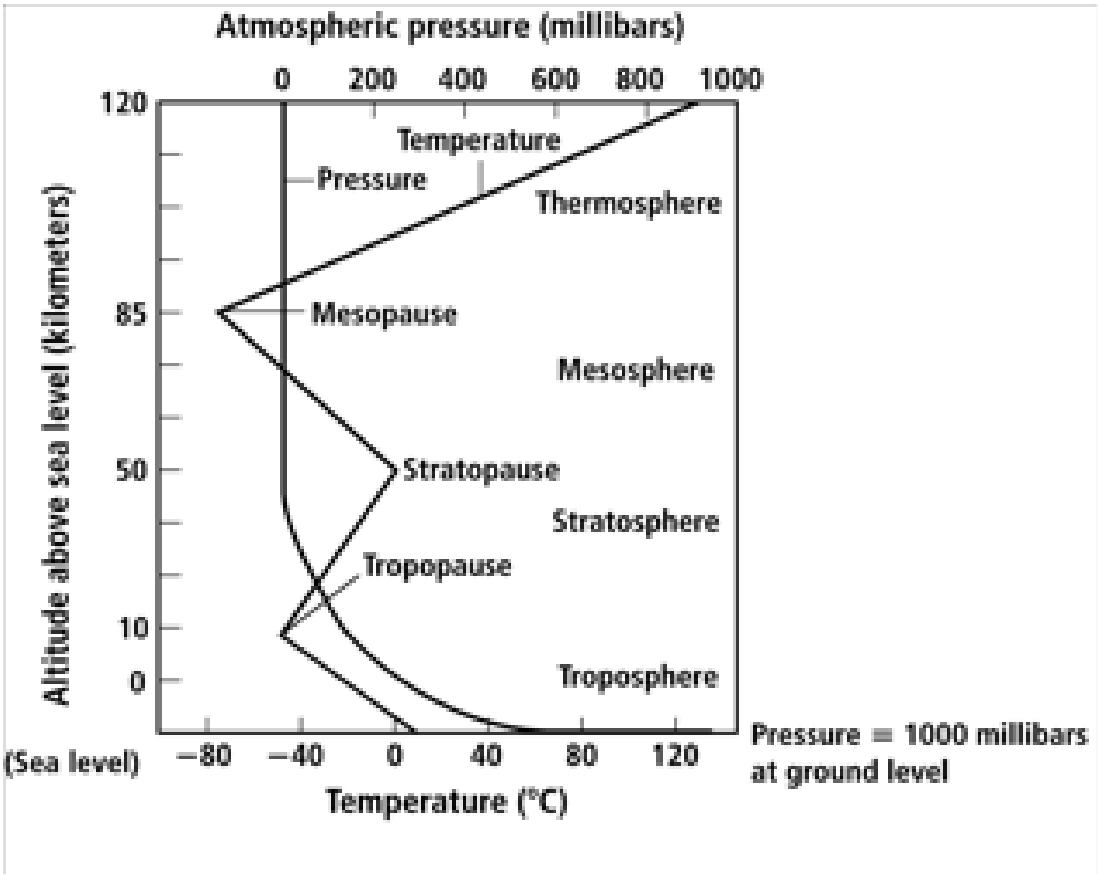
Thinking Critically

Use the graph to answer the following questions.



1. Do air pressure and temperature change in the same way with altitude? Explain your answer.

_____

_____

2. Describe the temperature changes that take place in **each** layer of the atmosphere.

Troposphere:_____

Stratosphere:_____

Mesosphere:_____

Thermosphere:_____

3. Explain why the temperature increases with height in the stratosphere?

_____

_____

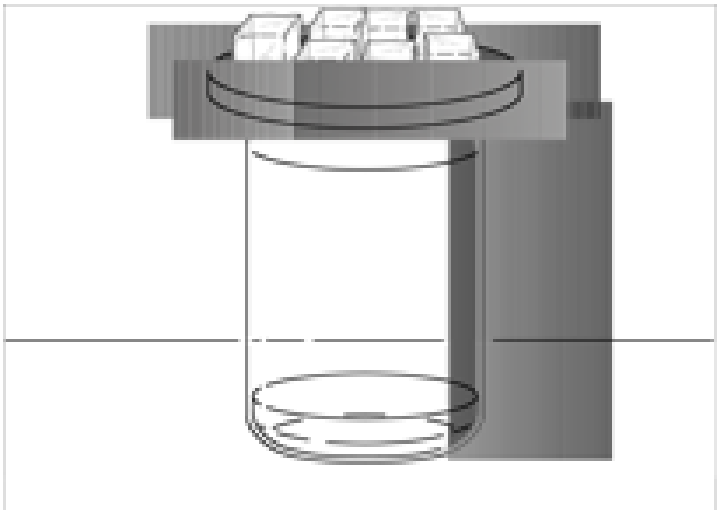
_____

Applying Scientific Methods

A group of students decided to make a simple model of the lower atmosphere(troposphere). To create their model, they used a clean glass jar, hot water, and a tray of ice cubes.

The students poured hot water into the jar to a level of about 4 cm, about 1.5 inches. They then filled a small metal container with ice cubes and placed it over the jar's opening, as shown in the illustration below.

Within a few seconds, the students observed white ribbons of mist forming in the center of the jar. Soon a larger white, misty area had formed inside the jar between the surface of the water and at the top of the jar close to the opening.



Answer the following questions.

1. What formed inside the jar? Explain how it formed.

_____

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_____

_____

2. How does the temperature of the air in the model atmosphere vary with height? Thoroughly explain your answer.

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3. How might the results have been different if the tray of ice had not been placed over the opening of the jar closing it off?

_____

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_____

4. How might the results have been different if students had put cold water in the bottom of the jar instead of hot water?

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5. Based on your knowledge of cloud formation, compare the model with the formation of clouds in Earth's lower atmosphere.

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6. Describe how you would change the design of the model to create a continuous water cycle. Explain how water would cycle through the new model.

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