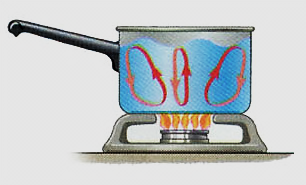
**Chapter 11 Atmosphere – Review Sheet Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period:\_\_\_**

Use the outline below to help prepare you for the upcoming chapter test. Explain the terms by describing what they mean, where they are, what they are used for, etc.

\*\*Vocabulary for Chapter 11\*\*  
Understand, use and apply all the words on your vocabulary sheet.

1. Describe the gases that makeup the atmosphere **quantitatively**.
2. Name the 4 layers of the atmosphere in order from the farthest to closest to Earth’s surface.
3. What are the names of the 3 imaginary boundary lines between layers of the atmosphere called?
4. Which layer contains our weather? What gas plays the biggest role in weather?
5. Which layer has the largest concentration of ozone?
6. Which layer absorbs most of the Sun’s ultraviolet light?
7. In which layer do planes fly?
8. Explain why the temperature decreases with an increase altitude in the Troposphere.
9. Why does temperature increase with altitude in the Stratosphere? EXPLAIN – a single word is not enough.
10. What is a temperature inversion and what effect does it have?
11. What are the 3 Main Methods of Heat Transfer and explain how they work.
12. In which direction does heat flow? From hot to cold or from cold to hot? As you answer, make sure to address what happens to the particles in each object when heat is transferred?
13. What is the Earth’s primary source of energy? Through what type of heat transfer mechanism does the Earth receive this energy?
14. **Describe** 2 heat transfer mechanisms by which a cup of hot coffee loses its energy.
15. **Explain** how the Earth passes on heat energy to the Troposphere?
16. Circle the 2 methods of heat transfer occurring in the picture below. Explain how these energy transfers work and relate them to the heating of Earth and/or the atmosphere.
    1. In the pan above, also label an area that is less dense, more dense, colder water, warmer water, rising water, and sinking water.
17. Explain the relationship between
    1. Temperature and Volume
    2. Temperature and Pressure
    3. Temperature and Density
    4. Volume and Density
18. \*\*The stars in the balloon to the right represent air molecules. The balloon

pictured is at room temperature.

* 1. Based on your knowledge about temperature and volume, draw what would happen if the balloon is put into an ice bath.
  2. How would the changes in Part A affect the density of the air in the balloon? **Explain why**.
  3. Based on your knowledge about density, do you think the balloon you drew would float higher or sink lower than the 1st balloon? Explain.

1. What are the 3 main things required for cloud formation?
   1. .
   2. .
   3. .
2. List 2 examples of condensation nuclei needed to form clouds.
3. What is the relationship between air temperature and the amount of water vapor it can hold?
4. If air at 80oF has a relative humidity of 65%, what happens to the relative humidity if:
   1. The air is warmed to 98oF?
   2. The air is cooled to 60oF?
5. What happens to the water vapor in the air at the dew point temperature?
6. If air contains 18g/kg of water vapor and the water vapor capacity of the air is 62g/kg, calculate the relative humidity of the air. Show your work and circle your answer.
7. If air could hold 20g/kg of water vapor, and the air contains 20g/kg, what is its relative humidity?

|  |  |
| --- | --- |
|  | **Water Vapor Capacity**  **(Maximum it can hold)**  g/kg  (grams water vapor/kg or air) |
| **30oF** | 2 |
| **40oF** | 4 |
| **50oF** | 12 |

1. Based on the table to the right, if air at 50oF contains 8g of water vapor, calculate its relative humidity. SHOW YOUR WORK. Label your answer with %.
2. Based on the table above, if a sample of air contains 4g of water vapor, what is its dew point?
3. List 3 forms of precipitation:

a.

b.

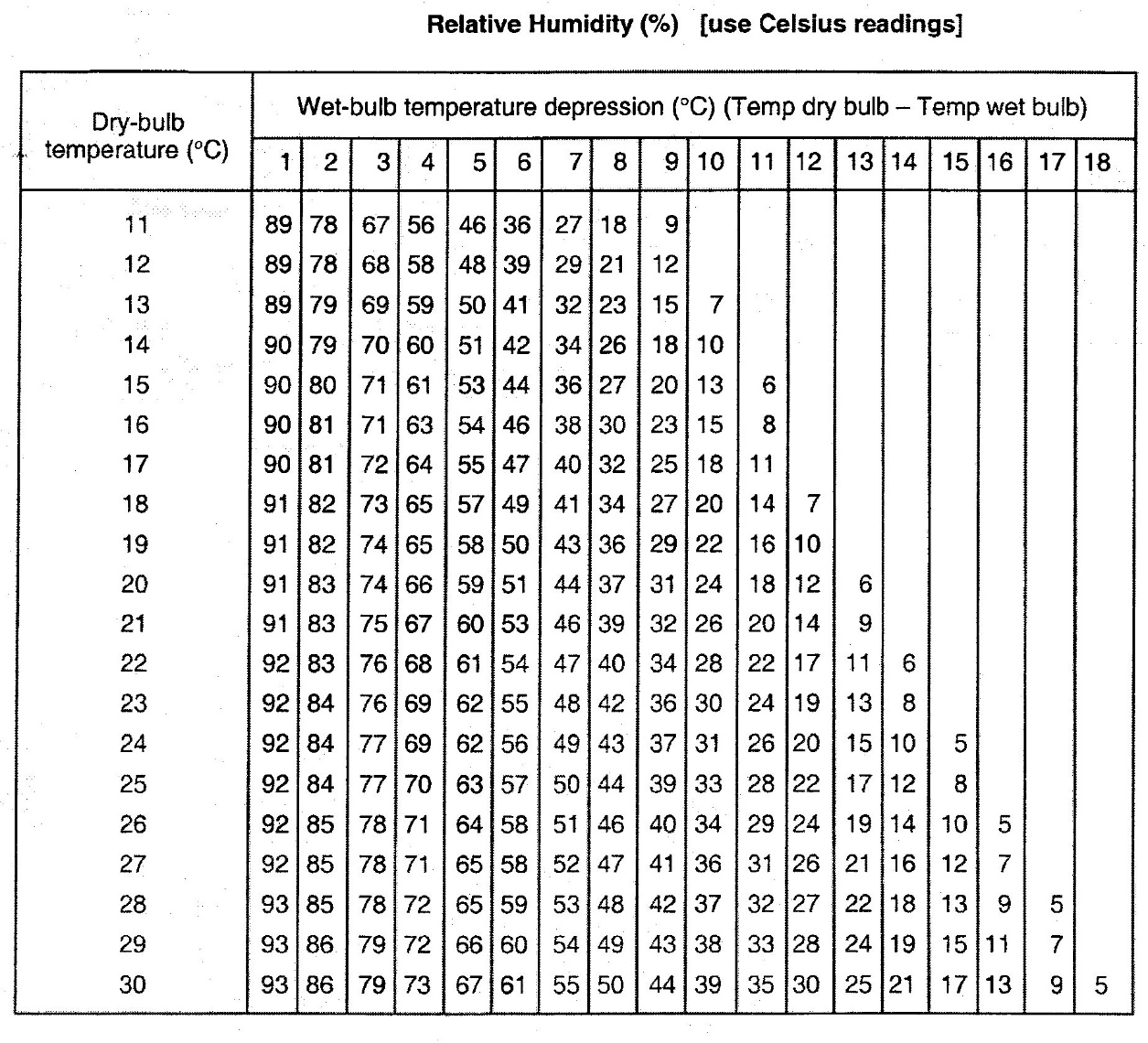
c.

1. Name and describe the four main types of clouds:

1. Compare & contrast fog and stratus clouds. You must explain similarities and differences. For differences, you must describe both terms. You may write in sentences or use a Venn diagram. Be specific and detailed.

1. Complete the following table:

|  |  |  |
| --- | --- | --- |
|  | **Evaporation** | **Condensation** |
| Definition |  |  |
| To complete the phase change, is latent heat energy absorbed or released? |  |  |



1. Use the table above. After slinging the psychrometer 50 times, the Dry-bulb temperature was 15oC and the Wet-bulb reading was 6oC. Using the table above, what is the relative humidity?
2. Compare and contrast **Orographic Lifting** and **Frontal Wedging:** You must explain similarities and differences. (You cannot say they are both a type of lift mechanism for a comparison. For differences, you must describe both terms.) You may write in sentences or use a Venn diagram. Be specific and detailed.
3. **Synthesis Question:** Describe in a short but thorough and detailed explanation how the **3 terms** Frontal Wedging, Relative Humidity, and Latent Heat are **related in cloud formation**.