PHYSICAL SCIENCE
WEATHER PATTERNS ASSIGNMENT

Provide a concise yet comprehensive answer to the following questions. Please place your answers on another sheet of paper.

1. Briefly describe the wind patterns and weather conditions associated with a cyclone and an anticyclone.

2. Briefly describe the conditions (temperature and moisture content) for an air mass designated as cP and for an air mass designated as mT. From where would these air masses originate? (Provide real-world examples).

3. The diagrams on page 602 of your textbook (in questions #5 of the Give It Some Thought section) show surface temperatures with isotherms labeled in degrees Fahrenheit for noon and 6:00 pm on January 29, 2008. On this day, a powerful front moved through Missouri and Illinois.
    a. What type of front passed through this region?
    b. Describe how the temperature changed in St. Louis, Missouri over the 6-hour time span
    c. Describe the likely shift in wind direction in St. Louis during this time span.

4. Refer to the weather map on page 604 of your textbook (in question #2 of the Give It Some Thought section) to answer the following questions:
    a. What is the likely wind direction at each city?
    b. Identify the likely air mass influencing each city
    c. What is the barometric tendency at city A and city C?
    d. Which city is likely the coldest? Which is likely the warmest?

    (Hint: Figure 19.12 in your text will help with this question)

5. The world map in question #3 of the Examining the Earth System section on page 605 in your textbook shows the tracks and intensities of thousands of hurricanes and other tropical cyclones. It was put together by the National Hurricane Center and the Joint Typhoon Warning Center.
    a. What area has experienced the greatest number of category 4 and 5 storms?
    b. Why do hurricanes not form along the equator?
    c. Explain the absence of storms in the South Atlantic and Eastern South Pacific.