

Collecting and Organizing Data

Directions: Watch the video on variables and graphing, then read this packet and complete the steps in the boxes. The work you do will mostly be done on the white sheet you get with the packet.

X Axis



The horizontal or X axis is where the INDEPENDENT variable is graphed.

- Look at the graph of flight #1210 on the next page, time is the independent variable so it is graphed on the X axis.

- Find the X axis on the seed growth graph and TRACE IT with blue.

Y Axis



The DEPENDENT variable is graphed on the vertical or Y axis. The data you collect in your lab experiment relates to the dependent variable.

- Look at the graph of flight #1210 graph on the next page, altitude is the dependent variable.

- Find the Y axis on the seed graph and TRACE IT with red.

Labels

The labels on the graph explain WHAT was measured during the experiment.

- Look at the graph of flight #1210. Time is the label for the independent variable and the label for the dependent variable is altitude

** Notice, both words are CAPITALIZED.

- Find the label for the independent variable on the seed graph and circle it with purple.
- Find the label for the dependent variable on the seed graph and circle it with orange.

Units

The units on each axis of the graph show HOW the variables were measured.

- Look at the graph and data table for flight #1210. The units are feet and hours.

** Notice, the unit for each variable is placed in parenthesis.

- Find the unit for the independent variable on the seed graph and put a brown rectangle around it.
- Find the unit for the dependent variable on the seed graph and put a green rectangle around it.

Title

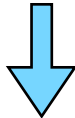
The title of a graph gives clues to what the graph means. BOTH the independent and dependent variable need to be included in the title of the graph. If the data table you construct should have the same title as well. The words in the title are capitalized, just as you would for a book title.

Averages

Many times when you collect data you will do several trials of the experiment. When you do this you will need to find the average by adding the number for each trial then dividing by the number of trials. For example, in the seed growth data add the trials for 0° Storage $2 + 1 + 2 + 3 = 8$. Then divide by the number of trials (4) $8 \div 4 = 2$.

- Find the average for each trial on the seed growth data table and fill them in.

SAMPLE DATA TABLE



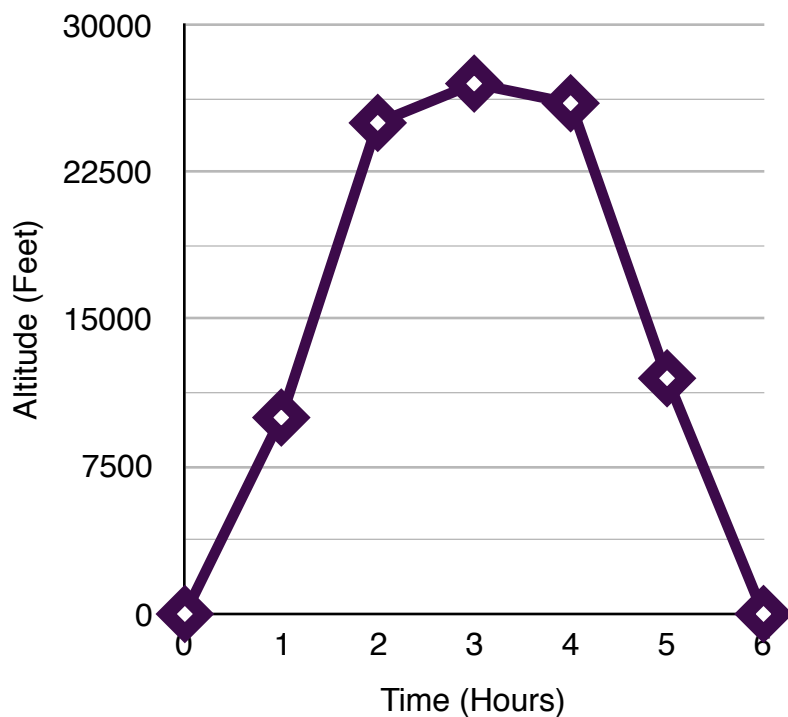
Altitude of Flight #1210
from Takeoff to Landing

Time (Hours)	Altitude (Feet)
0	0
1	10,000
2	25,000
3	27,000
4	26,000
5	12,000
6	0

SAMPLE GRAPH

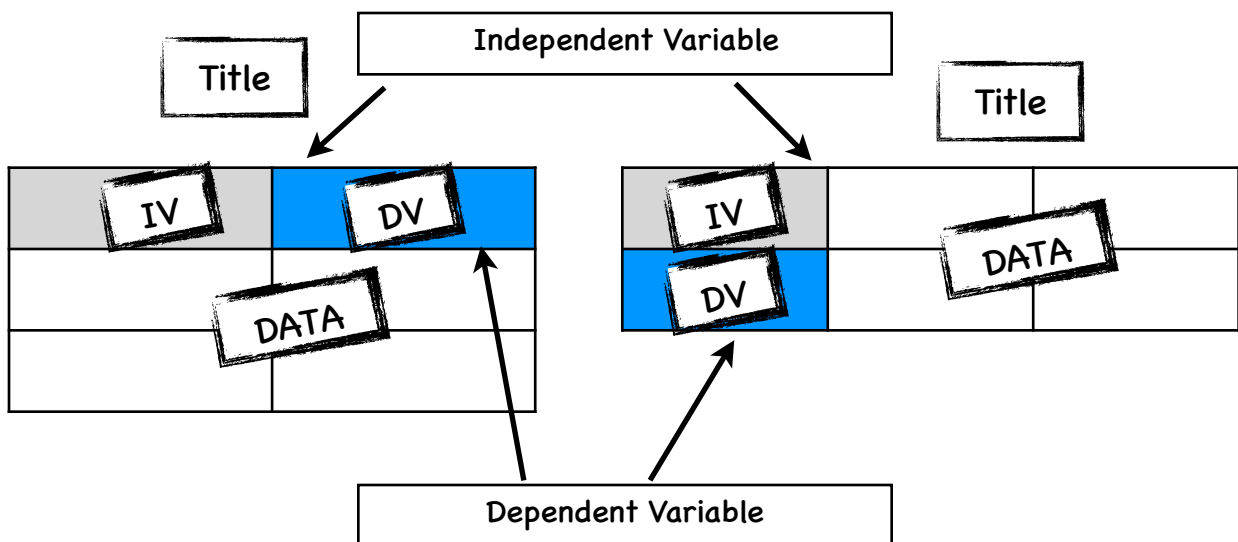


Altitude of Flight #1210 from
Takeoff to Landing



How to Construct a DATA TABLE

- **Independent Variable:** in a data table the independent variable is located on the left or top of the table.
 - ∂ The independent variable is the label (what was measured) you put into the top left box of the data table.
 - ∂ Include the unit (how the variable was measured) for the independent variable in parenthesis after the label.
- **Dependent Variable:** in a data table the dependent variable is located on the right or bottom of the table.
 - ∂ The dependent variable is the label (what was measured) you put into the top right or lower left box of the data table.
 - ∂ Include the unit (how the variable was measured) for the dependent variable in parenthesis after the label.
- **Title:** The title of a graph and data table are the same, and should always include both the independent and dependent variables.
- **Data:** Data is the measurements or observations of the dependent variable that are recorded during the investigation.



Sample Data Table

Both data tables below showing the same information but in different formats. Identify each part of the data table.

Time (days)	Plant Height (cm)
5	2.4
10	3.6
15	4.3
20	5.1
25	6.3

Time (days)	5	10	15	20	25
Plant Height (cm)	2.4	3.6	4.3	5.1	6.3

Independent Variable Label _____ Unit _(_____)

Dependent Variable Label _____ Unit _(_____)

First set of data recorded in the table _____

Which would be a good title for these data tables?

- _____ Plant Height
- _____ The Growth of a Plant over Time
- _____ Time of Plants
- _____ The Growth of a Plant