

## How To Construct a Line Graph On Paper

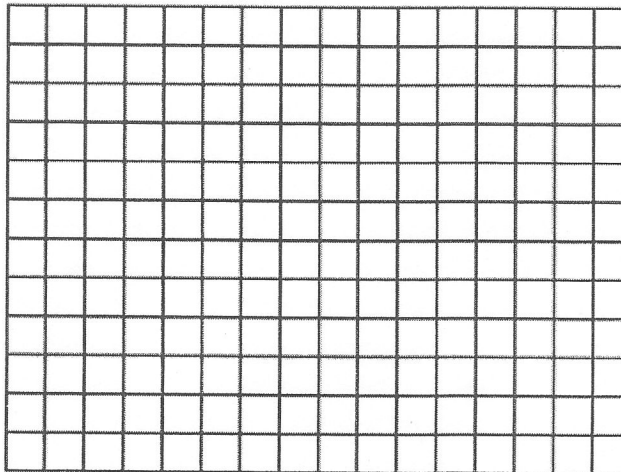
Step	What To Do	How To Do It
1	<b>Identify the variables</b>	a. Independent Variable - (controlled by the experimenter) <ul style="list-style-type: none"> <li>• Goes on the X axis (horizontal)</li> <li>• Should be on the left side of a data table.</li> </ul> b. Dependent Variable - (changes with the independent variable) <ul style="list-style-type: none"> <li>• Goes on the Y axis (vertical)</li> <li>• Should be on the right side of a data table.</li> </ul>
2	<b>Determine the variable range.</b>	a. Subtract the lowest data value from the highest data value. b. Do each variable separately.
3	<b>Determine the scale of the graph.</b>	a. Determine a scale, (the numerical value for each square), that best fits the range of each variable. b. Spread the graph to use MOST of the available space.
4	<b>Number and label each axis.</b>	<ul style="list-style-type: none"> <li>• This tells what data the lines on your graph represent.</li> </ul>
5	<b>Plot the data points.</b>	a. Plot each data value on the graph with a dot. b. You can put the data number by the dot, if it does not clutter your graph.
6	<b>Draw the graph.</b>	a. Draw a curve or a line that best fits the data points. b. Most graphs of experimental data are not drawn as "connect-the-dots".
7	<b>Title the graph.</b>	a. Your title should clearly tell what the graph is about. b. If your graph has more than one set of data, provide a "key" to identify the different lines.

### Practice Example

Age of the tree in years	Average thickness of the annual rings in cm. Forest A	Average thickness of the annual rings in cm. Forest B
10	2.0	2.2
20	2.2	2.5
30	3.5	3.6
35	3.0	3.8
50	4.5	4.0
60	4.3	4.5

The thickness of the annual rings indicate what type of environmental situation was occurring at the time of its development. A thin ring, usually indicates a rough period of development. Lack of water, forest fires, or a major insect infestation. On the other hand, a thick ring indicates just the opposite.

- A. Make a line graph of the data.



1. What is the dependent variable?
2. What is the independent variable?
3. What was the average thickness of the annual rings of 40 year old trees in Forest A?
4. Based on this data, what can you conclude about Forest A and Forest B?
5. How are data tables similar to graphs?