

Let's Create a Scatter plot

- In this activity you will
 - collect some data
 - Enter the data in the calculator
 - Build an appropriate window
 - Set up a Scatter plot
 - Try to fit a line through the data

Are we really similar?

Collect this data to the nearest tenth of a centimeter.

Body Measurements	Your Measurement	Your Partner's Measurements	Ratio Partner/Your	Ratio as a decimal
Height				
Length of foot				
Hand Span				
Waist				
Length of Nose				
Distance between arm span				

- Enter the data for your measurements in L1
- Enter your partner's measurements in L2
- Write the ratio of your measurements to your partner's measurements in the table.
- Set the calculator to find the ratio in decimal. Set $L3 = L2/L1$.

- Does it appear that the ratio of the two measurements are similar for all the various measurements?
- Let's find the average ratio.
- From the homescreen Press 2nd STAT (LIST) and move to MATH and select 3 and complete the line by typing mean (L3)
- Press ENTER.

```

L3 OPS MATH CALC
1:min(
2:max(
3:mean(
4:median(
5:mode(
6:stdDev(
7:sum(

mean(L3)

mean(L3)
.9106316649
  
```

Setting up a Scatter Plot

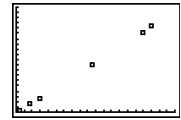
- Press 2nd PLOT (y=). Select Plot 1 and set it up as illustrated at the right.
- Press WINDOW and select values for Xmin, Xmax, etc. that fit the data.

```
Plot1 Off
Type: L1 L2 L3 L4 L5 L6 L7 L8 L9 L0
Xlist: L1
Ylist: L2
Mark: +
```

```
WINDOW
Xmin=0
Xmax=200
Xscl=10
Ymin=0
Ymax=200
Yscl=10
```

Graphing a Scatter Plot

- Press GRAPH and you should see a scatter plot of the data you entered in your calculator.
- Does the graph indicate that there is a relationship between your measurements and your partner's?



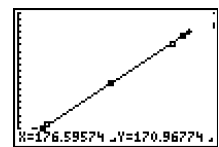
Let's fit a line to the data

- Return to the home screen.
- Set the Mode to 3 Decimal Places
- Press 2nd STAT (LIST)
 - select CALC
 - select 3. Manual-Fit
 - Enter Y1 after that command
 - using Var
 - y-Vars
 - Select y1
 - Press ENTER

```
Normal Sci
Float 012456789
Degrees Radian
Auto b/c
Autosimp Mnsimp
```

```
Manual-Fit Y1
```

- Use the cursor arrows to move to a place you want to start drawing a line
- Press ENTER
- Then use the arrows again to stretch out the line. You can move up, down, or over.
- Press ENTER.
- You can still adjust the line by using the arrows.
- Press ENTER again when you are pleased with the position of the line.



- The line is graphed and entered in a y= slot.
- Press Y= to view the equation.
- This equation can be used to predict other measurements. Your measurements are x values and your partner's measurements are y values.

```

P1 Plot2 Plot3
Y1= .975X-1.152
Y2=
Y3=
Y4=

```

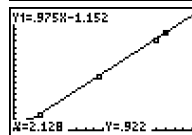
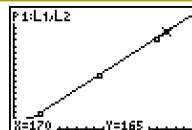
Let's Predict Some Values

Measure these body parts to complete column 2.

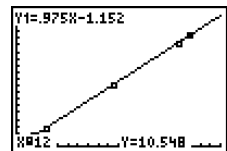
Body Part	Your Measurement	Your Partner's Measurement (Prediction)	Your Partner's Actual Measurement
Height of ear			
Height of knee from floor			
Width of shoulders			

Reading values from a graph

- Press GRAPH
- Press TRACE and notice if the top of the window indicates P1 or Y1.
- Use the Up arrow to move to Y1.
- Use the left and right arrows to move along the line.



- Press TRACE and be sure you are on Y1.
- Enter your MEASUREMENT and press ENTER
- The calculator gives you an ordered pair of numbers (your measurement, your partner's measurement)
- Complete the table of values using the graph.



Reading Values from a Table

- Press 2nd Tblset (Window)
- Set the Indpnt to ASK
- Press 2nd TABLE (GRAPH)
- Enter your measurement in the x list and the calculator uses the equation to predict the y value or your partner's measurement.

```
TABLE SETUP
TblStart=1
ΔTbl=.001
IndPnt: Auto ASK
Depend: 0.00 Ask
```

X	Y1	
1.0000	1.0548	
X=12		