

Record Data on Nspire handheld

1. Press $\left[\text{New} \right]$ $\left[6 \right]$ to create a new document. Select 3: Add Lists & Spreadsheet.
2. Label column A **people** to represent the number of people and column B **time** to represent length of time in seconds.

3. Cursor to cell A1, and enter a 1; at cell A2 enter a 2. Cursor to A1 and press $\left[\text{Caps} \right]$ and $\left[\downarrow \right]$ simultaneously. Cells A1 and A2 will be highlighted. Press $\left[\text{Menu} \right]$ $\left[3 \right]$ $\left[3 \right]$ for 3: Data, 3: Fill Down and press $\left[\text{Enter} \right]$. Press the $\left[\downarrow \right]$ and highlight cells A3 thru 10 and press $\left[\text{Enter} \right]$ $\left[\text{Esc} \right]$.

A	people	B	time	C	D
1	1		2.37		
2	2		5.02		
3	3		6.68		
4	4		9.37		
5	5		12.72		

Below the table, the status bar shows: B1 2.37

4. Cursor to column B and enter the time data from the table. (*The data in the screenshot above is an example.*)

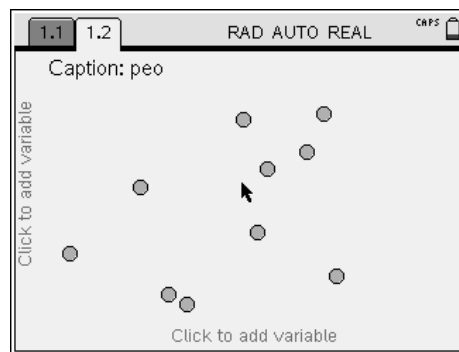
Graph Data

There are two methods available on the Nspire to graph a scatter plot.

The first method uses the Data & Statistics Application.

1. Press $\left[\text{New} \right]$ and select 5: Add Data and Statistics.
2. Using the NavPad, cursor to the bottom of the screen and press $\left[\text{Enter} \right]$. A popup window will appear. Select the appropriate heading for the axis. Is this axis independent or dependent?

Explain.

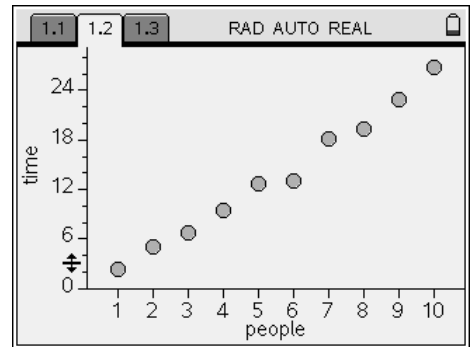


3. Repeat the above process to name the other axis. Is this axis independent or dependent? _____
- Explain.

4. A scatter plot representing the data appears on the screen. Which of the following correlations best describes the graph of your data?

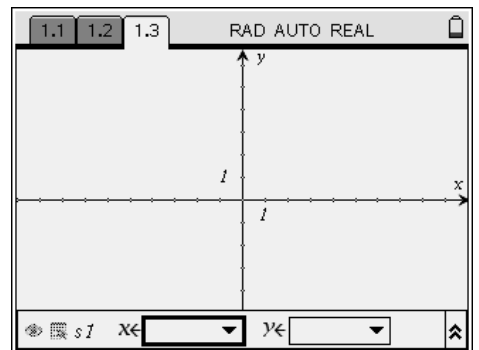
- Weak, positive correlation
- Strong, positive correlation
- Weak, negative correlation
- Strong, negative correlation,
- No correlation

Explain how you came to this conclusion.



The second method to graph a scatter plot is to use the Graphs & Geometry Application.

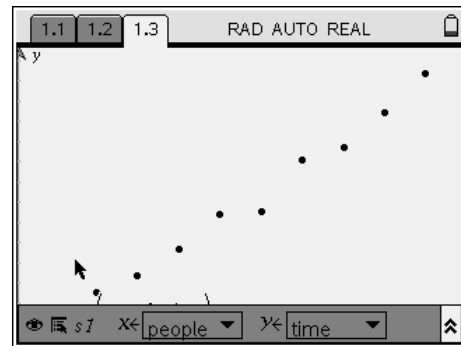
1. Press 2ND and select 2: Add Graphs and Geometry.
2. Press MENU 3: Graph Type, 4: Scatter Plot.
3. Press ENTER and the popup window appears to select the x-value. Choose the appropriate label. Repeat the process for the y-value.



4. Points appear in what quadrant on the graph? _____ Are the other quadrants needed? _____ Explain.

5. To resize the window, press  4: Window, 9: Zoom Data.



6. Does a linear relationship exist between the data sets? Explain.



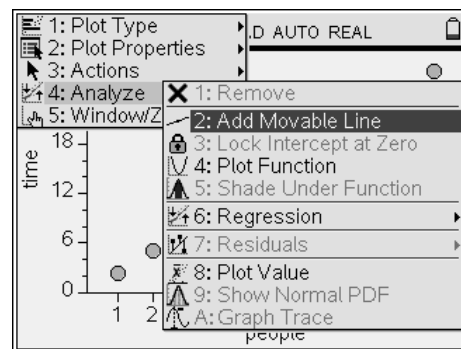
Graph a Trend Line

A trend line is a line that approximates the relationship between data sets for a scatter plot. Trend lines are used to make predictions.

1. What information do you need to draw a trend line?

2. Press  to return to Page 1.2.
Press  4: Analyze, 2: Add Moveable Line.

3. Using the NavPad, move the line so that it best fits your data points. Compare your line to a classmate's before continuing.

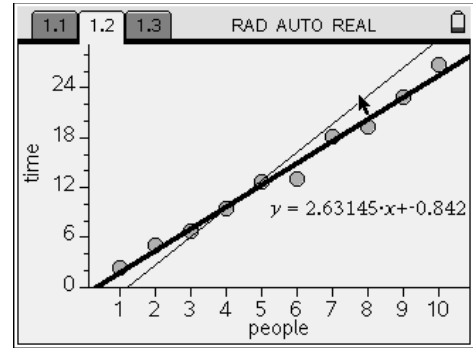


What equation do you think best fits your data?

(Hint: If you are not happy with your trend line, do you have about the same number of data points above and below the line? _____ Adjust as needed.)

Graph a Regression Line

1. Press $\text{\textcircled{menu}}$ 4: Analyze, 6: Regression, 1: Show Linear ($mx+b$). What do the m and b represent?










2. Compare and contrast your trend line with the Regression line. (The data represented at the right is an example only.)

3. Use Lists and Spreadsheets to find a Regression Line. Move to 1.1 and cursor to the last used column, Cell B1. Press $\text{\textcircled{menu}}$ 4:Statistics, 1:Stat Calculations, 3:Linear Regression ($mx+b$). Enter the appropriate X- and Y-List and $\text{\textcircled{tab}}$ \blacktriangledown to close the popup window. The Linear Regression information appears in Columns C and D.

	people	time		
				=LinRegM
2	2	5.02	RegEqn	$m*x+b$
3	3	6.68	m	2.63145
4	4	9.37	b	-0.842
5	5	12.72	r^2	0.987154
6	6	13.02	r	0.993556
D2	="m*x+b"			

4. The Nspire gives the correlation coefficient r , which tells how closely the equation models the data. What is the correlation coefficient? _____ A correlation coefficient close to 1 or -1 is good.
5. For what type of line would the correlation coefficient be close to 1? When would the correlation coefficient be close to -1?
6. What is the difference between a trend line and a line of best fit?

Make Predictions

1. Predict how long you think it would take 55 classmates to say the tongue twister?
2. Use the Regression equation to estimate the amount of time it would take 55 classmates to say the tongue twister.
3. Check your math using Store feature in the Calculator Application. Press  1: Calculator to insert a Calculator page into your document. Press      to store the number 55. Type in the right side of your Regression equation and press .
4. How close was your estimate? _____
Does it fall within the bounds of reasonableness? Turn to your partner and explain.

At this time open the file *Scatterbrained Scatterplots Student.tns* to complete a quick checkup.

Extend Your Learning

1. Begin a new document to complete the following Performance Task to be transferred to the Teacher for grading. You must include Notes, Graphs and Geometry, Lists and Spreadsheets and Calculator pages.

A standardized test contains 10 true/false questions. Draw a scatter plot that shows the relationship between the number of correct answers x and the number of incorrect answers y . Tell **ALL** you know about the graph.