MiSP Ecology/Pollution Global Warming Assessment

Name _____   Date_____

1. The Greenhouse Effect is caused by certain gases in the atmosphere. Carbon dioxide (CO_2) is one of them. Name two (2) other greenhouse gases:

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2. The Greenhouse Effect has been blamed for a recent period of global warming. Nonetheless, the Greenhouse Effect is a <u>good</u> thing for life on earth. Explain why the Greenhouse Effect is good for living things.

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Continued….

Refer to the graph below to answer questions 3-10. It shows the depth of snow on March 15 (near the end of winter) at a place called Fish Lake in the North Cascade Mountains from 1995-2007. Each year, scientists measured the depth of the snow (snow pack). *During the years of this study, there was an <u>increase</u> in the amount of winter precipitation.* The data was plotted and a best fit line was drawn. (Data from the North Cascade Glacier Climate Project, http://www.nichols.edu/departments/glacier/snowpack_variations_in_the_north.htm)

Fish Lake Snow Pack on March 15
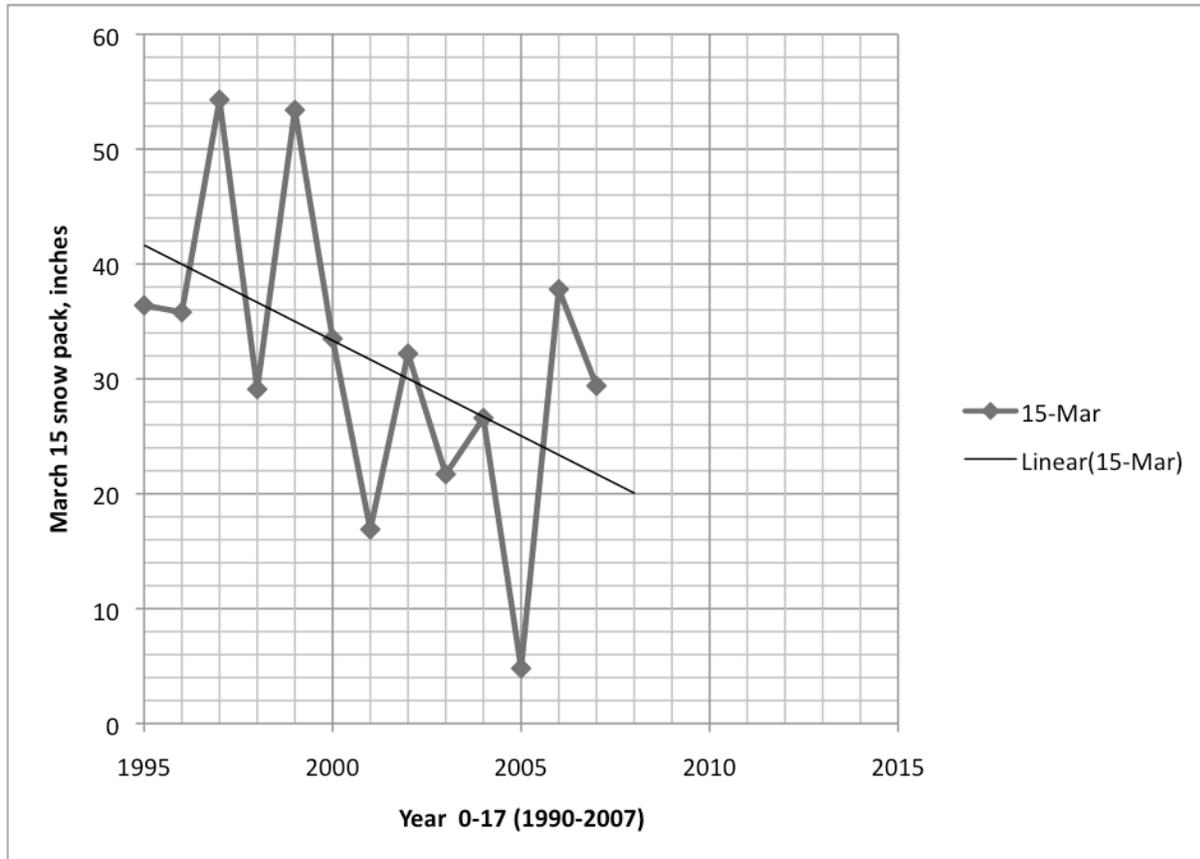
3. According to the best fit line on the graph, what has happened to the depth of the snow pack from 1995 to 2007 (years 0 to 12)?

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4. The research team of scientists considers this data to be evidence of global warming. Do you agree? If yes, explain why you agree. If no, explain why you do not agree.

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5. Using the best fit line, predict what the snow pack (depth of snow in inches) will be on March 15 in 2015.

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6. _____Which of the following values is the closest to the unit rate of change (slope) for the best fit line on the graph?

      A. -0.6 $\underline{\text{inches}}$
             year

      B. 0.6 $\underline{\text{inches}}$
             year

      C. -1.6 $\underline{\text{inches}}$
             year

      D. 1.6 $\underline{\text{inches}}$
             year

7. Using the unit rate of change (slope) you calculated and picked in #6, what will happen to the depth of the snow after five years? Will it increase or decrease? By what numerical value will it change?

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8. We know that there is no year 0 but 1995 was the first year this data was collected so consider 1995 to be year 0, 1996 to be year 1, 2000 to be year 5, etc. Use the unit rate of change (slope) you calculated and picked in #6 and the data point at 2004 on the graph, find the Y intercept of the best-fit line.

Y Intercept

9. Using the Y intercept from #8 and the unit rate of change (slope) you selected/calculated in #6, what is the formula for the best fit line?

10. Use the formula in #9 to determine the year in which the snow pack will be zero inches (0") on March 15. [Remember that your answer will be based on 1995 being year 0. So, when you calculate the number of years using the line formula, add that number to 1995 to get the year.]. Show your calculations.