**Chapter**

**1**

**Introduction**

**Use of Technology**

Statistics is a field that deals with sets of data. After the data is collected, it needs to be organized and interpreted. There is a limit to how much of the work can be done effectively without the help of some type of technology. The use of technology, such as a calculator with enhanced statistical functions, can take care of most of the details of our work so that we can spend more time focusing on what we are doing and how to interpret the results.

Technology can help us not only to store and manipulate data, but also to visualize what the data is trying to tell us. As we work with a calculator, we will be able to:

* Enter, revise, and store data.
* Perform statistical computations on stored data or entered statistics.
* Draw graphs (often called plots) based on the data, to help us to understand what useful information can be inferred from that data.

**Advantages of Using a Calculator**

There are many good statistical software packages available, such as MINITAB, SAS, and SPSS. Excel also contains many built-in statistical functions, as well as supporting plugins for statistical work. Still, for the student starting to learn statistics, it’s hard to beat the advantages of using a powerful hand-held calculator.

* It is portable and easy to use in many different work environments.
* It has battery power that lasts far longer than that of a laptop computer.
* It is less expensive than a computer.
* It is less expensive than a statistical software package.

**Advantages to Using the TI-84 Plus**

This calculator manual will focus on how to get the most out of using the TI-84 Plus calculator by Texas Instruments. The TI-83 was first released in 1996, improving upon its predecessors (the TI-81 and TI-82) with the addition of many advanced statistical and financial functions. The TI-83 Plus and the TI-84 Plus have essentially the same features as the TI-83, but with increased memory capacity and a few extra statistical features. They are powerful calculators with advanced functions, but at the same time easy to use.

* Most complicated statistical computations are handled through menus which prompt you for the necessary input.
* Data entry and revision is handled through a Statistical List Editor that is similar to a spreadsheet in how it is used.
* Statistical graphs are handled through menus and important parts of the graph can be read by tracing along with the arrow keys.
* The calculators are built sturdily and can withstand many falls off of student desks.

**Entering and Revising Data**

This chapter focuses on getting numbers into your calculator and storing them for the organization, interpretation, and analysis part of statistics. When you are not given the necessary statistics to perform calculations, you will need to enter data into the calculator to generate the statistics. We will learn how to do statistical calculations with the calculator in future chapters.

**Using the Data Editor**

The data editor in the TI-84 Plus calculator provides a convenient way to enter numbers and review them. Numbers from a data set can be stored in a list in the calculator so that we can keep numbers that are related to each other together.

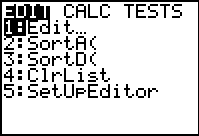
*Example: Calories Consumed*

An individual is modifying eating habits and has kept track of calories consumed for the last 10 days, as follows:

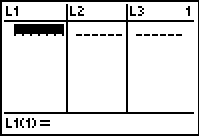
1474, 1633, 1686, 1748, 1326, 1112, 1245, 1539, 1220, 1561

If we want to do any sort of analysis on these numbers, we will need to enter them into the calculator and keep them together as a group.

**Accessing the Data Editor**

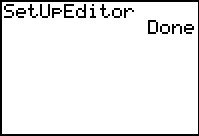
Press the key to reveal the STAT menu. 

To input data or to make changes to an existing set of data values use the data editor, which is number 1 under the EDIT menu.

Press or key if **1:** is highlighted.

**Resetting the Data Editor**

If the data editor does not show the columns labeled as L1, L2, and L3, you can reset the editor to its default settings by using the **SetUpEditor** function:

Press .

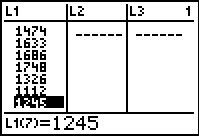
Press to paste the SetUpEditor function on the home screen**.**

Press .

Once the Editor is set up, return to the Edit function.

**Entering Data in the Data Editor**

Type in the ten calorie counts under the column labeled L1. Press the when you are done with one number and ready to move on to the next number.



Type in 1474 and press .

Type in 1633 and press .

Type in 1686 and press .

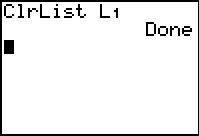
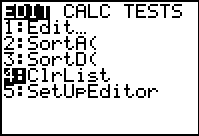
Continue this process until all data values have been entered.

Use the up and down arrow keys to move back and forth between the data values. Try changing the value of one of the entries by typing in a new calorie count.

**Clearing a List of Data Values**

After a list of data values is no longer needed, you can delete the values by using one of the following methods:

* You can highlight each data value and press . This method is slow and clears the list one data value at a time.
* You can highlight the list name, for example L1 at the top of the column, press , and then press .
* You can go to the EDIT menu and press to clear the list as follows:

Press .

Press to paste the **ClrList** function on the home screen.

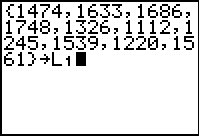
Press and then press to paste L1 immediately after the **ClrList** function.

Press . The calculator will display **Done** to confirm that the list has been cleared.

**Entering Lists Directly to the Statistical Editor List**

The home screen is where you do most of your calculator work that doesn’t involve menus. From any menu in your calculator, you can always return to the home screen by pressing and then  **()**. From the home screen, you can enter data into a list by typing it between a set of braces, { }, and separating the numbers by commas:

{1474, 1633, 1686, 1748, 1326, 1112, 1245, 1539, 1220, 1561}

Once you’ve typed the numbers into your calculator, you will want to save them for future use.

Press followed by L1, L2 or any other list. (L1 through L6 can be accessed by pressing and then **,** or , or , etc**.**)

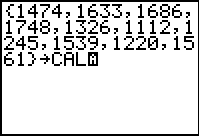
*Note*: When you press key, the screen will display an arrow pointing to the right.

Now, press .

Once you’ve store the list as L1, you can see the list by typing its name. For example, if you stored the calories in L1, typing L1 () on the home screen will display the list’s contents. (You will need to use and to see all of the list’s contents.)

**Entering Lists Directly to a Name**

You can also store data to a named list that you create. From the home screen, type the data values within braces as described above. However, instead of storing the list as L1, follow these steps to create a named list:

Press .

Press () to enable the alpha lock. Now, whenever you press a key, the alphabetical letter will display on your screen.

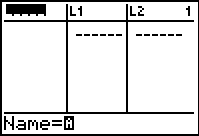
Press (**[C]**).

Press (**[A]**).

Press (**[L]**).

Press .

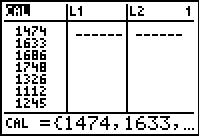
**Viewing the Named List in the Data Editor**



The data is stored as the named list CAL, but it cannot be seen in the data editor. To view the data in the data editor:

Press .

Press to enter the data editor.

Press to highlight the name at the top of one of the columns.

Press () to create a blank column.

Type the name of your new list – CAL.

*Note*: is automatically enabled.

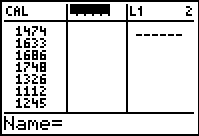
Press .

The numbers that you stored in CAL should now appear in the data editor.

**Create a Named List Within the Data Editor**

The lists L1 through L6 are good places to work with data if you do not need to save the data for later use. If you will need the data later and do not want to accidentally overwrite it, you can store the data as a named list. A list can be named with 1–5 characters. The first character must be a letter A - Z or the angle symbol θ (“theta”). The other characters can be a letter, θ, or a number 0 - 9.

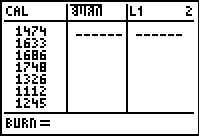
To get letters from the keyboard, press before each letter. The letters appear above and to the right of most of the keys. If you are typing several letters in a row, press (), type the letters, and then press the **ALPHA** key again to release the lock.

To create a new list named BURN within the data editor:

Press .

Press to enter the data editor.

Press to highlight the name L1 at the top of one of the columns.

Press () to create a blank column between CAL and L1.

Type the name of your new list – BURN.

*Note*: is automatically enabled.

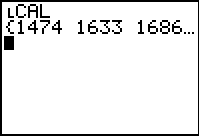
Press .

BURN should now appear at the top of the column.

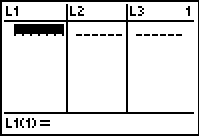
The individual also kept track of the number of calories burned by exercising for each of the last 10 days. Enter the following data into the newly named list, BURN.

{128, 37, 440, 128, 258, 486, 325, 171, 0, 529}

**Getting the Names of Lists**

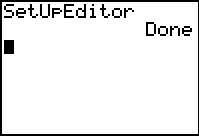
Some of the calculator commands require that you type in the name of a list.

If the name of the list is one of L1 through L6, then you can type it quickly pressing and the corresponding number key through .

If the list is a named list, you cannot just type the name of a list from the keyboard using . List names on the TI-84 Plus calculator are distinguished from the names of other variables by a small L to the left of the name. Press  () and use the arrow keys to choose one of the list names. Then press .

**Displaying Lists in the Data Editor**

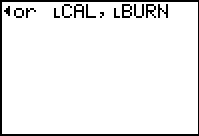
You can create custom views in the data editor to display the lists you wish to see. Begin by setting the data editor back to its default settings:

Press to paste the **SetUpEditor** function on the home screen.

Press .

Press to enter the data editor. You will see L1, L2, and L3 displayed in the data editor.

Now suppose you wish to view the CAL and BURN lists at some future time. You must change which lists are displayed in the data editor.



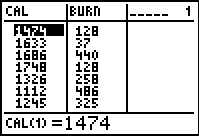
Press to paste the **SetUpEditor** function on the home screen.

Press () to enter the list menu.

Select CAL from the NAMES menu by highlighting it and pressing .

Type (comma).

Select BURN from the NAMES menu by highlighting it and pressing .

Press . The calculator will display **Done**, confirming that these lists can now be viewed in the data editor.

Press to enter the data editor. You will see the CAL and BURN lists displayed in the data editor.

**Remove a Named List Within the Statistical List Editor**

In the data, use the arrow keys , , , and to move to the name of the list to be removed. Press the **DEL** key for delete. The list disappears, but the contents of the list have not been deleted. To erase the contents of a list, highlight the name of the list and press and then . This will leave the list name in the editor and clear its entries.

**Deleting Lists to Free Up Memory**

If you store many lists, programs, etc. on your calculator, you may run out of memory. To delete lists from the calculator’s memory:

Press ().

Select **2:Mem Mgmt/Del**…

Select **4: List…** to see all of the current lists.

Move the cursor to the list that you want to delete and press .