

PRESENTING DATA

ORGANIZATION & ANALYSIS OF DATA

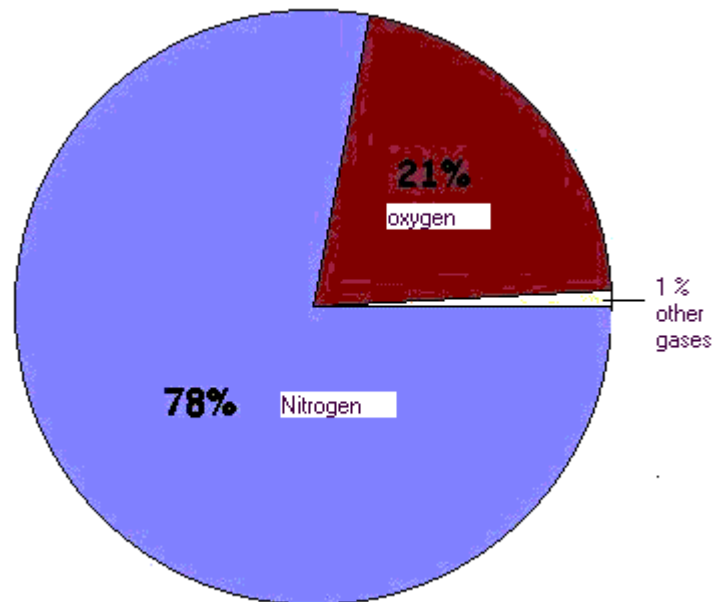
- When looking at results it is important to have a data collection method which is objective, well organized, and easy to follow.
- Methods of organizing the data - **charts, graphs, and drawings**
- It is important to collect this data in an **unbiased manner**, so the results of the experimental question posed may be properly assessed.

REPRESENTING THE DATA

- The **type of graph** used to represent the data will depend on the **kind of data** collected.

Pie graphs are great for displaying parts of a whole. The pie graph below displays the percentage of gases in our present day Earth atmosphere

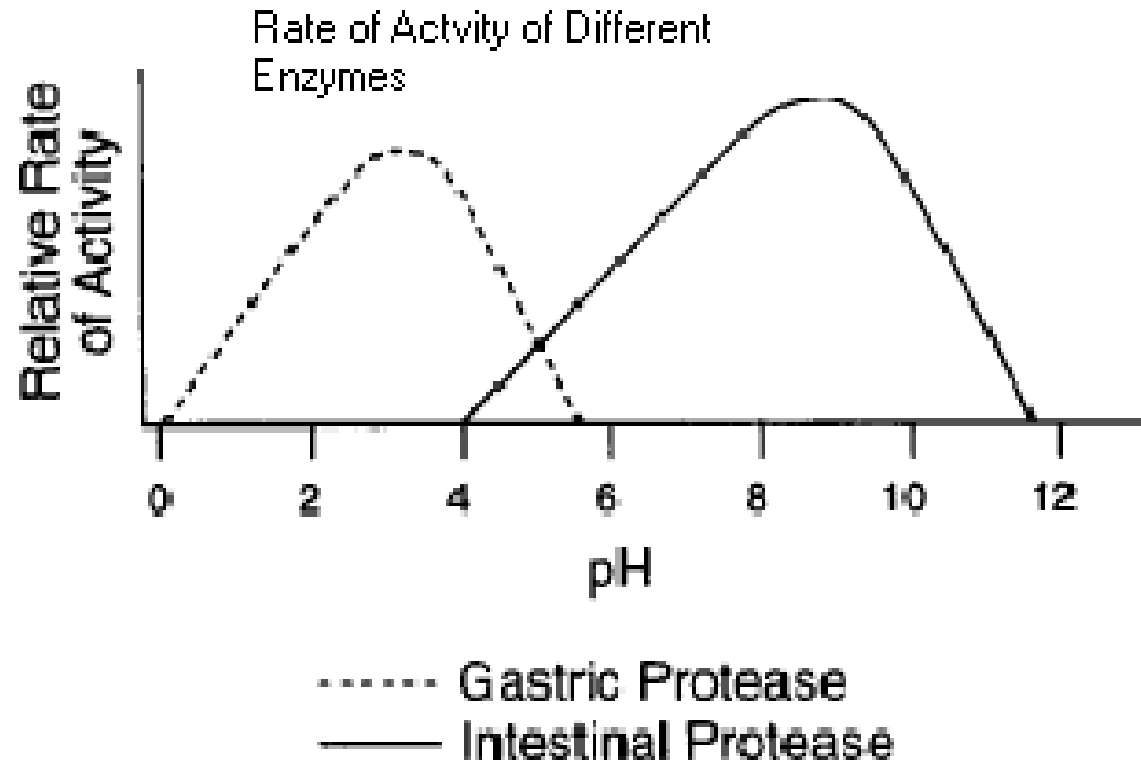
Present Day Atmosphere Composition



LINE GRAPHS

- **Line graphs** are used to compare different sets of related data or to "predict" data that is not directly measured.
- Line graphs may be also used to **predict data** between two plotted points on the graph.

ONE COULD USE THE GRAPH ABOVE TO DETERMINE THE RELATIVE RATES OF ACTIVITY OF GASTRIC PROTEASE AND INTESTINAL PROTEASE ARE EQUAL AT PH 5.0. ONE COULD ALSO DETERMINE THAT THE ACTIVITY OF INTESTINAL PROTEASE STOPS AT A PH OF 12.



TECHNIQUE FOR CONSTRUCTING A LINE GRAPH

■ 1. Identify the variables to be plotted

independent variable -- the variable manipulated by the experimenter

--is plotted on the x-axis (horizontal axis)

dependent variable -- the factor responding to changes in the independent variable

-- is plotted on the y-axis (vertical axis)



2. **Determine the scale** of the axes

- determine each axis individually

- may easily be determined by taking the largest value to be plotted

 - and dividing by the number of blocks and then rounding up to the

 - nearest convenient number

- the graph should be spread to occupy the most available space

- 3. **Number and label each axis** indicating the appropriate units.
- 4. **Plot** each data value on the graph with a point.
- 5. **Draw a line** that best fits the data points.

-- do not connect data points to the origin unless there is data to support this

-- if possible, do the graph of experimental data as a "best fit" line for the points which have been plotted.

- 6. **Provide a title** which clearly indicates what the graph is about.
- 7. If the graph has more than one set of data, **provide a key** to indicate what is represented by the different lines.

BAR GRAPHS

- **Bar graphs** provide another way of organizing data. It allows the taking of several measurements of different items and then making a comparison of them.

