

Scatterplots-Linear

It has been reported that a child's height can be used to predict head circumference. Data from 10 children are given below.

Height (in inches)	Head Circumference (in inches)
25.2	16.4
25	16.8
25.75	16.9
27.5	17.4
26.5	17.2
26.5	17.3
27	17.5
27.75	17.7
26.5	17.3
26.25	17.2

1. Enter the data into your calculator.
 - a. Explain why it does not matter if the height values are listed in order.
 - b. Explain why it is necessary to make sure a height measurement matches up to its corresponding head circumference measurement.

2. Graph the scatterplot.
 - a. What should be graphed on the x - axis?
 - b. What should be graphed on the y - axis?
 - c. Why would you make these choices?

3. Describe the trend you see.

4. Use your calculator to get a line of best fit.
 - a. Interpret what the slope means.

 - b. Does the y - intercept have a real world meaning for this problem?

5. Use your line of best fit to predict the head circumference of a child that is 26 inches in length.

6. Why wouldn't you want to use the line of best fit to predict the head circumference of a child that is 35 inches in length?

Keystrokes for the *fx-9750G Plus*

From the Main Menu, press 2 for STAT.

If there are data in List 1 and List 2, follow these directions:

- Press F6 (make sure that the highlighted cell is in List 1 by pressing the right/left/up/down arrow).
- Press F4 (delete all) then press F1 (yes).
- Repeat this process for List 2 if necessary.

Enter Data:

- Type the height data in List 1
1
(With appropriate cell highlighted, type numerical value then EXE to store.)
- Use the right arrow key to go over to List 2 and then type in the circumference data.
- Make sure your data is matched up correctly and that you have 10 entries in both List 1 and List 2.

	List 1	List 2	List 3	List 4
1	25.2	16.4		
2	25	16.8		
3	25.15	16.9		
4	27.5	17.4		
5	26.5	17.2		

25.2

SR← [SR←] [DEL] [DEL] [INS] |

Graph the scatterplot:

- Press F6 (more) and then Press F1 (graph).
- Press F6 (set) to set up your graph.
- Press down arrow key to XList then press F1 (List 1).
- Press down arrow key to Ylist then press F2 (List 2).
- The frequency should be 1 and you can choose the type of mark you would like to make.

```
StatGraphI
Graph Type : Scatter
XList      : List1
YList      : List2
Frequency  : 1
Mark Type  : *
```

GPPI GPPI GPPI

- Press EXIT and then F1 for Graph 1.

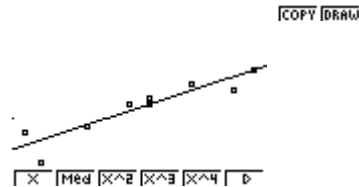


To get the line of best fit:

- Press F1 (x) to find a linear regression line

```
LinearReg
a =0.3864598
b =6.96339351
r =0.92048096
r^2=0.84728521
y=ax+b
```

To see the line of best fit with the data:



- Press F6 (Draw)

