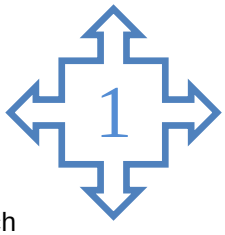
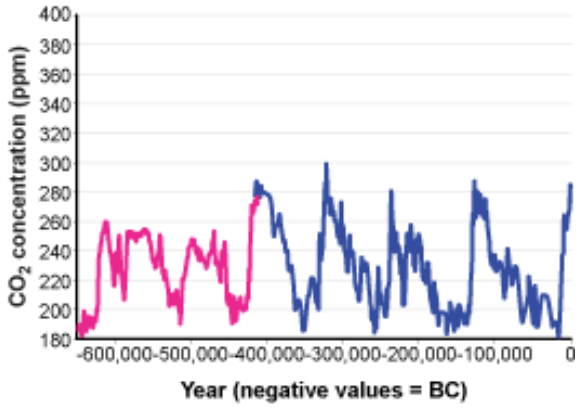
Thinking About Climate Change

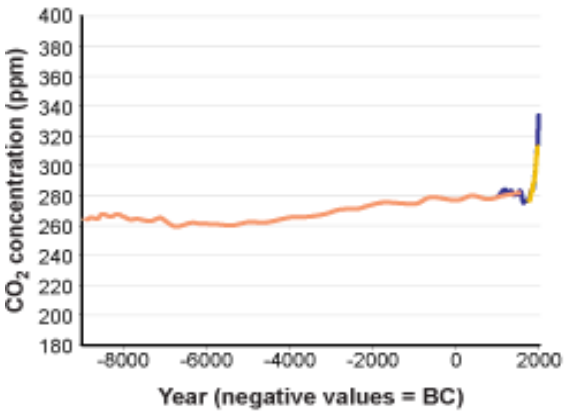
Analyzing CO_2 Concentrations Over Time



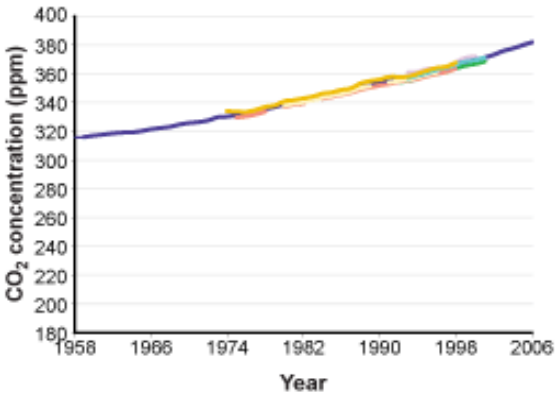
1 CO_2 concentrations 647,426 BC to 337 BC



2 CO_2 concentrations 8947 BC to 1975 AD



3 CO_2 concentrations 1959 AD to 2006 AD



1. Looking at the graphs to the left, which graph spans the longest time?

   _____

2. In each of the graphs, what is the lowest and highest value of CO_2 concentration?

Graph #	Lowest CO_2 conc.	Highest CO_2 conc.
Graph 1		
Graph 2		
Graph 3		

3. Looking at Graph #1, the data indicates that CO_2 concentration is a cycle over time. What is the approximate length of a cycle?

   _____

4. Looking at Graph #2, how much did the concentration of CO_2 increase from approximately 8,000 BC until about the year 0?

   _____

   How much of an increase per year is that?

   _____

5. Looking at Graph #2, how much did the concentration of CO_2 increase from the year 0 until 1975?

   _____

6. Looking at Graph #3, how much did the concentration of CO_2 increase from the year 1958 until 2006?

   _____

7. From this information how much is the increase per year from 1958-2006?

   _____

   The temperature keeps rising! In March of 2009 CO_2 was measured at 387 ppm!

8. On the back of this page, write two statements based on your analysis of the three graphs about the levels of CO_2 concentrations over the last 800,000 years.

NOTE: the color of the lines refers back to the published data sets that were used to construct the graphs in the original research papers.

Source: US Environmental Protection Agency (September 8th, 2009) *Atmospheric Concentrations of Greenhouse Gases in Geological Time and in Recent Years*. Accessed October 29, 2009 at http://www.epa.gov/climatechange/science/recentac_majorghg.html

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Sea Grant LOUISIANA

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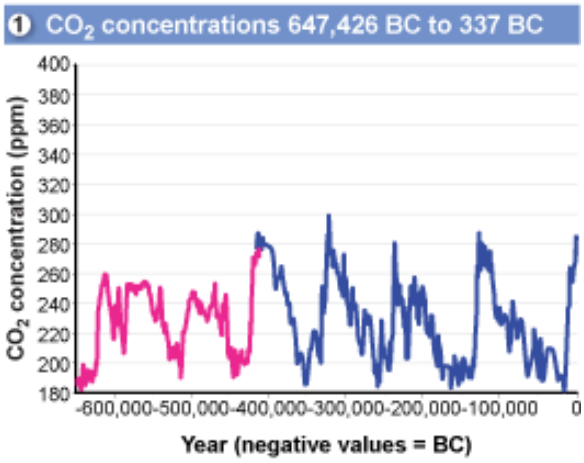

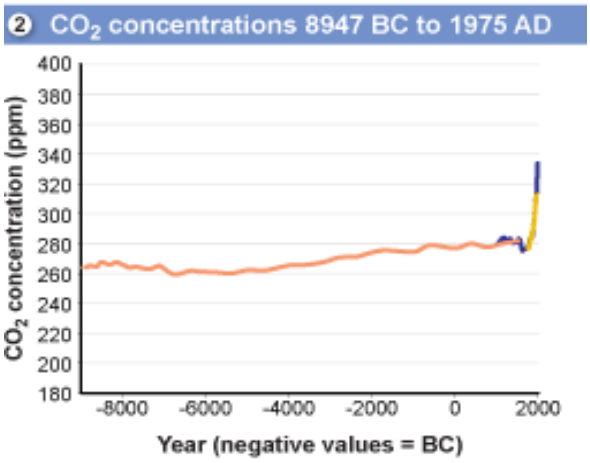

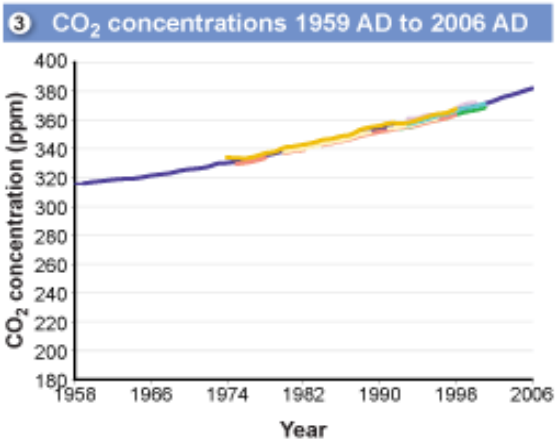

1. Looking at the graphs to the left, which graph spans the longest time?
   The top graph, Graph #1

2. In each of the graphs, what is the lowest and highest value of CO2 concentration?

Graph #	Lowest CO_2 conc.	Highest CO_2 conc.
Graph 1	**180 ppm**	**300 ppm**
Graph 2	**260 ppm**	**335 ppm**
Graph 3	**315 ppm**	**385 ppm**

3. Looking at Graph #1, the data indicates that CO_2 concentration is a cycle over time. What is the approximate length of a cycle?
   The cycle lasts about 100,000 years.

   How much of an increase per year is that?
   An increase of 0.0025 ppm/yr.

4. Looking at Graph #2, how much did the concentration of CO_2 increase from approximately 8,000 BC until about the year 0? **It increased from 260ppm to 280 ppm or an increase of about 20 ppm.**

   How much of an increase per year is that?
   An increase of 0.0025 ppm/yr.

5. Looking at Graph #2, how much did the concentration of CO_2 increase from the year 0 until 1975?
   It increased from 280 ppm to 325 ppm or an increase of about 45 ppm.

6. Looking at Graph #3, how much did the concentration of CO_2 increase from the year 1959 until 2006?
   It increased from 315 ppm to 380 ppm or an increase of about 65 ppm.

7. From this information how much is the increase per year from 1958-2006? **An increase of1.4 ppm over 48 years.**

   The temperature keeps rising! In March of 2009 CO_2 was measured at 387 ppm!

8. On the back of this page, write two statements based on your analysis of the three graphs about the levels of CO2 concentrations over the last 800,000 years.
   CO_2 concentration is cyclical and lasts about 100,000 years. The CO_2 concentration is the highest it has been (380 ppm) in the last 800,000 years.

Source: US Environmental Protection Agency (September 8th, 2009) *Atmospheric Concentrations of Greenhouse Gases in Geological Time and in Recent Years*. Accessed October 29, 2009 at http://www.epa.gov/climatechange/science/recentac_majorghg.html

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