

### Trends in Atmospheric CO<sub>2</sub> Levels

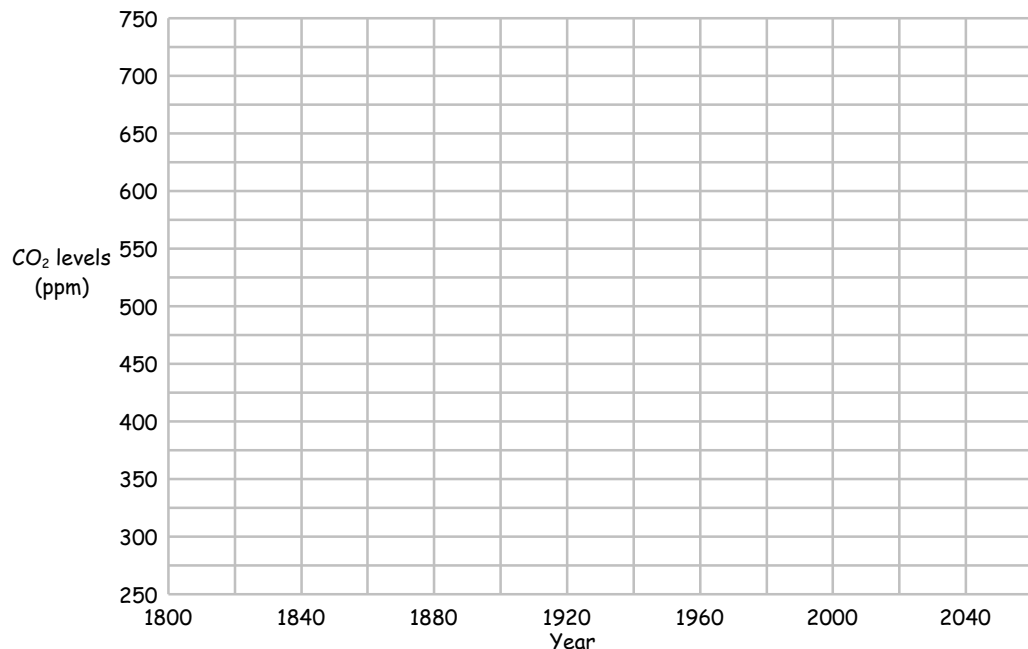
The data table below shows the concentration of CO<sub>2</sub> gas in ppm measured in the air. Beginning in 1960, scientists at the Mauna Loa Observatory have been measuring this concentration by taking air samples. The data for the years prior to 1960 was collected through samples of ice in the Antarctic glaciers. (Remember, CO<sub>2</sub> is soluble in water and thus gets trapped in precipitation when it falls to earth. The carbon dioxide measurements were made by analyzing gas bubbles trapped within the ice).

Year	CO <sub>2</sub> level (ppm)
1800	283
1820	284
1840	285
1860	286
1880	291
1900	297
1920	303
1940	309
1960	317
1965	320
1970	326
1975	331
1980	339
1985	346
1990	354
1995	361
2000	369
2001	371
2002	373
2003	376
2004	377

Answer each question using the data to the right. Show all work and use complete sentences.

This data and more is available at: <http://cdiac.esd.ornl.gov/ftp/trends/co2/maunaloa.co2>

- Plot this data on the graph below and draw a smooth curve to show the trend among the plotted points.



- Assuming the trend in your smooth curve will continue, *extrapolate* your line to the year 2050.
- What does your graph indicate about the general change in CO<sub>2</sub> levels since 1800?
- Based on your extrapolation, predict CO<sub>2</sub> levels for
  - Next year
  - The year 2020
  - The year 2050
- Which of your predictions from Question 4 is likely to be the most accurate? Why?
- Does your graph predict that CO<sub>2</sub> levels will double from where they were in 1900?
- Why might current CO<sub>2</sub> data for air samples be different if they are collected at different places around the world? Explain