

# Introducing Next Step Technology

## Math Concepts

- Number Properties
- Euclidean and Transformational Geometry
- Data Management and Probability

## Materials

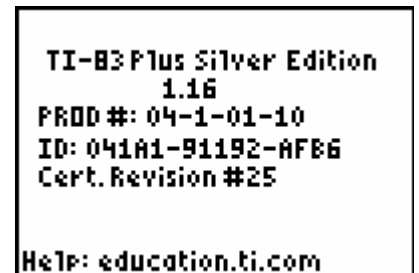
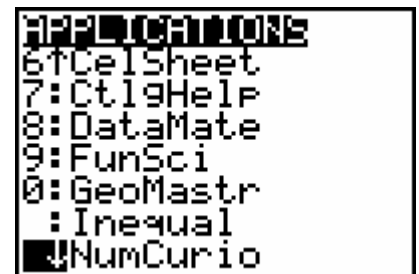
- TI-84 Plus SE
- TI-Navigator
- TI-Connect
- Guess My Coefficient
- Topics in Algebra 1

## Overview

These activities are designed to introduce institute participants to new technology which may not be part of the regular institute materials.

## Introduction

1. The TI-84 Plus Silver Edition is a graphing calculator with Flash™ Memory. This means that it is not only electronically upgradeable (its operating system can be updated, just like a desktop PC) but you can add software applications (apps).
2. You can see a list of software titles currently installed on the TI-84 Plus SE by pressing the **[APPS]** key.
3. You will need the most current operation system on your TI-84 Plus SE Explorer in order to install new apps. See the section on TI-Connect software in order to find out how to upgrade your operating system without any cost to you.
4. To see more about apps check out the following activities in your booklet and visit our web site at <http://education.ti.com/global/latest.html>
5. This documents contains the following activities:
  - Introduction to the TI-84 Plus Silver Edition
  - Introduction to TI-Navigator
  - Introduction to TI-Connect
  - Demonstrations for Guess My Coefficients and Topics in Algebra 1 Applications
  - A description of the applicable curricular materials.

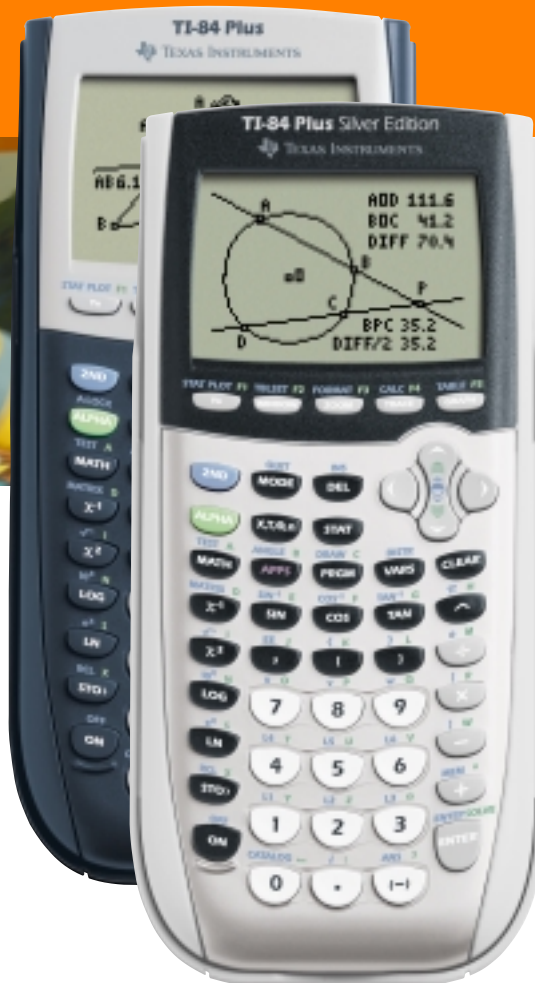




# The new TI-84 Plus family. New ways to get students thinking, interacting, connecting.



AD0376/a/US



Enhance your student's learning experience with the new TI-84 Plus and TI-84 Plus Silver Edition. How? Students can connect their TI-84 Plus to a teacher's TI ViewScreen™ panel and show their work to the entire class.\* In addition, the new TI-84 Plus and TI-84 Plus Silver Edition include a built-in USB port and cable, increased memory and popular Apps – preloaded – like Cabri® Jr.\*\*; the interactive geometry software. It's all part of TI's total solution for education, which includes the tools, training and curricular materials to help teachers and students succeed. For more information on the new TI-84 Plus family, visit [education.ti.com/84](http://education.ti.com/84).

\*Capability available summer 2004

\*\*Cabri is a registered trademark of Cabrilog

The new TI-84 Plus family,  
completely compatible with the TI-83 Plus family.

Tools

Training

Curricular  
Materials

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 TEXAS  
INSTRUMENTS

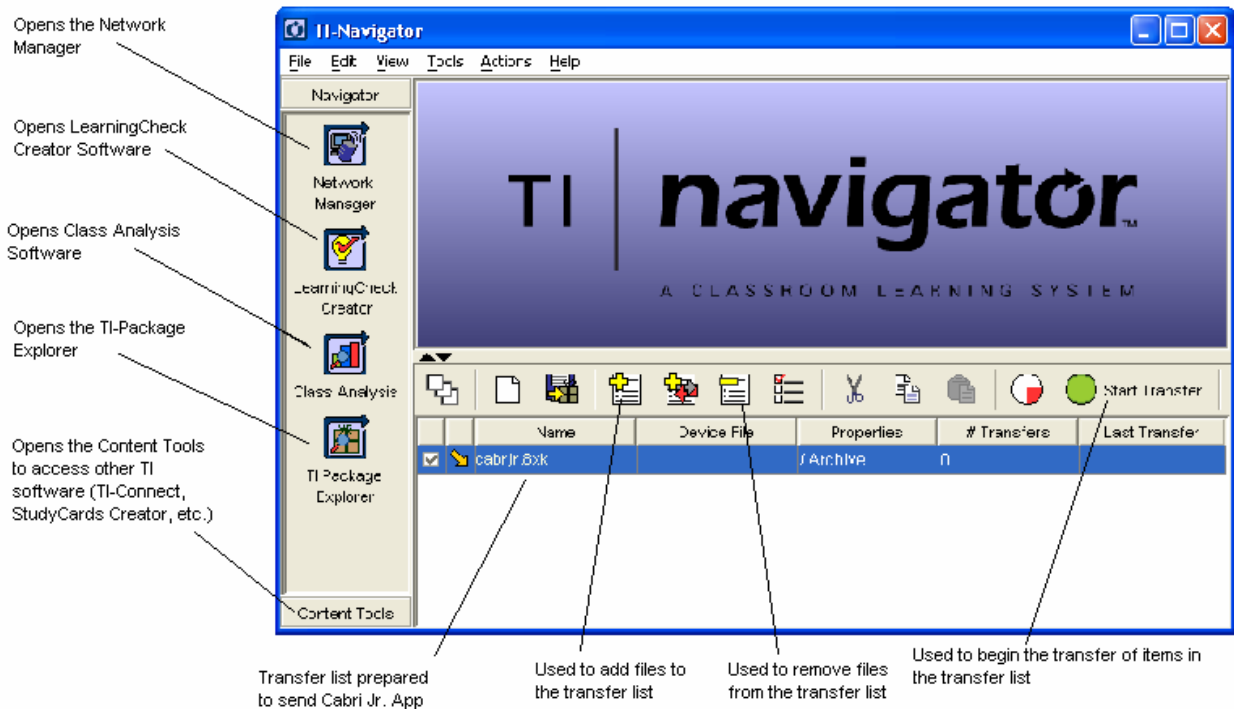
E-MAIL: [ti-cares@ti.com](mailto:ti-cares@ti.com) CALL: 1-800-TI-CARES

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## TI-Navigator Basic Skills

This section includes an introduction to some of the basic skills and functions of the TI-Navigator.

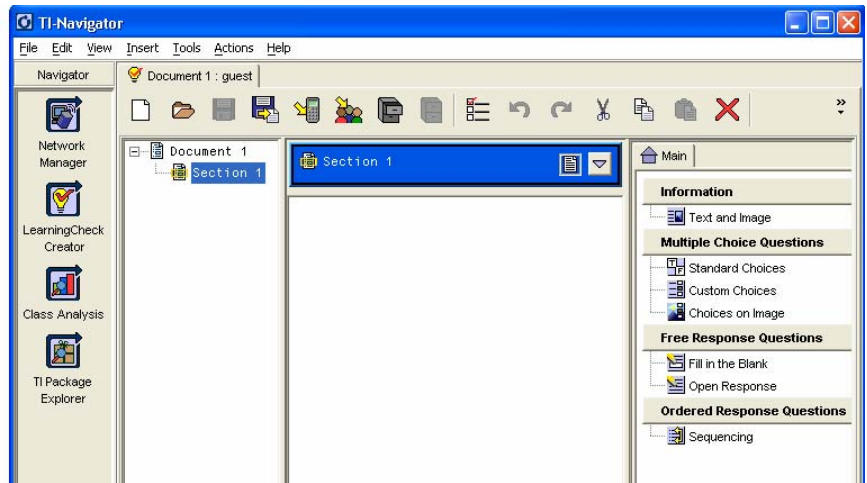


### Definitions

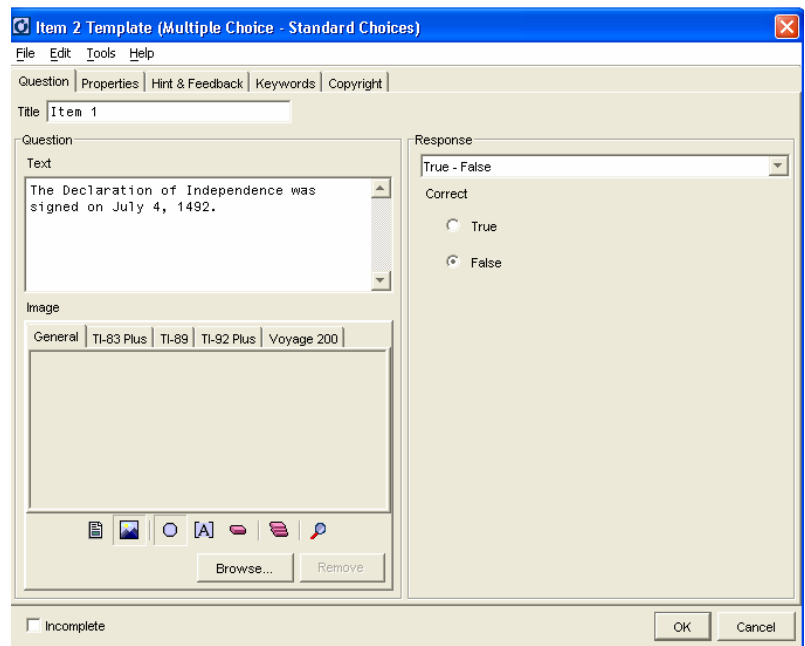
- **LearningCheck** – The student assessment component of TI-Navigator. Teachers can create educational documents including multiple-choice, fill-in-the-blank, open-response, and sequencing questions.
- **Class Analysis** – The software that is used to evaluate student work in LearningCheck. Teacher can receive complete and graded results of student work
- **Transfer List** – Any non-operating system file for a flashable TI handheld (except TI-73 families) can be simultaneously sent to or collected from all students. The transfer list shows all which files are ready to be transferred.
- **TI-Package** – Teachers can save the transfer list as a package for future classes. A TI-Package saves the files in the transfer list and compresses them to minimize storage.
- **Network Manager** – This is used to set up the communication between the teacher computer and student handhelds.

## Creating an Educational Document


Click on the Learning Check Creator software icon. There are four main categories: Information, Multiple Choice Questions, Free Response Questions, and Ordered Response Questions.

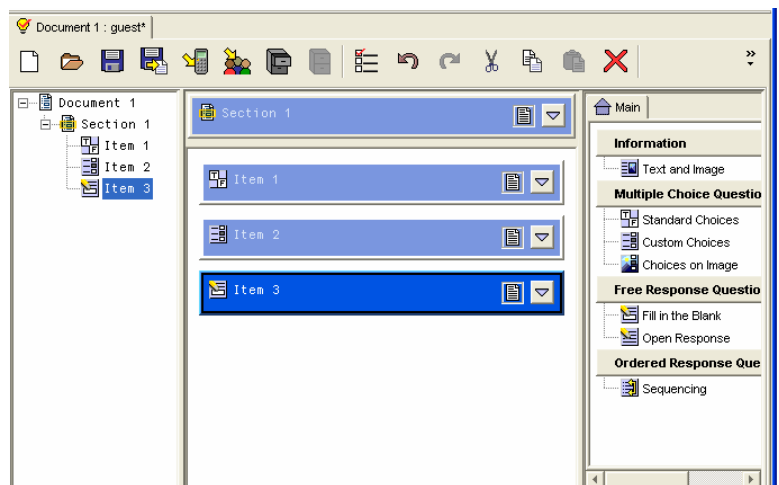


Click on the type of question desired and fill in the fields in the new window. For example to create a True/False Question click on Standard Choices. Then fill in each field with the desired information. The screen to the right shows a true/false question about the signing of the Declaration of Independence. Notice the correct answer is marked. This will be used later for grading.



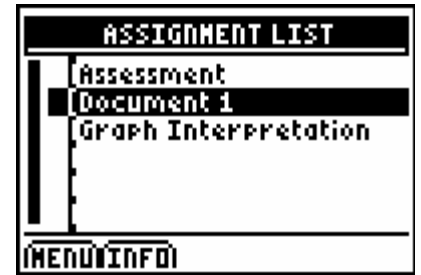
The next screen shows a three question quiz. This quiz contains a true/false question, a multiple choice question, and a fill in the blank question. To send this to the class click on the send to class

icon . All connected handhelds will now have the document and can answer the questions using the LearningCheck Application.

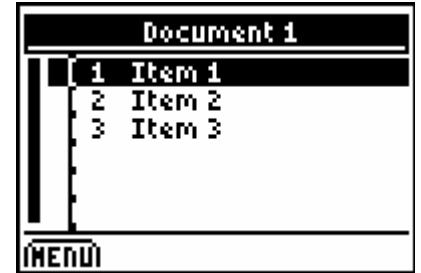


## Answering Questions Using LearningCheck

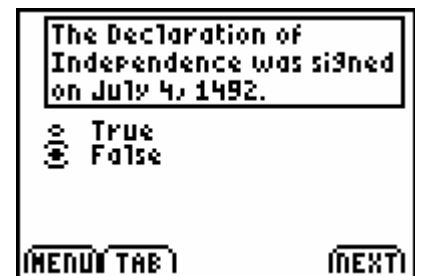
Press [APPS] and choose LearningCheck from the list of applications. After the title screen you will be asked to select an assignment. In this case the assignment is called Document 1. Select it from the list of assignment. Notice students can have multiple assignments on one handheld. After selecting an assignment students are prompted to enter their name then they begin the assignment.



The educational document is now ready for the student work. They may choose to answer questions in order or move to any item at any time. Directional arrows, soft keys (buttons below the words at the bottom of the screen, and the Enter key are the primary keys used to respond to the questions. To answer Item 1 press [ENTER].




To move the cursor to False the student must Tab between choices. To do this press [WINDOW]. This should move the cursor to the word False. To select this option press [ENTER]. This marks the student selection. To move to the next question the student may press [GRAPH].



## Collecting and Grading Student Responses

To collect and grade the student responses click on the Class Analysis icon. Then click on the collect from


class icon  and select 'Start Transfer'. This will collect and grade all the student's responses. The picture to the right shows the results for the three question quiz for ten students. This information can be saved or copied to a spreadsheet. Also the information can be examined by student or by item for a more detailed analysis.

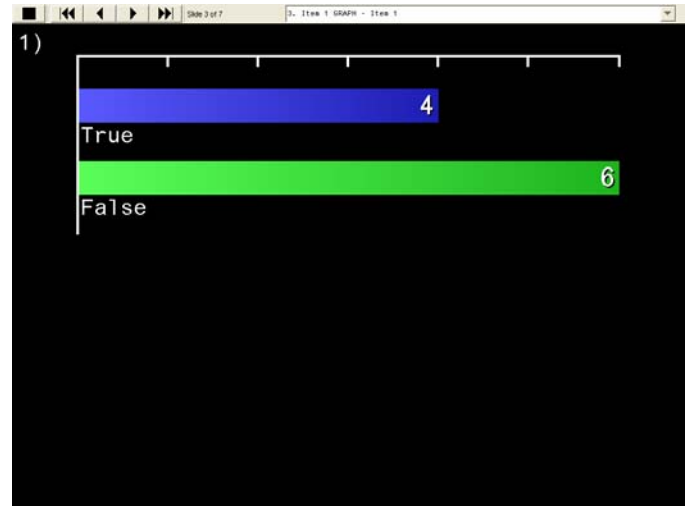
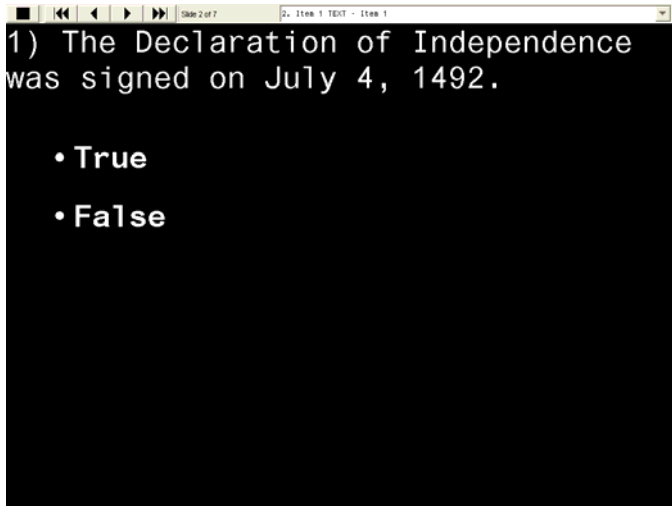
The screenshot shows a software interface with a toolbar at the top containing various icons. Below the toolbar, the 'Assignment Title' is 'Document 1'. There are three tabs: 'Class Summary', 'Student', and 'Item'. The 'Class Summary' tab is active, displaying a table with the following data:

Student	1	2	3	Score	% Score
Maximum Score	1.00	1.00	1.00	3.00	100%
ABBY	1.00	0.00	1.00	2.00	67%
BECKY	1.00	1.00	1.00	3.00	100%
COREY	1.00	1.00	1.00	3.00	100%
EMILY	0.00	0.00	0.00	0.00	0%
RENEE	1.00	1.00	0.00	2.00	67%
RUDY	0.00	0.00	0.00	0.00	0%
SALLY	0.00	1.00	0.00	1.00	33%
TORI	1.00	1.00	1.00	3.00	100%
TRACY	1.00	1.00	0.00	2.00	67%
VINCE	0.00	0.00	0.00	0.00	0%
10 Students	0.60	0.60	0.40	1.60	53%

## Sharing the Student Results with the Class


For confidentiality sake the spreadsheet of graded results should not be shown to the students. However, students can see an anonymous bar chart of

student responses. Click on the Class Results Slide Show icon . This will generate slides like the following.



Students enjoy seeing how they did compared to the class without the fear of embarrassment. Also the teacher can quickly determine if students have mastered a concept or not.

## Sending a File to the Class Using the Transfer List

There are two ways to send a file to the class. Click on the 'Add New File to Transfer List' icon  and find the file or simply 'drag and drop' the file to the transfer list. Then click on 'Start Transfer' to send the file. All handheld files except operating systems can be sent via TI-Navigator. This serves two main purposes, quickly sharing information or data and preventing or minimizing student errors.



# Taking a ScreenCapture in TI-Connect

## Concepts

- Creating

## Materials

- TI-83 Plus SE
- TI Connectivity Cable USB
- Computer
- TI-Connect Software

## Overview

This activity uses TI-Connect to capture the screen off of a handheld. This image can be saved and used in word processing documents, webpages, or other computer software.

## Taking a ScreenCapture

1. To do this activity you will need to have something on the screen of your handheld you want to capture.
2. If not already done, connect the TI Connectivity Cable USB to the computer via the USB port. Also connect the other end of the cable to the communication port of the handheld.
3. Open the TI-Connect software by double clicking the icon in figure 1.
4. The TI-Connect software will open as shown in figure 2.



TI Connect

Figure 1

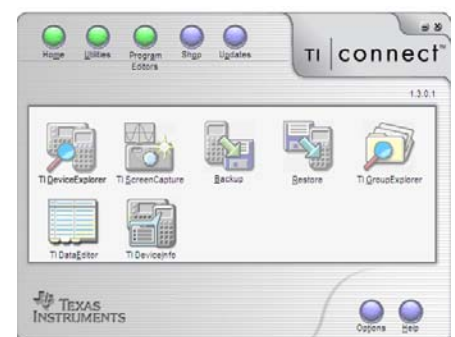
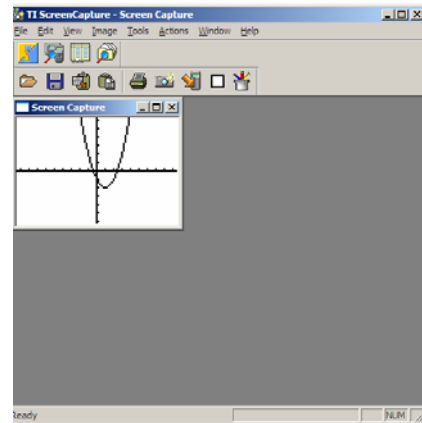


Figure 2

5. Click on TI ScreenCapture. This will pop up the screen capture window with the image of what appears on the handheld as in figure 3.
6. The image can be saved as a bitmap, a JPEG, or a TI image. Also the image can be copied and pasted into a word processor or other computer software.



**Figure 3**

# Transferring via TI Connect

## Concepts

- Transferring an APP to and from a handheld using TI Connect

## Materials

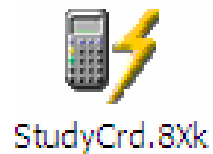
- TI-83 Plus SE
- TI Connectivity Cable USB
- TI-Connect

## Overview

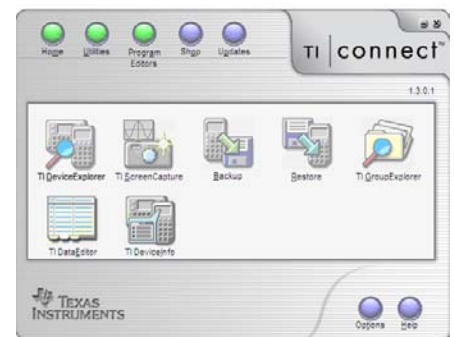
In this activity you will learn to transfer applications from a computer to a handheld and vice versa. Also note, this method will work to transfer other files as well.

## Transferring from Computer to Handheld

1. Download StudyCards from the web and save the file to your computer. The icon is shown as figure 1.
2. Open the TI-Connect software as in figure 2 (if it is not already open). Connect your handheld to the TI Connectivity Cable USB.



**Figure 1**



**Figure 2**

3. Click on TI DeviceExplorer. This will open a window displaying the contents of your handheld as in figure 3.
4. Click on the icon for StudyCards on the desktop and drag it to the TI DeviceExplorer window in figure 3. This will begin the transfer of StudyCards from the computer to the handheld. This process works for any handheld file.

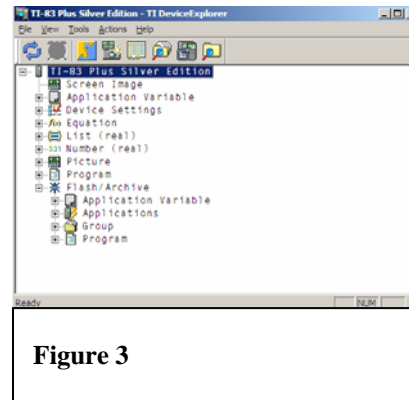


Figure 3

### Shortcuts for Sending to the Handheld

1. Any file you wish to send from the computer to a connected handheld can be sent as described above. However there are other ways that work as well
  - Right click on the StudyCards icon. Select Send To – Connected TI Device – Archive as in figure 4. This will send the application to the handheld without opening TI Connect.
  - Another method of transferring an application without opening TI-Connect would be to simply drag the icon for StudyCards on top of the icon for TI-Connect. This process will begin the transfer as well.
2. It is always a good idea to keep your batteries fresh. Some files will not transfer to a handheld with low batteries.

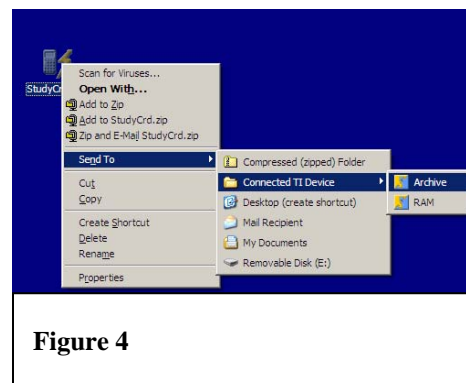


Figure 4

### Transferring from Handheld to Computer

1. To download a file from the handheld to the computer you must use the TI DeviceExplorer as in Figure 3. This is an outline view of the contents of the connected handheld.
2. Suppose we want to download a Notefolio file called DOGS. Notefolio files are stored as an Application Variable. Click on the plus to the left of Application Variable as in figure 5.
3. Select DOGS and drag it to the desired location. This will start the transfer of the Notefolio file to the computer.

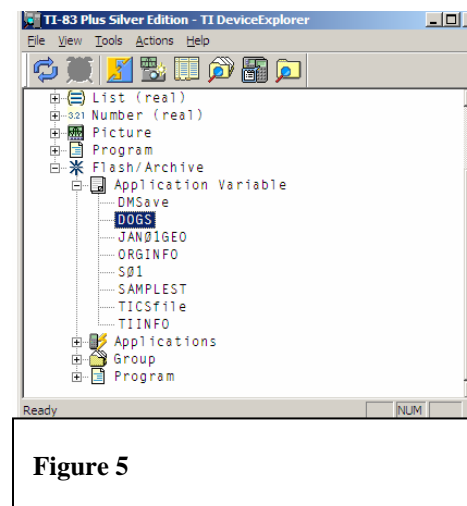


Figure 5

# Guess My Coefficients App

For the TI-83 Plus

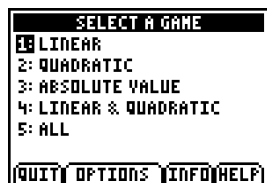


The Guess My Coefficients Application provides a review of the graphs and equations of linear, quadratics, and absolute value functions in a challenging game setting. Explore relationships between symbolic expressions and graphs. Users can set the number of problems in a game, up to 99.



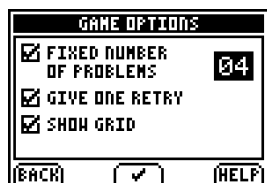
## 1 To Begin

With the handheld turned on, press **[APPS]**, select GuesCoef and press **[ENTER]**. Press any key to move along the opening screens to the Select a Game screen.



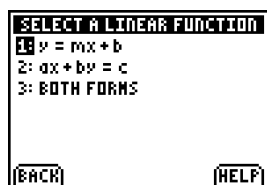
## 2

Options, such as <INFO>, appear at the bottom of several screens. Press the graphing keys under the appropriate selection to activate the option.



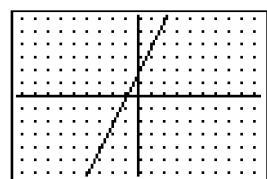
## 3

On the Select a Game screen, press <OPTIONS> to set up the number of problems (up to 99) or play until a user misses three problems. To select actions such as Grid options, use the arrow keys and press the <✓> (**[ZOOM]**) to change the options. Press <BACK> to return to the Select a Game screen.



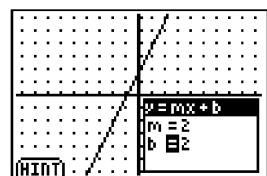
## 1 Problem Example

Select 1:LINEAR on the Select a Game screen, then choose 1:y=mx+b – slope-intercept form.



## 2

Press any key to view the graph. Study the graph and then press any key.



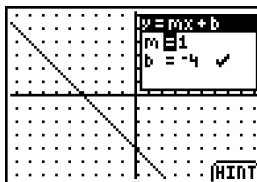
## 3

Input the correct values



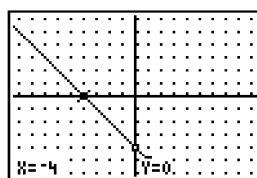
## 4

The graph will draw using the entered values. If the values are correct, a message will display. To move on, press <OK> (**[GRAPH]**).



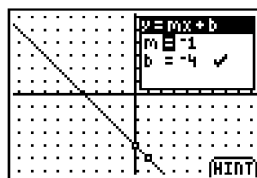
## 5

The next problem is displayed. Press any key to see the graph and press again to get the input box. If the answer is incorrect, the box will reappear and a check mark will show the correct response.



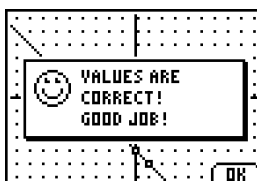
## 6

Press <HINT> to see two points on the graph and to trace the graph.



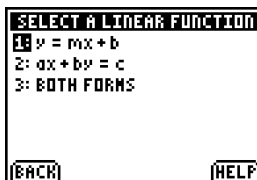
## 7

Input the correct value for m.



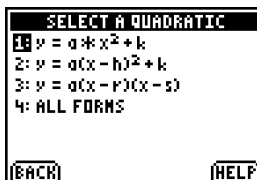
## 8

Press <OK> to continue play. Press **[2nd]** **[QUIT]** and follow instructions to quit play. Play to see who gets the high score.



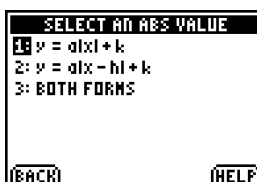
## 9

The following screens show all function forms available for this game.



## To Quit

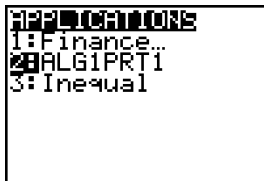
Press **[2nd]** **[QUIT]** at any time to access previous screens and to leave the application.







Interactively learn about algebra concepts including number sense, linear equations and functions, and one-variable linear inequalities. The App includes an electronic or print manual complete with teacher notes and student worksheets, as well as handouts to teach basic handheld functionality.

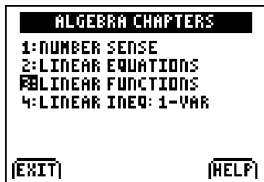


## Entering the Application

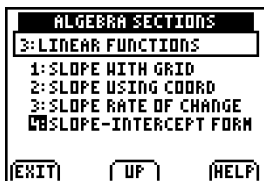
- Press **[APPS]** and select *ALGPRT1*. Press **[ENTER]**.



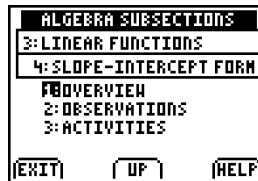
- Press any key to move from the introductory screen into the App itself.



- At the table of contents, choose Chapter 3 as shown in this example. Press **[ENTER]**.




- Under Linear Functions, choose 4: *Slope-Intercept Form* and press **[ENTER]**.

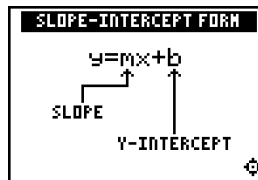


## Slope-Intercept Form Activity

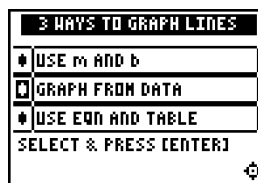
- Select the Overview subsection by scrolling to 1: *Overview* and pressing **[ENTER]**



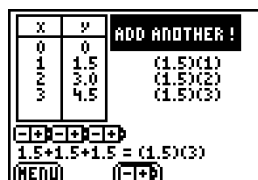
- At the Overview introductory screen, notice that the navigation star, , appears in the lower right corner of most screens. When the star is flashing, it is active. Using the up and down arrows allows movement on a screen; the right and left arrows allow paging through the section. From a content screen, pressing **y** [**QUIT**] returns a user to the table of contents.



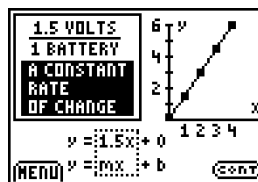
- The overview contains some definitions or descriptions of the concepts discussed using animation at times.



- Some screens contain choices to select to learn more about the topic. These are called framework screens. The up and down arrows are flashing to allow selection of a topic.



- This example shows a portion of an animated screen, where students can add on batteries with the press of a soft key. Press any key to continue animation.



- Animation helps fill in the mathematics to help students make connections. Press any key to continue on to the next screen.

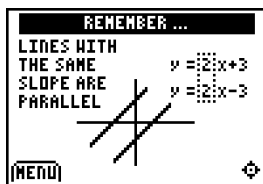


- The Observation Separator Screen indicates a discussion and review area.

## TI Apps Demonstration:

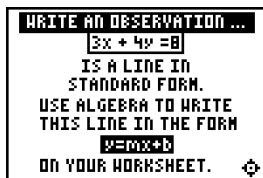
# Topics In Algebra I App (Chapters 1-4)

For the TI-73, TI-83 Plus, and TI-83 Plus Silver Edition



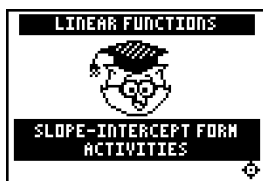
**8**

In the Observations area, students can see such screens as "Remember" or "Did you know...". These screens contain some facts about the content or a connection to the real world or other disciplines.



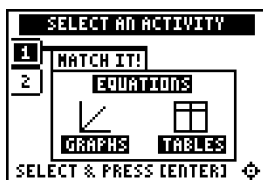
**9**

In the Observations area, students are asked to write observations and document them on the Student Worksheet that comes with the App.



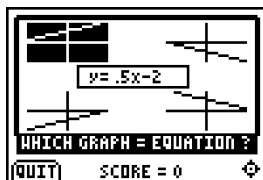
**10**

The Activity Separator Screen indicates the beginning of the activities section.



**11**

On the Activity selection screen, the up and down arrows flash indicating they can be used to highlight an activity. Press [ENTER] to select that activity. Activities are interactive.



**12**

Once an activity has been completed, press [QUIT] and use the [▶] to continue into the next section.

**13**

Using [2nd] [QUIT] from the Contents screens returns the user to the Table of Contents. Use the [◀] to toggle from Subsection to Section to Chapter.



## **Next Steps: Curricular Materials**

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Texas Instruments offers a wide variety of activity books and online curricular resources to help you integrate our technology effectively into your classroom. Below are a few offerings which may be of interest to you.

### **EXPLORATIONS™ Activity Books**

Written by teachers for teachers, the EXPLORATIONS™ Series of books cover topics to complement your professional development. (All books for the TI-83 Plus are fully compatible with the TI-84 Plus family.)

#### **Activities for Algebra with the TI-83 Plus**

by Rachel Newman-Turner and Robert Goodman

#### **Activities for Algebra I with the TI-73**

by Rachel Newman-Turner and Robert Goodman

#### **Modeling Motion: High School Math Activities with the CBR**

by Linda Antinone, Sam Gough, and Jill Gough

#### **Real-World Math with the CBL 2™ & LabPro®**

by Chris Brueningsen, Bill Bower, Linda Antinone, Elisa Kerner, John Gastineau, and Will Cortez

#### **Exploring Mathematics with the Transformation Graphing Application**

by Allan Bellman

#### **Exploring Mathematics with the Inequality Graphing Application**

by Sybrina L. King

#### **Exploring Mathematics with the CellSheet™ Application**

by Robert Lee Kimball, Jr.

#### **Exploring Mathematics with the Probability Simulation Application**

by Jane E. Damaske and Judy Wheeler

Go to <http://education.ti.com/us/activity/books/overview.html> to find out more information and how to order.

## **Next Steps: Curricular Materials, cont'd.**

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### **Online Activity Subscriptions**

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