Assignment #9 **name:**

LOW PRESSURE SYSTEMS

Go to http://formontana.net and then click on picture # 47. Look at the image and read the explanation below the image.

1. What is a "cyclone" and what are two other names for the type of cyclone shown on the screen?

2. What is the name for the lines shown on the map?

3. What would it be like if you were in a place where these lines were really close together?

4. What would the wind direction in northeastern Montana have been when the storm was centered over South Dakota? (Wind directions indicate the direction that the wind is coming from.)

5. **Click on the Hot Link titled "The difference Between Highs and Lows".** What is air doing in areas where the pressure is high? (Is it rising, or sinking?)

6. Hold the mouse over the big blue arrow. Describe the direction of the airflow around a "high". (Is it clockwise, or counterclockwise?)

7. Move your mouse over all of the numbers on the image. Which area would be more likely to have cloudy, stormy weather? . . . The high, or the low? Explain why.

HIGH PRESSURE SYSTEMS

Go to http://formontana.net and then click on picture # 85.

8. Why was February of 2005 such a dry month in Montana?

9. What is the air doing in areas of high pressure that causes these areas to typically be clear and dry? Circle one.

   A. Sinking, compressing, and warming. B. rising, expanding, and cooling

10. **Click on the link titled "The Ultimate Cloud Demo" to watch a short video demonstration.** You can watch it silently if necessary. When did the cloud in the jar evaporate? Circle one:

    A. Pushing down the balloon caused high pressure. B. Lifting up the balloon caused low pressure.

11. Why did the cloud form in the jar as the air was forced to expand (low pressure)? Circle one.

    A. This expansion made the air warmer. B. This expansion made the air colder.

12. **Go back to the web site (http://formontana.net # 85).** What effect did the "blocking high" have on storms that passed through the west?

13. The images at the top and bottom of this web page show two views of storms passing through after the "blocking high" was gone. What are three different names for the kind of storms shown on the images?

14. What is happening to the air in these areas, causing them to often bring precipitation?

15. If you have a big outdoor event planned where there will be many people in attendance, what kind of pressure system do you want to be present in your area: a high pressure system, or a low pressure system?

16. The image near the bottom of the page has several things marked. Explain what is happening to the warmer air along the cold fronts (blue spiked line).

17. Explain what is happening to the warmer air along the warm fronts?

18. How would you describe the flow of air around a center of low pressure?

19. The G.O.E.S. East weather satellite took both images on the web page. What kind of image is shown at the top of the web page, and what advantage does it have over visible satellite images?

20. What is usually happening in the atmosphere below the coldest cloud tops?

21. Which color on the top image shows where there might have been severe thunderstorms at the time the image was made?

22. What kind of satellite image is shown at the bottom of the web page? Circle one.

infrared visible water vapor

23. **Click on the Hot Link titled "Look at current satellite images".** Select one of the infrared images from the top two rows. Tell what date and time* are given in the upper left, and then describe the general location of the larger cloudy areas shown on the image.

*NOTE: Times on the satellites are given in UTC time. To know what time it was in Montana, subtract 7 hours during standard time. Thus 20:45 UTC is 1:45 pm MST. (Subtract 6 hours during daylight saving time).