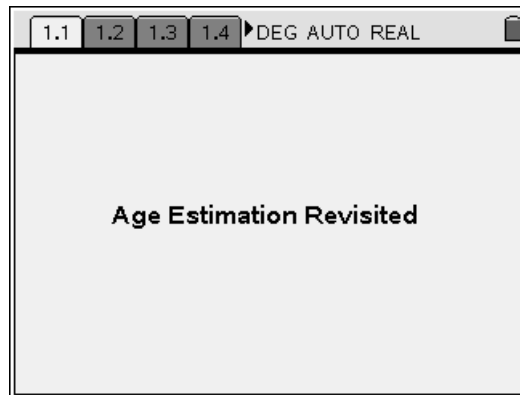


Step By Step Instructions

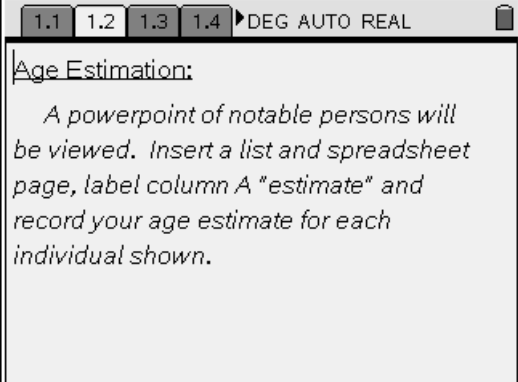
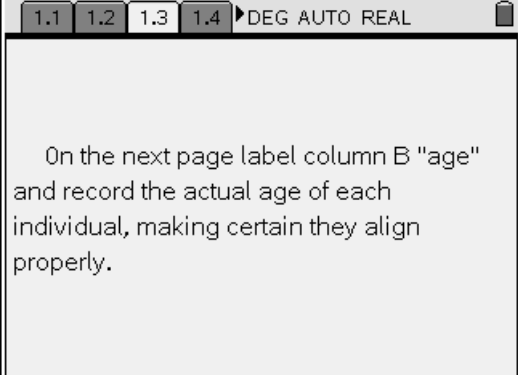
This investigation is accompanied by a power point of notable persons. Students will be using a scatter plot, linear equation, spreadsheet computations and box plot as they complete this activity.

- Download the ageppt document and link to student calculators. Note: The teacher version is agepptSOL, it includes completed calculations, functions and graphs.
- Distribute a student worksheet if you desire a hard copy of the activity.
- The TI-Nspire document allows the students to work through the investigation.
- Students should know how to construct a scatter plot and box plot using TI-Nspire technology.

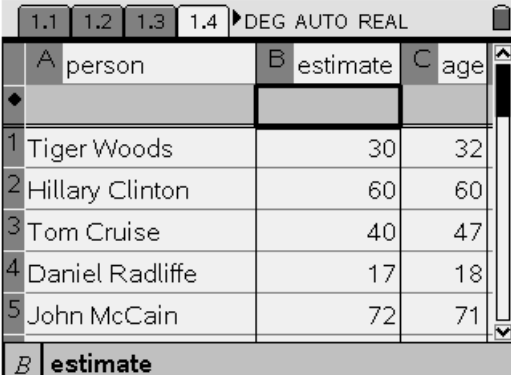
This activity is titled **Age Problem Revisited** because it is an activity that was completed earlier on the TI-83/TI-84 family; now it is revised and used on the TI-Nspire because we can present it as a very friendly workable document and we can use new features that are available.









Page 2 and Page 3

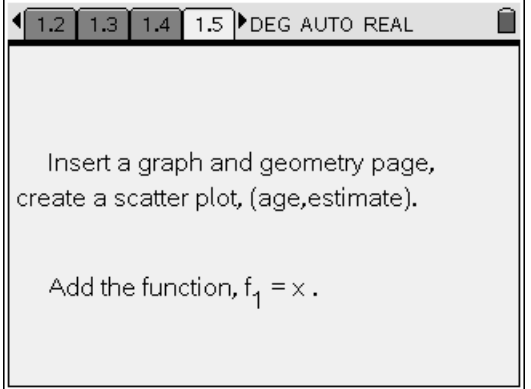
<p>Students will follow the instructions given on page 1.2</p>	 <p>Age Estimation:</p> <p><i>A powerpoint of notable persons will be viewed. Insert a list and spreadsheet page, label column A "estimate" and record your age estimate for each individual shown.</i></p>
<p>Students will follow the instructions on page 1.3</p>	 <p>On the next page label column B "age" and record the actual age of each individual, making certain they align properly.</p>

Page 4

<p>The following screen will show the results of completing pages 2 and page 3.</p>	 <table border="1"><thead><tr><th></th><th>A person</th><th>B estimate</th><th>C age</th></tr></thead><tbody><tr><td>1</td><td>Tiger Woods</td><td>30</td><td>32</td></tr><tr><td>2</td><td>Hillary Clinton</td><td>60</td><td>60</td></tr><tr><td>3</td><td>Tom Cruise</td><td>40</td><td>47</td></tr><tr><td>4</td><td>Daniel Radcliffe</td><td>17</td><td>18</td></tr><tr><td>5</td><td>John McCain</td><td>72</td><td>71</td></tr></tbody></table>		A person	B estimate	C age	1	Tiger Woods	30	32	2	Hillary Clinton	60	60	3	Tom Cruise	40	47	4	Daniel Radcliffe	17	18	5	John McCain	72	71
	A person	B estimate	C age																						
1	Tiger Woods	30	32																						
2	Hillary Clinton	60	60																						
3	Tom Cruise	40	47																						
4	Daniel Radcliffe	17	18																						
5	John McCain	72	71																						

Page 5

Students are asked to insert a graph and geometry page, create a scatter plot, , , . They will then insert the function $f_1(x) = x$, , , .



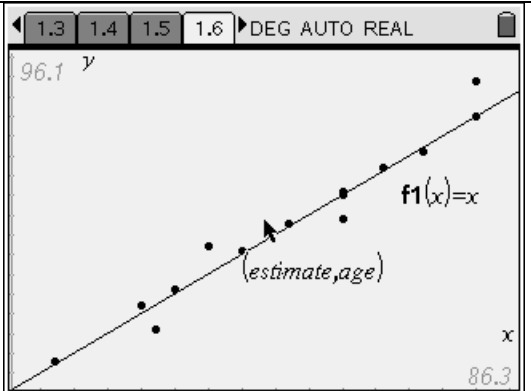
1.2 1.3 1.4 1.5 DEG AUTO REAL

Insert a graph and geometry page,
create a scatter plot, (age, estimate).



Add the function, $f_1 = x$.

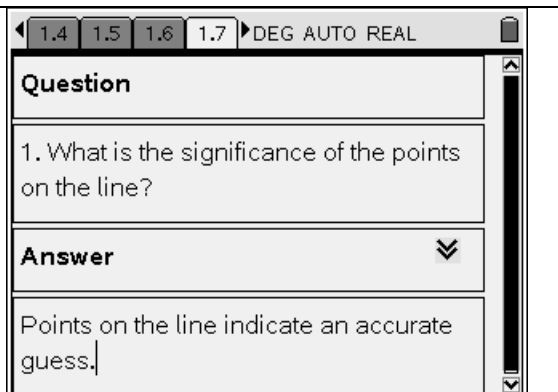
Page 6

The resulting scatter plot is shown to the right.



Page 7


Students are asked a question, they will use the   to go down to answer the question.



1.4 1.5 1.6 1.7 DEG AUTO REAL

Question

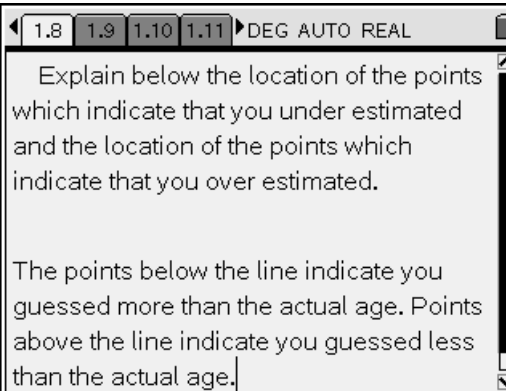
1. What is the significance of the points on the line?

Answer 

Points on the line indicate an accurate guess.

Page 8

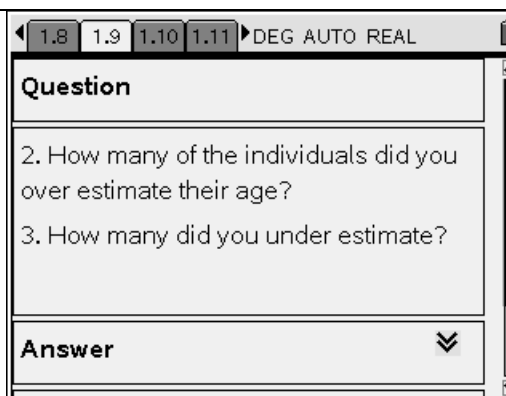
Students are asked to explain what the points above and below the line represents. They will answer this question on the same page.



TI-Nspire interface showing page navigation (1.8, 1.9, 1.10, 1.11) and a question: "Explain below the location of the points which indicate that you under estimated and the location of the points which indicate that you over estimated." Below the question, there is a text entry field containing: "The points below the line indicate you guessed more than the actual age. Points above the line indicate you guessed less than the actual age."

Page 9

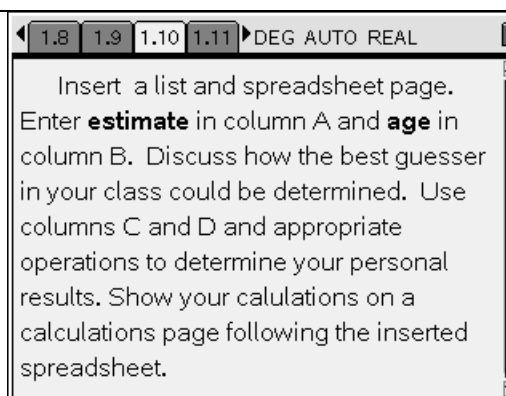
Students are asked questions which require them to interpret the meaning of the points in relationship to the line $f(x) = x$



TI-Nspire interface showing page navigation (1.8, 1.9, 1.10, 1.11) and a question: "2. How many of the individuals did you over estimate their age? 3. How many did you under estimate?" Below the question, there is an "Answer" field with a dropdown arrow.

Page 10

Page 10 is an instruction page. one of great features of the TI-Nspire is the ease of recreating a list and spreadsheet within the same document. In this case it retrieves **age** and **estimate** lists and we are ready to continue.



TI-Nspire interface showing page navigation (1.8, 1.9, 1.10, 1.11) and an instruction: "Insert a list and spreadsheet page. Enter **estimate** in column A and **age** in column B. Discuss how the best guesser in your class could be determined. Use columns C and D and appropriate operations to determine your personal results. Show your calculations on a calculations page following the inserted spreadsheet."

Page 11

This page shows the spreadsheet and the added columns. Column C was created by entering **= age – estimate** in the formula space and titling the column **dif**. Column D is titled **pos**, the formula entered **= abs(dif)**, as we needed to reflect only positive differences the **estimate** was from the **age**.

	A estimate	B age	C dif	D po	E
1		30	32	2	2
2		60	60	0	0
3		40	47	7	7
4		17	18	1	1
5		72	71	-1	1

Page 12

This page shows the difference in averages that would occur if the **sum(dif)** was averaged rather than **sum(pos)**. Students should realize that differences from the actual the age “cancel” each other out if positive And negatives are in the list when The sum is taken. Recall decimal Form is obtained by

<u>sum(dif)</u>	7
16	16
<u>sum(pos)</u>	55
16	16
<u>sum(pos)</u>	3.4375
16	

Page 13

Students are asked to record the names of their classmates and their personal estimate result in the spreadsheet on page 14. Analyze the results and determine who was the best estimator of actual ages.

On the following spreadsheet, record the names of class members in column A and their personal result in column B. Analyze the results and determine the best guesser.

Page 14

A portion of the sample spreadsheet is shown on page 14. Students' page will look different of course. They will scroll up and down the list or min(**estres**) on a calculator page to find the best estimator.

	A class	B estres	C	D	E
1	Ron	4.8			
2	Susan	2.6			
3	John	3.44			
4	James	5.8			
5	Serena	6			

Page 15

Page 15 is the question-answer form for the previous page. Always encourage students to answer in complete sentences.



Question

Who was the best guesser? Explain.

Answer ▾

Don was the best guesser because his average was the lowest.

Page 16

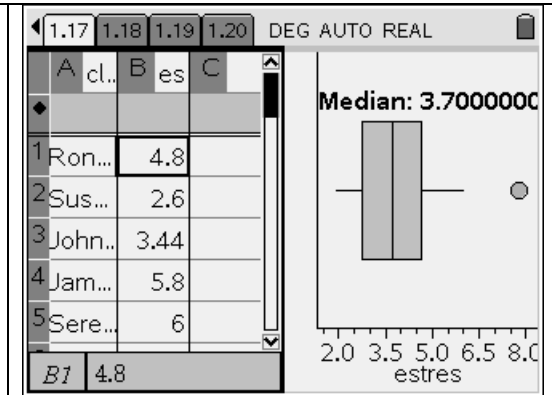
Students will now be asked to create a box plot of the class results. They will ,  to insert a list and spreadsheet. They will type in the title of the lists in columns A and B. The columns automatically fill.





Create a box plot of the class results regarding estimating abilities.

Insert a list and spreadsheet and use quick graph, box plot.

Page 17

The resulting spreadsheet and box plot are shown on page 17. The median is shown. Moving the arrow keys over the box plot will result in the median being shown on the screen.



NOTE: Students may need to review how to obtain the graph, , , , , 1. Plot Type, Box Plot, to complete page 17.

Page 18

This is the question-answer page which students will use to answer after determining the median by using the previous page.

Question

What is the median of class estimate results?

Answer

The median is 3.7.

Page 19

Page 19 offers the opportunity to answer more questions pertaining to the box plot. Note: There is a down arrow to see the rest of the answer.

Question

Are there any outliers? What is interquartile range and its meaning?

Answer

The outlier is 7.8.
50% of the averaged estimates ranged

Page 20

This page is a question-answer page. Students will find this answer by going back to the spreadsheet/box plot page.

The screenshot shows a digital interface with a navigation bar at the top containing buttons for 1.17, 1.18, 1.19, and 1.20, along with the text 'DEG AUTO REAL'. Below the navigation bar, there is a 'Question' section with the text: 'Who was the best estimator? Which data value is this result associated with?'. Below the question is an 'Answer' section with a downward-pointing chevron icon and the text: 'The best estimator was Don with 1.9. This value is associated with the'. A vertical scrollbar is visible on the right side of the content area.