



Upper Freehold Regional Education Foundation

Upper Freehold Regional Education Foundation

P.O. Box 109 • Allentown, NJ 08501

www.ufref.org - Tax ID #22-3032059

MINI GRANT APPLICATION

(To be returned by November 3, 2007 to the BOE offices)

COVER SHEET

Applicant Information

Project Title Interactive use of TI-83 Plus graphing calculators

School Building High School

Grant Amount Requested \$4,000

Applicant's Name(s) Paul SooHoo

Applicant's email Address(es) soohoop@ufrsd.net

Terms

If you were to receive a grant from the URFEF you will need to submit a follow-up 1-2 page report and include pictures. We may use one or more pictures on our website or in our promotional materials within one month of the project's completion.

You must also notify UFREF if you are unable to complete the project for any reason.

I agree to the above terms: _____

Signature

Date

Principal's Approval: _____

Signature

Date

For committee only

Approved

Proposal #

Conditional Approval, Revisions Needed

Approval #

Denied

Date of Action

Signature

Grant Summary

Project Overview (summary statement)

The purchase of the Ti-Navigator system (hardware/software) will allow us to leverage and more effectively use hand held graphing calculator technology

Target Audience Grades 9 -12

How many students/staff will benefit all students taking math Grade Level 9-12

Needs Statement (What problem are you addressing with your project.)

Current graphing technology, while very powerful, is very limited in a crucial area. Because each calculator is a separate entity, students are unable to share their discoveries, solutions, or problems. The Ti-Navigator system allows the graphing calculators to be linked together into a unified system so students can share their results.

Graphing technology is no longer a luxury but a requirement for understanding complex data. All students need to understand how to visualize data. Students must be able to interpret, interpolate, and extrapolate conclusions from data patterns typically represented by graphs. Without a networked system, students and teachers are not able to use the full potential of this graphical representation of data.

Example:

A freshman class in Algebra I will learn how to represent data as graphs. They will typically learn how to do this manually using graph paper and rulers. To simulate real world situation we collect large amounts of data. Graphing each single point is more suited to a computer rather than a human. Hand-held calculators are perfect for the task, however, we typically encounter many obstacles such as:

- a. the keyboard layout of the calculator is confusing
- b. the calculator has several modes which can give incorrect results
- c. students who are successful are unable to quickly verify and share their results

Using the TI-Navigator system, each graphing calculator can be monitored and displayed by the teacher's command center.

For example, if Billy is having trouble displaying his graph the teacher can simply look at the display of Billy's grapher from her command center and diagnose his problem instantly.

The more important use however, is that students can share their discoveries and results. If Jane has made a discovery about the data on her grapher, she can instantly display her graphs and data. Jane can now lead the class through the discussion with what she has discovered. This leads to higher engagement and a student-centered approach to learning.

The other exciting aspect of this system is that it can act as a sophisticated electronic audience response system. One of the major tasks of all teachers is getting all students engaged. Some students are naturally shy and have a difficult time taking center stage and responding to a question. It is often difficult for teachers to gauge whether a non-response is caused by lack of knowledge and confusion or by shyness.

With the current methodology, an Algebra I teacher might ask, "What is the slope of the line $y = x + 5$?" The typical response in class ranges from, "Ooh pick me pick me" to "Please don't call on me, I have no clue."

When a student is finally chosen the rest of the class is "off the hook." Often the teacher's ability to assess the students' comprehension can be way off the mark with this methodology.

With this system the students can key in their response directly into their calculator. At the command center the teacher will see:

- a. number or percent of students that have answered
- b. number or percent of non-response
- c. number of students that have said the slope is 1 (which is correct)
- d. number of students that have said 5 (incorrect)

If a and c are high, the teacher has a more accurate assessment of how well students understand the concept particularly, among those who historically do not respond. If b and d are high, clearly the students have not mastered the concept and additional work must be done.

It should be noted that a side benefit of this system is that it helps students to stay focused and on task. Graphers are essentially small computers and do

come with games that can be inappropriate during a lesson on graphing, students that are playing games can be instantly detected.

Is this a one-time project, a new project, or a continuation of an existing program?

New project

Will this project continue beyond the grant period? yes

Project Design

Describe the overall project concept.

The overall concept is to more effectively use hand-held graphing technology by monitoring and displaying each student's work into a central command center.

A. Objectives: Specify the objectives to be achieved.

- o use instructional time more effectively
- o support student-centered instruction by facilitating the ability of students to share observations and results on their calculators
- o increase student engagement
- o deploy and leverage graphing technology to a wider student population
- o widen the assessment methods and techniques available to teachers through the use of electronic audience response systems
- o increase time on task by monitoring the appropriate use of technology

B. Activities: Please provide details on the project activities.

Review by Technology department/Math Department 10/07

We will need a thorough review to ensure that we meet all minimum system requirements and that we have adequate technology resources to support the system. I have done a preliminary analysis and it shows that we meet all requirements. The Math Department has an adequate supply of TI-84 Plus graphing calculators to support the system. **Completed 10/19/07**

Acquire TI-Navigator Hardware Software 1/08

\$4,000

Math Department Training 2/08 – 3/08

While the hardware and software system is easy to use, we will need training in the logistics of setup. One method is to attend workshops or we could contact other schools that have installed the system and gather “best practices” for effective use.

Installation testing/ Quality Assurance test (3/15/08 4/1/08)

Ensure all hardware and software works smoothly

Pilot with Math Department 4/1/08 – 4/15/08

Ensure that the Math department understands the functions and features and can adequately respond to common problems.

Pilot in Small Class 4/15/08 - 5/1/08

Use the system with a small class of students. Monitor and record student feedback

General Deployment 9/08

Assess 1/09

Measure the Effectiveness of the Project

Compare number of respondents in a "normal" class vs. respondents in a class using the Navigator system.

Track number of incidents where students are using graphing technology inappropriately

Count the number of students actively using graphing technology by monitoring the usage on the command center

Compare the time needed to teach graphing technology with and without the Ti-Navigator.

Count and compare the types of questions (using Bloom's Taxonomy) and responses that can be developed. The key indicator is the reliability of the response data.

Project Timeline

Please attach a timeline, which lists dates for planning, conducting, and completing project activities.

Budget

Category	UFREF	OTHER*
Staff:		
Math Department Training		
Materials/Equipment:		
Acquire TI-Navigator	4,0000	
Other:		

List other sources of funding, if any:
Math Department

List any other resources needed to complete the project (material, equipment, space, staff, volunteers, etc.)

Technology committee to perform analysis of requirements. **Completed 10/19/07**

Evaluation

How will your project benefit the students?
See project description

What criteria will be used to determine how successfully the objectives have been met?
see Measure the Effectiveness of the Project

Please attach any supplemental information to support your proposal.

(photographs, brochures, letters of support)

Please go to the following links for more information

Demonstration of concept

http://education.ti.com/educationportal/sites/US/nonProductSingle/navigator_demo.html

Success Stories

http://education.ti.com/educationportal/sites/US/productDetail/us_ti_navigator.html?subid=11&topicid=56

http://education.ti.com/sites/US/downloads/pdf/navnews_1_3.pdf



FEBRUARY 24-26, 2006

Come see TI-Navigator™ in action
at the T³™ International Conference
in Denver

Early Bird Registration:
August 1, 2005 – January 15, 2006
education.ti.com/us/t3denver

Call for TI | Navnews Submissions

Share Your Ideas, Win TI Technology

Send us your **Tips & Tricks**, **Activity**, **Success Story** or **In Your Own Words** quotes with your complete mailing address. If we publish your submission, you'll receive a



FREE
TI-84 Plus Silver Edition

Send your submissions to:
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*...helping both low and
high-performing students to
improve their grades.*

- Derrick Driscoll
Math Teacher
London, Ontario, Canada

education.ti.com

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Westminster Secondary School Increases Student Performance with TI-Navigator™ System

School: Westminster Secondary School, London, Ontario, Canada
Educator: Derrick Driscoll

Three years ago, Derrick Driscoll learned about the TI-Navigator system at a conference and saw its benefits. As a result, Driscoll incorporated the TI-Navigator system into his classrooms and conducted research* the past three years using the system in his Grade 11 class. According to Driscoll's findings, "...a high degree of use of the TI-Navigator system with a specific pedagogy throughout the semester (course work) did have a *positive impact* on student performance."

"I immediately saw the advantages of having calculators networked with my computer. I wanted a way to conduct simulations in my classroom and have each student contribute unique data so they would become more connected to the classroom."

"The technology augmented my classroom instruction. Because of the TI-Navigator, I was better able to *quickly identify* and remedy weaknesses." Concepts related to questions exhibiting poor performance were taught again before he proceeded with the daily lesson.

One significant challenge Driscoll faces is that his classes largely are comprised of students who have English as their second language (ESL) and varying academic and language levels. Because some students do not perform well in traditional classrooms, he must look for solutions that will address comprehension, fine motor skills, language barriers and more.

Continued on page 3



Editor's Note

For all those TI-73 Explorer™ enthusiasts out there, we have great news! TI has released TI-Navigator™ 2.2 software, which delivers TI-Navigator system compatibility with the TI-73 family of graphing calculators.

If you would like to begin using your TI-Navigator system with the TI-73 Explorer, please contact 1-866-TI-NAVIGATOR to request TI-Navigator 2.2 software for free (for current TI-Navigator owners only). For those using TI-83 Plus or TI-84 Plus graphing calculators, there is no need to update to TI-Navigator 2.2 software.

I've listed below some FAQs. If you have any other questions, please don't hesitate to contact us at 1-866-TI-NAVIGATOR or ti-navigator@ti.com.

Best regards,
Eileen Shihadeh



Texas Instruments
eshihadeh@ti.com



TI-73 Explorer with TI-Navigator system

Are there any differences in using the TI-Navigator system with the TI-73 Explorer than with the TI-84 Plus?

There are a few differences when using the TI-73 Explorer with TI-Navigator:

- In Activity Center, students can submit 4 equations at a time (versus 10 with the TI-83/4 Plus family)
- To enter text, students need to use [2nd] TEXT menu
- The TI-73 Explorer does not support the TI Keyboard
- "Send to Device" in LearningCheck™ cannot be used with the TI-73 ("Send to Class" of course works!)

How many App slots will the TI-Navigator system require for use with the TI-73?

The TI-73 Explorer has eight available app slots. The TI-Navigator Apps will take five of these.

Can you have a mixed classroom of TI-73 Explorers with TI-83 Plus or TI-84 Plus graphing calculators?

No, you need to assign each class a device type. This can either be the TI-73 family or the TI-83/4 Plus family – but not both.

Will the TI-73 Explorer require an operating system update to work with the TI-Navigator system?

The TI-73 Explorer will require an update to the operating system. The new operating system is version 1.80. If you do not have this version, you will need to download the OS to the TI-73 using TI-Connect.

Continued from front page

Another challenge is getting students to complete assignments, especially if they do not complete it in class. "I find that the lower the skill level of the student, the poorer their ability to complete work outside of class time."

Finally, among lower-achieving students, Driscoll finds that organizing assignments and tests missed is extremely time-consuming.

To address these challenges, Driscoll incorporated the TI-Navigator system into his instruction, using it from two to five times a week in all his mathematics classes: Grade 9 Applied (equivalent to Algebra 1); Grade 11 Financial Mathematics; and Grade 11 Functions and Relations (equivalent to Precalculus).

At the same time, he conducted a three-year research project in which students would complete a daily five-question diagnostic assessment that he sent to each student's graphing calculator. After each assessment, Driscoll continues to use the TI-Navigator system for instruction. "There is a *wonderfully jubilant outpouring of fun* while learning mathematics using TI-Navigator."

He added, "It is very clear that students are more alert and engaged with TI-Navigator than without it. It presents a more stimulating environment than a traditional classroom as students begin to see how mathematics plays a role in real life."

The most exciting result has been the research that Driscoll has conducted in the last three years with the use of the TI-Navigator system in his Grade 11 class. According to Driscoll's research, "It appears as though use of the TI-Navigator to a high degree with a specific pedagogy is helping both low and high-performing students to improve their grades."

Another result showed that 53 percent of students using the TI-Navigator system to a high degree in the last five weeks of the course increased their average, versus only 33 percent showing an increase without the use of TI-Navigator.

He added, "The pedagogy seems to be more effective in increasing performance when accompanied with frequent use of TI-Navigator." By using specific pedagogy, Driscoll summarized that the class averages and medians improved with a high degree of use of the TI-Navigator system when he evaluated students five weeks prior to course completion and on final evaluations. Specifically, class averages and class medians were as much as 20 points higher when the TI-Navigator system was used. Driscoll concluded, "Perhaps the reinforcement of learning through the system's timely feedback

is a primary reason for measurable improvements in class medians and averages."

Use of the TI-Navigator system has also helped Driscoll address ESL students' needs in his classes. ESL students have many challenges, one of which is the language barrier. Sometimes taking notes is challenging because the focus is on note taking and not the concept. "By working with TI-Keyboards and the TI-83 Plus graphing calculators, I have been able to help these students get beyond these challenges so that they can focus on learning the mathematics."

For Driscoll, the benefits are many. "Using TI-Navigator has forever *changed the way I present material* and the way I think about conducting activities." He has learned to monitor understanding and manage misperceptions much more effectively than ever before. "TI-Navigator has caused me to understand my students to a higher degree and what I need to do to help them succeed."

Driscoll has also become aware that poor performance of at-risk students is directly linked to poor completion of work rather than lack of understanding. "TI-Navigator makes it more efficient for educators to re-distribute and differentiate diagnostic assessments sent to each student." Utilizing the power of the technology, Driscoll can send to each child the assignments they need electronically on the calculator, leading to differentiated remediation and instruction and improved grades.

Driscoll added, "There is an increasing demand upon teachers to use technology to impact learning... it is my hope that other educators can find value in using the TI-Navigator system to augment student learning in a positive way."

* Research Source: Grade 11 Mathematics of Personal Finance, Inventory of Marks: 2001-2004, "An Analytical Reflection on Pedagogy to Improve Student Performance with Use of the TI-Navigator," by Derrick Driscoll, Westminster Secondary School, London, Ontario, Canada. For more information, visit education.ti.com/research

In Their Own Words

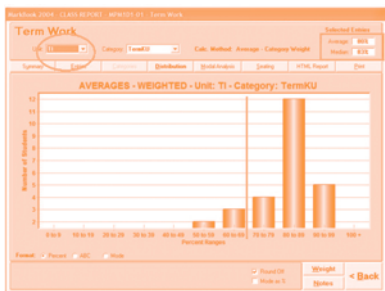
TI-Navigator™ System and Performance Increases

Submitted by: Derrick Driscoll

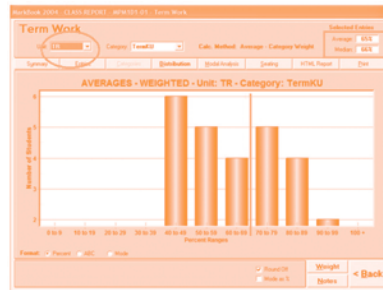
If I were to tell you that there was a way to *increase student performance* in your class, would you listen? My name is Derrick Driscoll. I am a math teacher (9-12) from London, Ontario, Canada, who teaches at Westminster SS with the Thames Valley District School Board. I have used the TI-Navigator system for over three years. For a brief moment, join me on a relevant journey of discovery.

Those of you who use the TI-Navigator system may have had a feeling that your students understand mathematics to a higher degree. I, too, have had these same emotions. The challenge was to quantify performance. At some point, in my second year of use, I sensed that certain pedagogy was giving rise to more moments of epiphany; the kind of feeling you get when you sense that students truly derived benefit from use of technology. This spawned an action research project*, that began solely as a personal journey of discovery. It was my attempt to measure performance enhancements as a result of certain pedagogy (outlined in section 1.5 of the research report titled "Pedagogy and Rationale"). I began to collect and analyze data to address certain questions (outlined in section 1.1 of the research report titled "Objectives").

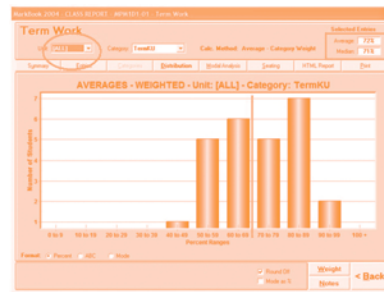
A critical question emerged: **How can I measure performance increases afforded by the TI-Navigator system?** **ANSWER:** Record performance with TI assessments (LearningCheck™) segregated from traditional assessments. My grades management software allowed me to view class results as a bar graph for each type of assessment. I could clearly see that the class average experienced a shift upward, entirely due to better performance on TI assessments (LearningCheck).



TI Assessments (LearningCheck) Segregated from Traditional Assessments



Traditional Assessments (LearningCheck) Segregated from TI Assessments



TI Assessment (LearningCheck) and Traditional Assessment Blended Together

For this particular class there was a 7 percent increase in the class average as a result of assessing students in a different format than traditional means. This result may seem insignificant but this is almost a one grade-level shift upward for each person. I was motivated to complete an analysis on eight classes (198 students) over a three-year period for a particular course. Upon significant reflection, I had used the TI-Navigator system with a specific pedagogy in various degrees over the three years; from no use (zero percent) to limited use (20-30 percent of class time) to moderate use (60 percent of class time) to a high degree use (90 percent of class time).

- 2001-2001 No Use of the TI-Navigator system with Specific Pedagogy
- 2002-2003 Limited Use of the TI-Navigator system with Specific Pedagogy
- 2003-2004 [Transition Sem] Moderate Use of the TI-Navigator system with Specific Pedagogy
- 2003-2004 High Degree Use of the TI-Navigator system with Specific Pedagogy

These results only raised more questions:

- 1) Are students giving up in the last five weeks of the course?
- 2) Did the pedagogy help students at both ends of the spectrum (poor and high achieving)?

To address the first question, I examined class data from prior years.

Percentage of Students Below 50% (A Different Perspective)

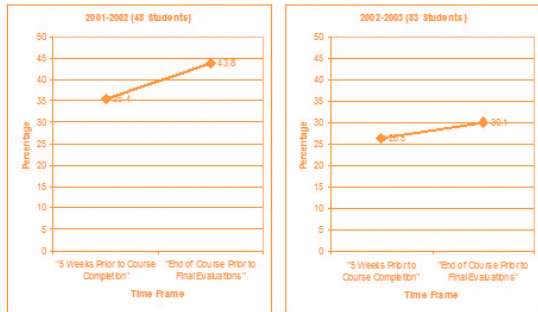


Figure 7

Figure 8



Clearly one can see that as TI-Navigator system usage increased, while targeting a specific pedagogy, the number of failures decreased in the last five weeks of the course. I concluded that most of my students were not giving up. The opposite was true. In fact, there were no failures going into the final exam (2003-2004) with a high degree of use of the TI-Navigator system with a specific pedagogy. One can see with moderate use the failures reached a plateau of 31 percent but did not increase over the last five weeks. It was at this point that I felt I was moving in the right direction. Clearly, the TI-Navigator system was *helping the lower level student perform better*.

Next, I wondered to what degree students above 70 percent were benefiting by use of the TI-Navigator system.

Percentage of Students, by Year, Above 70%

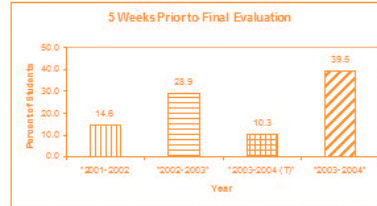


Figure 12

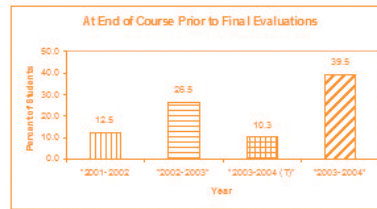


Figure 13

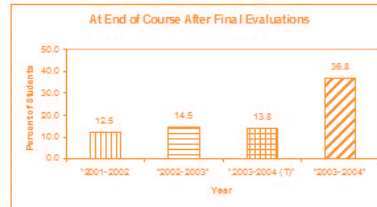


Figure 14

LEGEND (TI-Navigator Usage)

- No Use
- Limited Use
- Moderate Use
- High Degree Use

T - TRANSITION SEMESTER TOWARDS A HIGH DEGREE OF USE OF THE TI-NAVIGATOR WITHINTEGRATED PEDAGOGICAL PROCESS

Notably, it is very impressive to see that approximately three times as many students achieved higher than 70 percent after a final exam, for the same course, when the TI-Navigator system was used to a high degree. We also see that with no use, limited and moderate use, the percentage of students above 70 percent seems to be the same magnitude after a final exam. Emerging was the fact that the TI-Navigator system was also helping stronger students learn.

In short, the TI-Navigator system can increase student performance if used in a specific pedagogically appropriate way. We can also say that more students achieve higher performance when a high degree use of the TI-Navigator system is employed.

* Visit education.ti.com/research to view Action Research titled Derrick Driscoll - Westminster Secondary School, London, Ontario, Canada - TI-Navigator system in Mathematics of Personal Finance.

Activity Central

Burning Volumes Activity

submitted by: Gail Standiford

An analysis of how the volume of various jars impacts the burning time of candles. Data collected will be used to continue the discussion of modeling, line fitting and linear regression.

Mathematical Concepts Explored

- Data Collection
- Data Analysis
- Graphing
- Line of Best Fit
- Reasoning

Technology Used

- Graphing Calculator: TI-83 or TI-83 Plus or Silver Edition

Commands/Functions Utilized

- STAT/Edit
- STAT/CALC/4:LinReg
- Y = VARS
- STATPLOT
- ZOOM
- GRAPH

grade level 5-8

activity time 60 minutes

Preceding Activities

Activity Agenda, Teacher Notes and Points for Discussion

Teacher will...

1. Explain the activity: To predict when a candle will burn out based on the size of a jar.
2. Monitor data gathering, clarify directions, and answer questions.
3. Use overhead and/or graphing calculator poster to review how to find the line of best fit and determine its accuracy.
4. Tell students the size of the unknown jar.
5. Get predictions from groups – then run the experiment.
6. Discuss accuracy of predictions and any factors which may have impacted the results (airtight seal, displacement of air by the candle, accuracy of size of the jar, etc.)

Student will...

1. Gather data for a number of known size jars or record data gathered in the teacher demo.
2. Gather data in the classroom in groups of four. Take three trial time measurements for each jar and average the time. Graph the points then draw a line of best fit using a ruler.
3. Use a graphing calculator to derive an equation of the line of best fit. Adjust TBLSET to accommodate data.
4. Make a prediction based on handgraph and equation.
5. Determine the accuracy of the predictions.
6. Process and reflect on activity.

When Will The Candle Burn Out?

1. Gather the data for the length of time for a candle to burn out using various size glass jars.
2. Average the time for each jar.
3. Clear all lists (use MEM key)
4. Enter the data in List1 (size in milliliters) and List2 (time for the candle to burn out in seconds) using STAT® EDIT.
5. Change Window to accommodate data.
6. View graph (use GRAPH).
7. Plot points on paper graph (other side). Draw a line of best fit and make a prediction using the graph.
8. Use the linear regression function on the graphing calculator to find the equation of the line (STAT®CALC®4).
9. Make a prediction for the unknown jar using the equation ($ax+b$) obtained from calculator. Obtain time for the unknown jar.
10. Which method for prediction was more accurate? Why?

Jar Size	Trial 1	Trial 2	Trial 3	Average

The electronic files for this activity can be found at education.ti.com/activities on the Activities Exchange by searching for the author or activity title.

TIPS & TRICKS

QUESTION - I accidentally deleted the Class Analysis file for my assessment. How do I re-create the Class Analysis file?

TIP - People don't realize that the student answer files (AppVars), for each student, are coming into your computer behind the scenes. The pathway is My Documents/My TI-Navigator/Class Analysis Files/ClassAnalysis-YYYY-MM-DD-HH-MM-SS. All you have to do is go to the latest time stamped Class Analysis folder and your student answer files (##.8XV) are there. If Class Analysis is open, click on the icon with the single student and the plus sign (Add Student Answer Files Icon) and browse for the latest time stamped Class Analysis folder, highlight all the files (click on the first file-hold the shift key-click on the last file or press Ctrl-A to highlight all the files) and click on the Open button. You can add the assignment before or after you get all the student answer files and grading will occur.

Activity Ideas

Transformation Graph Worksheet or Quiz

submitted by: Jeff Hill

grade level	9-12
activity time	15-30 minutes
subject area(s)	Algebra
calculator(s)	TI-73 Explorer™, TI-83 Plus Family, TI-84 Plus Family

before the activity Students should know the general formulas for several basic functions and how to type them into their calculators. Examples: quadratic, linear, absolute value, etc.

during the activity Configure Activity Center so that each student contributes one equation. Assign a particular type of function and have the students type in their version of it and graph it on their calculators. For example, they might move it up three and to the right four. Hopefully everyone will contribute a different version of the function. When everyone has sent their equation, stop the activity, minimize the activity center window and use the screen capture button on the main toolbar. Pick four students and capture their screens. Make sure you are not showing any names or equations on the screen. Now have the entire class write down what they think the four equations are for the graphs on the screen. Use this as practice or make it a quiz.

Exploring Geometric Probability using TI-Navigator™

submitted by: Steve Ouellette

grade level	9-12, 5-8
activity time	20 minutes
subject area(s)	Geometry
calculator(s)	TI-83 Plus Family, TI-84 Plus Family

before the activity Students should know how to solve a proportion. They should also know the formulas for the area of a square and a circle.

during the activity Instruct students to log into the TI-Navigator network and enter the "Activity Center". On the computer go into "Activity Center" and configure the activity in the following way:

1. Contribute: Lists (configured so that students can re-submit lists and students start with empty lists)
2. Click on "Graph-Equation" and graph " $y = \sqrt{1-x^2}$ ", " $y = -\sqrt{1-x^2}$ ", " $x = 1$ ", and " $x = -1$ ".

Note: To graph an equation of the form $x = a$, click on "view" and select "Show X-Entry". This will show a circle inscribed in a square. Then, instruct the students to select several phone numbers, making sure that no two students submit the same number. Instruct students that they will take each phone number and create an ordered pair in the following way: if the last four digits are 4538, then

1. Write an ordered pair (.45, .38)
2. If the digits form an even number, then the number will be positive. If the digits form an odd number, then the number will be negative (-.45, .38).

Start the activity and have the students enter their ordered pairs in lists (where the first coordinate goes in L1 and the second coordinate goes in L2). The points will be automatically graphed on the coordinate plan within the square.

From the results shown on the screen, have students determine the ratio of the number of points that fell within the circle to the total number of points. For example, if 25 students submit four points each, 100 points will be graphed in total, of which about 75 will fall within the circle. This ratio will be approximately equal to the ratio of the area of the circle to the square. It will be clear to the students that the square has area four. Let x represent the area of the circle and have students set up and solve a proportion. Use "Quick Poll" to collect their results. Students should realize that the result is an approximation for pi (3.14).

after the activity The teacher could place other images in the activity center. This could be done by loading the image as a background image. Construct a rectangle around this image whose area is known and use geometric probability to estimate the area of the background image.

What's New?

New TI-Navigator™ 2.2 Software for TI-73 Explorer™

The new TI-Navigator 2.2 software makes it possible to seamlessly integrate TI-73 with the TI-Navigator system!

What about the TI-83 Plus, TI-84 Plus and TI-84 Plus Silver Editions? These graphing calculators do not require the software upgrade. For questions and assistance, please call 1-866-TI-NAVIGATOR.

Ready-to-Use State Practice Exams

Visit your state web page at education.ti.com/states, where you'll find your State Practice Exams designed to help your students review for your state exam. More practice exams will be posted soon, so check back often.

Order New TI-Navigator Systems Explorations Book Today

Algebra Using Real World Data: USA Today Activities for the TI-Navigator System, the newest Explorations Book published by TI and *USA Today*, is now available. Each of the workbook's 12 activities explore the world of algebra using the TI-Navigator system and the TI-83 Plus and TI-84 Plus families of graphing calculators. Please log onto education.ti.com/us/activities for more details.

T³™ Regional Conferences Increase TI-Navigator Sessions

Attend future T³ Regional Conferences starting in January 2006 and you'll be able to experience a greater number of sessions targeting the advantages of this popular learning solution. As an educator, you'll still have the opportunity to participate in many great sessions at each T³ Regional plus the added benefits of valuable hands-on training with the TI-Navigator system. Be sure to mark your calendar for a T³ Regional Conference coming to a city near you. Visit education.ti.com/t3 for information on dates and locations.

TIPS & TRICKS

QUESTION - A group of my students did not finish their LearningCheck™ assessments. How do I send them back their files so that they can complete them?

TIP - If this is something you wish to be able to do for students, it is important that you collect your Learning Check answer files through the TI-Navigator software and not Class Analysis. The fundamental difference is that when you collect from the TI-Navigator software, the answer files are named differently than if they were collected from within Class Analysis. The naming structure is LastName_FirstName-UfileName.8XV when you collect from the TI-Navigator software. The naming structure is ##.8XV when collecting from Class Analysis.

If you choose to collect your student answer files from the TI-Navigator software, then you should create a file folder to house the files. In the process of collecting the files from the software you will be permitted to browse for a folder to send the incoming files to.

One can easily see the advantages of collecting from the TI-Navigator software because the teacher knows who owns the file. As a result, the teacher can send the file back to the student who owns it. You could set up a transfer, in the queue, for each child that requires it so that when they log into the network they will get their file. To do this, go to your class seating chart, click on the student's icon (highlight their icon) and then the click on the Send to Class icon (yellow arrow to student heads) and browse for the student's answer file, click next, click on "Force send to students now", click on the Finish button and the transfer will be automatically set up in the queue.

Remember: You will also need to send the Learning Check Creator assignment file so that the student can open their answer file.

Resources

On Target Through Online Discussions

Chat with fellow educators to gain valuable insight on how they are integrating the TI-Navigator™ system into their classrooms. The forums foster open discussion and free exchange of information specifically related to TI-Navigator.

Join today by simply logging onto education.ti.com/us/navdiscuss

TI-Navigator Video Tutorials And Software Tours

Jump into the driver's seat of the TI-Navigator system as you explore the what's, why's and how-to's of this exciting new classroom learning system.

Visit education.ti.com/nav and click on **Getting Started** to browse a comprehensive library of easy-to-use and easy-to-understand video tutorials and software tours. Simply click on a link, sit back and watch as these step-by-step guides show you everything you need to know. Yes, it's that easy!

TI-Navigator Users Groups Growing

Teachers from throughout the United States and Canada continue to take advantage of TI-Navigator system users groups. These groups are designed to provide fellow educators a forum to help each other successfully implement the TI-Navigator system into their classrooms.

Group meetings include shared activities, a place to try fresh ideas and actively solicit advice about making the most of the TI-Navigator system. Are you interested in building a users group in your area? Look to TI to help get you started. Email navnews@ti.com today.

"How To" For Grants And Funding

Visit education.ti.com/grants to identify and apply for grants and other funding opportunities from the federal government and private foundations.

TI has collected a list of major funding opportunities for education as well as guidelines and tips that will help you become a grant writing expert. The grant information is updated quarterly, so be sure to log on regularly for all the latest information.

Free Activities at the Activities Exchange

Welcome to the Activities Exchange, where educators can go online to post, search for and discover numerous classroom activities that use the TI-Navigator system. Best of all, it's free! Visit education.ti.com/exchange often to find innovative classroom activities from educators around the continent and feel free to add your favorite exercises.

TI-Cares Customer Support

We're here when you need us. TI-Navigator system set-up, software downloads, and everything in between. Free feel to call or e-mail us with your questions regarding your system.

- 1-866-TI-NAVIGATOR
- ti-navigator@ti.com
- education.ti.com/support

Mark Your Calendar

Upcoming T³ Regional Conferences

T³ TI-Navigator Conference Sunbury, OH

December 10, 2005

Ed Kitchen
Ed_Kitchen@bigwalnut.k12.oh.us

Edinburg, TX

January 13-14, 2006

Noe Medrano
956.459.5283
noe@noemedrano.com

Hot Springs, AR

January 19-21, 2006

Jean J. McGehee
501.450.3425
jeanm@uca.edu

2006 T³ International Conference Denver, CO

Hyatt Convention Center Hotel
and Colorado Convention Center
February 24-26, 2006

Las Vegas, NV

March 3-4, 2006

Ricci Slobodnik
702.217.1436
rxs453@interact.ccsd.net

Indiana, PA

March 17-18, 2006

Yong S. Colen
724.357.2389
yscolen@iup.edu

Helena, MT

March 24-25, 2006

Jean Howard
406.475.3638
jkhoward@montanalearning.org

Los Angeles, CA

March 24-25, 2006

Edna Murphy
562.922.6551
Murphy_Edna@lacoee.edu

Niskayuna, NY

March 24-25, 2006

Christopher Monahan
518.382.2511, ext. 4385
monahan.c@nisk.k12.ny.us

Feeding Hills, MA

March 31 - April 1, 2006

Scott Trahan
413.789.2292
sltrahan@aol.com

Stephenville, TX

March 31 - April 1, 2006

Pam Littleton
254.968.9705
littleton@tarleton.edu

Wilmington, DE

March 31 - April 1, 2006

David Scott
302.992.0783
dscott@udel.edu

COME BY THE TI BOOTH

at fall state math and science conferences, as well the regional and national conferences listed below, to find out about TI-Navigator sessions going on at the show!

Wilmington, NC

March 31 – April 1, 2006

Denise Terry
910.962.3768
terryj@uncw.edu

Adrian, MI

May 12-13, 2006

Dr. Tim Husband
517.264.7647
thusband@sienahts.edu

Upcoming Conferences

NMSA Annual Conference

Philadelphia, PA

Nov 3-5, 2005

nmsa.org/annuals

CMC South

Palm Springs, CA

Nov 4-5, 2005

cmc-math.org/ps

NCTM Western Regional Conference

Denver, CO

Nov 10-12, 2005

nctm.org/meetings/denver

NSTA Midwestern Area Convention

Chicago, IL

Nov 10-12, 2005

nsta.org/conventions

NSTA Southern Area Convention

Nashville, TN

Dec 1-3, 2005

nsta.org/conventions

Where to Buy TI-Navigator™

Bach Company	650.424.0800	800.248.2224
School Savers		800.221.2120
Scantex		800.241.0348
Educational Electronics		800.526.9060
SchoolMart		800.285.2662
Underwood Distributing	616.245.1867	800.753.3570
Bender-Burkot		800.682.2638
Electronic Products, Inc.		800.843.7017
EAI Education	201.891.9466	800.770.8010
COPCO		800.446.7021
Vernier Software & Technology	503.277.2299	888.837.6437
D&H Distributing		800.340.1006
TechLine		800.777.3635
Douglas Stewart	608.221.1155	800.279.2795

CANADA

CCS Educational	416.267.8844	877.227.3382
Thalès Technologies Inc.	514.329.2221	866.669.2221

"This is the best way I could have spent my time."

T³ TI-Navigator Memphis, TN Conference participant

"A very worthwhile event. The people were great, the food was good, the information was OUTSTANDING."

T³ TI-Navigator Memphis, TN Conference participant

