WEATHER UNIT REVIEW/STUDY GUIDE

This Study Guide will help you prepare for the Unit test on Weather. To complete this study guide, you may use your notebook, the video links and quizlets shown below.

Helpful videos:
1. Weather Instruments:  https://www.youtube.com/watch?v=ySSyT44nma4
2. Air Pressure:  https://www.youtube.com/watch?v=I0C4QR0OEH0
3. Air Masses and Fronts:  https://www.youtube.com/watch?v=OBz3fwXX64A
4. Reading a Weather Map:  https://www.youtube.com/watch?v=9NZz-EeveJ8

Quizlets: Go to quizlet.com and search for (1) STM - Weather Instruments, (2) STM - Air Pressure, (3) Air masses and fronts

Answer the following questions:

1. Fill in the table:

<table>
<thead>
<tr>
<th>Name of instrument</th>
<th>What it measures</th>
<th>Unit of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermometer</td>
<td>Temperature</td>
<td>Degree Celsius/fahrenheit</td>
</tr>
<tr>
<td>Barometer</td>
<td>Air pressure</td>
<td>millibars (Mbar) or inches of mercury</td>
</tr>
<tr>
<td>Hygrometer OR sling psychrometer</td>
<td>Humidity</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Anemometer</td>
<td>Wind speed</td>
<td>miles per hour</td>
</tr>
<tr>
<td>Wind/Weather vane</td>
<td>Wind direction</td>
<td>N, S, E, W</td>
</tr>
<tr>
<td>Rain Gauge</td>
<td>Amount of precipitation</td>
<td>Inches, centimeters</td>
</tr>
</tbody>
</table>
2. Does warm air rise or sink? **Warm air rises** Why? It is less dense than cold air

3. Does cold air rise or sink? **Cold air sinks** Why? It is heavier (more dense) than warm air

4. What causes a hot air balloon to rise? **Rising warm air**

5. When **cold** (hot/cold) air sinks, a **high** (high/low) pressure area is formed.

6. What causes wind? **Movement of air from high to low pressure areas**

7. **INSERT IMAGE** Highlight the correct answer. This figure represents
   a. a life cycle
   b. a thunderstorm
   c. **the water cycle**

8. What are clouds made up of? **Condensed water vapor (water droplets)**
9. An air mass coming from Canada brings ________________.
   a. cold, dry air
   b. warm, moist air
   c. cold, moist air

10. An air mass coming from Gulf of Mexico brings ________________.
    d. cold, dry air
    e. warm, moist air
    f. cold, moist air

11. Define the following terms:
    a. Front: The boundary between two air masses
    b. Air mass: A large body of air that has the same properties as the area of land over which it formed
    c. Isobars: Lines on a weather map joining places with equal air pressure
    d. Hurricane: A large tropical storm with strong winds and heavy rain formed over warm ocean water
    e. Tornado: A whirling funnel shaped cloud that sometimes develops in the same cumulonimbus cloud that brings thunderstorms
    f. Isotherm: Lines on a weather map joining places with equal temperature
g. **Blizzard**: A heavy snowstorm with strong winds

12. **Describe the following clouds:**

a. **Stratus**: Low level clouds that look like flat sheets or layers and bring overcast, rainy day

b. **Cumulus**: Low to mid level clouds that look like fluffy cotton balls that bring sunny weather and blue skies

c. **Cumulonimbus**: Tall dark storm clouds that form along cold fronts and can bring thunderstorms, hail storms or tornadoes

d. **Cirrus**: High feathery wispy clouds made of ice crystals

13. **As the altitude increases, explain what happens to air pressure.** Air pressure decreases. **Explain why:** There are fewer air particles as you go higher

14. **Why do your ears pop in an airplane as you go higher up?** Differences in air pressure (less air pressure outside, more inside your ear) cause ears to pop as your ear tries to equalize the air pressure inside and outside

15.
In the weather map shown above, which city is being approached by a warm front?

a. San Francisco  
b. Seattle  
c. Atlanta  
d. Boston

16. In which direction does the wind move in high pressure areas?

Clockwise

17. What kind of weather is associated with high pressure system?

(Happy weather) – Sunny skies, clear day, few clouds
In the picture below label the air masses that affect the weather in United States

Box 1: Maritime Polar (mP)
Box 2: Continental Polar (cP)
Box 3: Maritime Polar (mP)
Box 4: Maritime Tropical (mT)
Box 5: Continental Tropical (cT)
Box 6: Maritime Tropical (mT)
19 Identify the four types of fronts shown in the pictures below:

Box A: Stationary front
Box B: Cold Front
Box C: Warm Front
Box D: Occluded Front

20. Fill in the blanks
a) A dome of water created during a hurricane is called **storm surge**
b) **Warm water** energizes a hurricane.
c) The largest and most powerful storm is **hurricane**
d) Thunderstorms are caused by **cumulonimbus clouds**.

21. a. The safest place to be during a tornado is **basement of a well built building**

   b. Some precautions to take during a thunderstorm are **take cover from rain and lightning, do not touch metal objects because they can conduct lightning**.

22. What is the difference between storm watch and storm warning?
Storm watch means a storm is an announcement that a storm is possible. Storm warning means a storm is expected.

23. What should you do if you are caught in a snowstorm? **Find shelter from the wind and cold**

24. In what kind of storm would you be asked to evacuate? **hurricane**

25.

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**Study the weather map below and answer the questions that follow:**

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A. Near what cities are the two warm fronts located? **Seattle, Boston**

B. What kind of front is approaching Chicago? **Cold front**

C. Which city has the coldest low temperature? **Fargo** What is the temperature? **19°F**

D. What kind of precipitation is Seattle experiencing? **Rain**

E. What kind of precipitation is Atlanta experiencing? **Scattered showers**

F. Which two cities have the same high temperature? What is the temperature? **________ Boston and Billings (52); Denver and Boise (40); New York and Little Rock (57)**