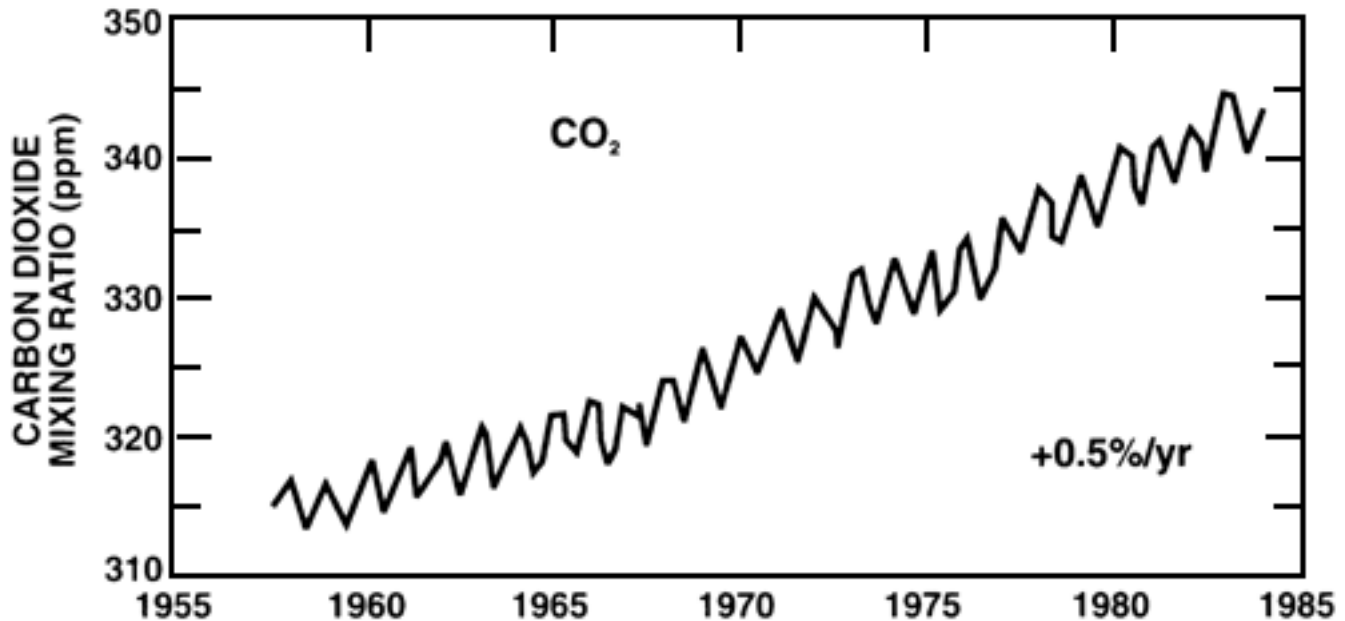


The Change in Carbon Dioxide Levels



Introduction

The graph above shows how the level of carbon dioxide in the atmosphere changed in the last half of the 20th century. (The units are ppm, or parts of CO₂ per million molecules of air)



With a ruler, draw a straight line across the graph (from the lower left to the upper right) that follows the basic trend of the points. Notice that some of the points on the graph will be above and some below the line you have drawn. The line can be represented by a linear equation:

$$y = mx + b$$

What are the values for the slope "m" and the intercept "b" of this line?



Displaying Data

First determine "m". Pick two points along the line that you have drawn. Use them to determine the slope of the line you have drawn. The slope is equal to the change in carbon dioxide level divided by the difference in years.

Next use one of the points on your line as "x" and "y". With these two values and the "m" you have calculated, determine the value of "b".

$$b = y - mx$$

Use your equation to predict the value of carbon dioxide in the year 2005.



Analyzing Data

Study the graph above again. This time describe how the carbon dioxide level varies around the straight line you have drawn.

How often does the level rise above your line? _____

How often does it fall below your line? _____

Make a hypothesis about what causes the carbon dioxide level to change each year. Then complete the "Seasonal Changes" activity for another explanation about the variation.