Send us your best Pi Day activity and you could

WIN A COOL T-SHIRT

for you and your class. Limit 35.
Submit a Pi Day activity featuring any TI technology and you’ll automatically be entered for a chance to win TI’s new “Math Rocks” T-shirt. The winning activity and other selected activities will appear on TI’s popular Activities Exchange education.ti.com/exchange. Submit your entry by email to nspiringtimes@list.ti.com.

*No purchase necessary. Odds of winning are dependent on the number of entries received. You do not have to buy or enter to win. The winning activity will be selected by representatives of Words & Numbers, Inc. from all eligible, completed entries and posted on TI’s Activities Exchange. Entry must be received by April 15, 2008. By entering, entrants agree to be bound by these rules and the outcome, which will be final and binding in all matters related. This offer is void where prohibited by law. Actual value of 35 “Math Rocks” T-shirts is approximately $140. Any taxes due as a result of winning are the sole responsibility of the winner. For more information, send a self-addressed, stamped envelope to: Pi Day Activity, P.O. Box 650311, MS 3919, Dallas, Texas 75265.
Welcome to the second issue of TI-Nspiring Times.

Let me begin by thanking you for the responses and submissions we received following this newsletter’s inaugural issue. Your feedback is greatly appreciated, and we will use it to make TI-Nspiring Times even more informative and insightful for all TI-Nspire® technology users.

In just a short time, educators like you have begun to help change the way mathematics and science are taught in the classroom by adopting and effectively using TI-Nspire technology.

As you and your colleagues usher TI-Nspire technology into your classroom – this issue of TI-Nspiring Times – you'll hear from fellow educators already using – and getting outstanding results from – TI-Nspire handhelds and computer software.

We at TI sincerely hope that you find this issue beneficial.

Best regards,

Melendy Lovett
President of Texas Instruments Education Technology and Senior Vice President of Texas Instruments Incorporated, with responsibility for TI’s worldwide operations in math and science educational technology and professional development. She is a member of TI’s Strategic Leadership Team.

Melendy Lovett is a member of TI’s Strategic Leadership Team.
Training: Two Decades in the Making

This leads to increased productivity over time.

In addition, TI-Nspire technology gives you the ability to “grab-and-move” a graphed function such as a line or parabola in real time. This lets you see the impact of changes and observe mathematical relationships as the corresponding equations of the function update automatically through TI-Nspire technology’s dynamic linking feature.

With effective training, these mathematical and instructional features put power into the hands of educators who gain an understanding of them. This leads to increased productivity over time.

Get In-Depth

T³ 3-Day Hands-on Institutes offer intensive training with TI-Nspire technology

Now that you’ve probably heard something about the latest technology from Texas Instruments – TI-Nspire learning technology – it’s time to find out more about it.

To begin with, research shows that students learn math concepts more readily and with deeper understanding when they learn across different forms of representation. TI-Nspire and TI-Nspire CAS (Computer Algebra System) technology allows you and your students to see and explore multiple representations of a problem in algebraic, graphical, geometric, numeric and written forms.

In addition, TI-Nspire technology gives you the ability to "grab-and-move" a graphed function such as a line or parabola in real time. This lets you see the impact of changes and observe mathematical relationships as the corresponding equations of the function update automatically through TI-Nspire technology’s dynamic linking feature.

With effective training, these mathematical and instructional features put power into the hands of educators who gain an understanding of them. This leads to increased productivity over time.

As word spreads about the new TI-Nspire learning technology, educators want a chance to experience it firsthand.

To meet this growing need, TI-Nspire technology is hitting the road. Texas Instruments has just launched the TI-Nspiration Tour, featuring a series of workshops that provide an exciting, hands-on introduction to TI-Nspire technology at a variety of locations across the U.S. in 2008.

These events are an ideal way for mathematics educators at the high school, pre-service and community college levels to get to know this latest TI technology.

For educators who already use TI graphing technology – such as the TI-83 Plus and TI-84 Plus families of graphing calculators – this workshop is a great way to get a “taste” of TI-Nspire technology before scheduling more in-depth professional development training or investing in this technology.

Of course, for educators entirely new to classroom technology and TI graphing, the TI-Nspiration Tour will prove to be an ideal introduction to the latest math learning tools.

Better yet, these workshops are one-day events, typically on a Saturday, in-service day or summer date, making them convenient for busy teaching schedules.

Participants also receive information on more TI-Nspire professional development opportunities, TI-Nspire User Groups and grant writing opportunities designed to help bring educational technology into your school.

Take advantage of online registration

If you or your colleagues are interested in attending the TI-Nspiration Tour, you can find and register for the event nearest you by visiting Ti-Nspire.com/inspirationTour.

The cost to attend a T³ 3-Day Hands-on Institute is only $325. Each participant will receive a TI-Nspire handheld and TI-Nspire computer software.

For more information and to register, visit Ti-Nspire.com.

Hands-on and subject-specific sessions

Here’s how it works. Participants choose two sessions to attend, one in the morning and one in the afternoon, from these subject areas:

- Algebra 1/Beginning Algebra
- Geometry
- Algebra 2/Advanced Algebra
- Precalculus/Trigonometry
- Statistics
- Calculus

Besides a great introduction to TI-Nspire technology, TI-Nspiration Tour workshop attendees receive even more, including:

- A $100 discount coupon for a T³ 3-Day TI-Nspire Hands-on Institute
- The TI-Nspire 30-day Trial Software CD
- A Certificate of Completion

Participants also receive information on more TI-Nspire professional development opportunities, TI-Nspire User Groups and grant writing opportunities designed to help bring educational technology into your school.

The institutes focus on the incorporation of TI-Nspire and TI-Nspire CAS technology into the mathematics classroom, using both TI-Nspire handhelds and computer software. At these institutes, mathematics educators can experience an exciting immersion into TI-Nspire technology, facilitated by T³ Instructors and held at locations across the U.S.

Content-specific concepts and activities for Algebra 1, Geometry, Algebra 2, and Calculus are used extensively throughout the 3-day institutes. At the conclusion of training, participants can take home these activities and curriculum materials, which are ready to use in the classroom.

†See Ti-Nspire.com/resources for more information.
The 2008 TI-Nspiration Tour

These 1-day hands-on workshops are a great opportunity to learn more about incorporating TI-Nspire® technology in your math classroom. All sessions will be led by T3® Teachers Teaching with Technology instructors. Registration is $25 and includes lunch. Each participant will receive a $100 coupon to attend a T3® 3-Day TI-Nspire Hands-on Institute, a certificate of completion, and 30-day trial CD of TI-Nspire computer software.

TI-Nspiration Tour details:
The TI-Nspiration Tour will run from 9 a.m. – 4 p.m. with check-in starting at 8 a.m. Upon online registration, participants will have their choice of two 3-hour hands-on sessions from the following subjects:

- Algebra 1/Beginning Algebra
- Algebra 2/Advanced Algebra
- Concepts of Precalculus/Trigonometry
- Geometry
- Statistics
- Calculus

To register, visit Ti-Nspire.com/nspirationtour.

2008 TI-Nspiration Tour locations:

<table>
<thead>
<tr>
<th>March 8, 2008</th>
<th>March 15, 2008</th>
<th>March 29, 2008</th>
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<tbody>
<tr>
<td>San Antonio, TX</td>
<td>Pittsburgh, PA</td>
<td>Los Angeles, CA</td>
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<td>March 29, 2008</td>
<td>Renton, WA</td>
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<td>May 17, 2008</td>
<td>Clayton, MO</td>
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</tbody>
</table>

The cost to attend is only $325. Each participant will receive a TI-Nspire handheld and TI-Nspire computer software.

For more information and to register, visit Ti-Nspire.com.

2008 Ti-nspiration Tour locations:

More locations coming soon

More locations coming soon

For more information and to register, visit Ti-Nspire.com.

T3® Professional Development

T3® 3-Day Hands-on Institutes Exploring Mathematics with TI-Nspire Technology

These institutes, held at nationwide locations and facilitated by T3 Instructors, will focus on the integration of TI-Nspire technology into the classroom with the use of content-specific activities for Algebra 1, Algebra 2, Geometry, Precalculus and Calculus.

November 17-19, 2008

For more information and to register, visit Ti-Nspire.com.

Each participant will receive a TI-Nspire handheld computer software.

Institute, a certificate of completion, and 30-day trial CD of TI-Nspire computer software.

For more information and to register, visit Ti-Nspire.com.

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I became a teacher because I like to work with people, and I know that I become a better teacher through collaboration with my peers.

- Sean Bird

Strength in Numbers

TI User Groups bring powerful communities of local educators together around TI-Nspire technology.

By Sean Bird
Calculus and AP® Physics Instructor
Covenant Christian High School | Indianapolis, IN

After teaching Calculus and Physics with the TI-83 Plus, TI-84 Plus and TI-89 graphing calculators for more than 10 years, I firmly believe there’s always something more to learn.

Now that TI-Nspire technology is here, I know this more than ever.

Many mathematics and science educators know that professional development opportunities like conferences offer the chance to network with peers, learn what’s new and become better educators.

Now there’s something more that offers these same great opportunities – TI User Groups. With the arrival of TI-Nspire technology, this is the perfect time to start or join a TI User Group in your local area.

How to start a TI User Group

In my own case, the idea of starting a TI User Group occurred after I attended a T³™ Hands-on Institute called “Exploring Mathematics with TI-Nspire Technology.”

A follow-up email from TI mentioned TI User Groups. After checking out the link and seeing there wasn’t any group yet in my area in Indianapolis, I emailed TI a request to start a group here.

I like the idea of meeting with other educators to share knowledge and enthusiasm. I became a teacher because I like to work with people, and I know that I become a better teacher through collaboration with my peers.

The possibility of having all of these things through TI-Nspire technology is the perfect time to start or join a TI User Group in your local area.

Methods for reaching prospective members

The next task was getting people to come, so I started by sending a flyer via regular mail. I also distributed the flyer at a TI-Nspire technology workshop in Indianapolis.

I gave out my business card at the annual ICTM conference, and requested that Randy Miller, our region’s TI Educational Technology Consultant (ETC), send an invitation to the contacts he has of people in the area.

However, the method by which I got the most response was emailing teachers directly. Many of the public schools in my area have educators’ emails available online.

The group is particularly rewarding because of the relationships and support we receive from each other.

If you are interested in starting a TI User Group, or would like to join an existing group, visit education.ti.com/us/tigroups!

TI-Nspire® Technology Local User Group

From this modest beginning the group has been growing. We now have meetings approximately every six weeks.

A long list of meeting topics

Between operating system updates, the multitude of great features, the quality resources available, and teachers who are new to this technology, I do not envision running out of topics for our meetings.

A sample agenda includes a time for snacks and getting to know each other, a presentation, an activity, CAS time, and discussion about a hot topic.

For our first couple of meetings I gave the presentation and led the other segments. I look forward to our members getting more experienced with TI-Nspire technology so they can bring activities they have tried and share something they are considering using in the classroom for feedback before doing it.

The hot topic for this month was assessment. I’m certain this issue will come up again. For CAS time, we might demonstrate solving a problem with units, developing the solution of a difficult minimal path problem, or modeling how TI-Nspire CAS (Computer Algebra System) technology can be used to explore algebraic manipulation. Impressive activities abound on sites like TI’s Activities Exchange, as well as on TIAlgebra.com and TIGeometry.com.

Strong motivation

Our TI User Group has motivated me to learn more about effective teaching with technology. Besides providing the motivation to prepare my classroom for visitors from other schools, the TI User Group encourages me to try new ideas and communicate them to new friends.

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FAvORITE THINGS about TI-Nspire Technology

1. Pretty print on the input as well as the output. Now, using things like CTRL + ‘ the input looks like nice as MathType™. Furthermore, TI-Nspire technology has built-in automatic close parentheses.

2. Dynamic relationships between environments. More seamlessly approaching problems graphically, algebraically, numerically and verbally is a great way to improve depth of understanding of concepts.

3. Geometry is integrated. Geometry and graphing are now combined. This is extremely useful for explaining all kinds of concepts.

4. Animation. Making graphs move really helps capture the student’s attention and improve understanding.

5. The TI-Nspire handheld comes with the TI-84 Plus keypad. In essence, you get two handhelds for the price of one, and you can still use your favorite Apps or programs. I am partial to StudyCard™ Apps and an App called Timer, which, once calibrated, makes every student’s TI-83/84 Plus into a stopwatch.

6. CAS has units with constants built in. This is particularly appreciated by Physics and Chemistry students.

7. The Notes pages make it so much more pedagogical. This really is a learning and teaching tool. I appreciate the keyboard layout.

8. It graphs inequalities.

9. It does amazing things with transformations for functions like y=x, y=x², y=sin(x), and y=e^x.

10. Slider bars.

Sean Bird’s TOP 10
FAVORITE THINGS
about TI-Nspire Technology

1. MathType is a trademark of Design Science.

Sean Bird is an Instructor of Calculus and AP® Physics at Covenant Christian High School, Indianapolis, IN. In addition, he is an NHS Advisor and Rocket Team Supervisor. Sean and his wife have seven children, including one with a Teddy Bear named “CASsie.”

“TI-Nspire™ technology brings powerful communities of local educators together around TI-Nspire technology.”

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Visualizing Calculus

Why did the truck driver get a ticket?

By Daniel Ilaria
Mathematics Educator
Springfield Public Schools | Springfield, NJ

After five years of teaching AP Calculus, I can usually predict the concepts with which my students will encounter difficulty. Most of these concepts relate to visualizing a part of calculus that might be better demonstrated if I had more artistic ability. This year, with the help of TI-Nspire® technology, visually challenging concepts that took multiple lessons become one visually rich and engaging lesson where my students demonstrate understanding by the end of the class.

Mean Value Theorem for Derivatives
I always use the following problem to summarize the idea of the Mean Value Theorem (MVT) for my students who are lost after my attempts to draw a tangent line parallel to a secant line:

A truck driver travels on a toll road with a speed limit of 65 mph from Exit 5 to Exit 18, a distance of 150 miles, in two hours. Why did the truck driver get a ticket?

No matter how colorful the meter stick and how sophisticated the sound effects, the students lack understanding. After several examples and counter-examples, most students agree with what they see, but they don’t grasp how the continuous and differentiable properties of the function impacted the MVT.

So after all our efforts, I state the truck driver problem, and the students nod that the MVT now makes sense. The students may have a concrete example that helps them understand the meaning of MVT, but most do not truly understand the relationship between the tangent and secant lines, or why the properties of the function are important.

This year I am using TI-Nspire® technology to create a TI-Nspire file (document) with several functions that do or do not satisfy the conditions of the MVT. After the students receive the file, they draw a secant line, place a tangent on the function and move it until the slopes match (see Figure 1). The relationship between the tangent line and secant line becomes obvious because the students themselves move the tangent line.

Average Value of a Function
The same problems students encounter with the Mean Value Theorem occur when we discuss the average value of a function.

Once again, I used to draw a function and then ask students to draw a rectangle with the same area as the integral (See Figure 2). An obvious understanding of average value ensues as students figure out that \( c \) must be in the interval and why the conditions hold true. In one class, a student actually saw that this formula is similar to the MVT for derivatives, even before I could guide the students to look at that concept.

TI-Nspire technology makes these two concepts easier for my students to understand, and their comprehension occurs faster than in previous years. Every time I teach this class, the students force me to examine my own understanding of calculus as a result of their perspectives. The ability to use TI-Nspire technology this year has really opened all of our eyes to how calculus concepts work visually – which makes us all better learners in the classroom.

“The class covers in 40 minutes what used to take two or three class periods – and my students discover and understand the key concepts of the MVT.”

- Daniel Ilaria

Daniel Ilaria teaches AP Calculus and leads the K-12 mathematics department at Springfield Public Schools, Springfield, NJ. A 10-year teaching veteran, he is completing a Ph.D. program in mathematics education. Dan enjoys spending time with family, traveling and cooking.
In a real way, the introduction of the TI-81 graphing calculator in 1990 began a technological revolution in mathematics classrooms everywhere. The ability to have multiple lines of display, as well as the ability to graph functions, was unprecedented.

In 1996, the next big improvement came with the famous TI-83 graphing calculator.

In 2004, the TI-84 Plus family was introduced with such improvements as a larger memory, a better screen and a USB port for computer connection.

The next evolution in classroom tools has now been released by Texas Instruments. Its name is TI-Nspire technology.

The right way to use classroom technology

Some teachers are apprehensive or even opposed to using such technologies in their classroom. They fear that students will no longer have to think for themselves, and that the machine is doing all of the work for them.

If classroom technology is used incorrectly, I agree with these sentiments. But if it is used as simply another set of tools in the classroom, educational technology gives the teacher an opportunity to enhance students’ learning.

Teachers can use TI graphing technology to address concepts that they have not been able to teach students before.

Geometry and TI-Nspire technology

In my Geometry classroom, I have already used TI-Nspire technology in a number of ways. For one, I have used it to create a lesson document that consists of several pages.

The TI-Nspire handheld allows the user to create pages with a tabbed folder organizational system. Students can navigate from one page to the next. Individual pages can show text, graphs, spreadsheets, or computations, or a single page can be joined and show any combination of these representations, up to four at a time.

My students take notes from the information, manipulate diagrams on the screen to see what effects occur, and answer questions based on the concepts that I want them to learn.

Another way we use TI-Nspire technology is to create figures and make conjectures about them. We can then manipulate the figures and watch as the measurements we take change.

In the Algebra 2 classroom

One way my Algebra 2 students use TI-Nspire technology is to check their understanding of how matrices behave. While they can learn how to manipulate matrices using pencil and paper, the friendly user interface of the TI-Nspire handheld allows them to check over their work to either verify their findings or uncover a mistake they have made. It’s also fun to show my students how much faster many of them can use paper and pencil to perform scalar multiplication, rather than type into the machine. This serves to remind them that there’s a time and a place for everything.

While my time using TI-Nspire technology has been brief, I have enjoyed having it in my classroom so far. I feel that it has been beneficial to my students.

As the year progresses, I hope to expand how I use it and reach beyond my current comfort zone into some uncharted territory for me and for my students.

Tracy Wingert teaches Geometry at Le Mars Community High School, Le Mars, Iowa. His hobbies are tennis, volleyball and educational technology.

“Teachers can use TI graphing technology to address concepts that they have not been able to teach students before.”

- Tracy Wingert
Teaching: Highly Qualified vs. Highly Effective

By Cindy Hester and Susanne Pyle
Mathematics Instructors and Technology Coaches
Flagstaff High School | Flagstaff, AZ

Each school year, teachers across the country are required under the No Child Left Behind Act to complete paperwork which documents their status as “highly qualified.” Principals, district administrators, and state officials keep a watchful eye on the data generated by this paperwork. Undoubtedly, educators and parents alike should be concerned with the qualifications of those teaching in the classroom. We should demand that children be taught by educators who have proven a command of knowledge in their field, just as we demand credentials from any other professional.

But, is being highly qualified really where our concern should end? Shouldn’t being highly effective also be a concern for teachers as professionals? In the November 2007 NCTM News Bulletin, Skip Fennell states in the President’s Message, “We know that students who outperform their peers, regardless of socioeconomic background, are highly effective also.”

Defining “Highly Effective”

What does being highly effective mean, especially in today’s technologically advanced society? Meander through the halls of a high school in your neighborhood. It’s likely by you’ll find many classrooms just as you remember them: neat horizontal and vertical rows of desks facing a chalkboard and an instructor.

You may find the desks facing a whiteboard or even an interactive whiteboard if you are lucky. It’s also likely that you will see students armed with paper and pencil while listening to a lecture. Doesn’t seem like much has changed, does it?

Moving through a time warp

Be patient and extend your tour for a while longer. Stay for a passing period. You’ll soon see halls flooded with students’ scrambling for cell phones, MP3 players and compact video games. Suddenly you and the students are warped forward into a technologically rich environment. Adept fingers fly across mouse pads and keypads, text messaging, sending and checking emails, downloading photos, gaming on advanced levels, and sharing music.

And just as quickly as it began, we warp back at least a two decades when the bell for the next class tones.

The impact of TI-Nspire™ technology

A colleague’s statement during a recent presentation is a telling one: “Texas Instruments set the classroom standard in calculators.” It was the introduction of calculators into our personal classrooms in the 1980’s that sparked the thought and, yes, the fear that we might need to relinquish trusted lesson plans and comfortable lectures.

Clearing the air

The impact of TI-Nspire™ technology is being able to engage and empower students. A student who is reluctant to tackle a math problem on paper seems much more willing to meet the problem head-on if provided one of these devices.

We have seen learning in our classrooms become more student driven and, in response, our teaching has risen above the limitations of the horizontal and vertical rows of desks and the chalkboard. Skip Fennell concludes his President’s Message with a passage from Principles and Standards for School Mathematics: “Effective teaching requires continuing efforts to learn and improve. These efforts include learning about mathematics and pedagogy, benefiting from interactions with students and colleagues, and engaging in ongoing professional development and self-reflection.”

In summary, we must be concerned both with being highly qualified and being highly effective. With the introduction of TI-Nspire™ technology, TI has once again proven to be an educational ally in our effort to meet today’s rapidly changing teaching needs.

A new attitude toward teaching

A large component of effective teaching is being able to engage and empower students. A student who is reluctant to tackle a math problem on paper seems much more willing to meet the problem head-on if provided one of these devices. We have seen learning in our classrooms become more student driven and, in response, our teaching has risen above the limitations of the horizontal and vertical rows of desks and the chalkboard.

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Clearly, we must be concerned both with being highly qualified and being highly effective. With the introduction of TI-Nspire™ technology, TI has once again proven to be an educational ally in our effort to meet today’s rapidly changing teaching needs.

Tips & Tricks

Student Responsibility for Classroom Handhelds

Making students accountable for their own technologies is a big issue in any mathematics classroom. To make sure all of your students are responsible for the handhelds they use in class, I number my TI-Nspire™ handhelds and assign each student a number. In addition to assigning each student a particular handheld, I require each student to sign a contract stating they are responsible for any damage caused to the handheld.

I teach three classes, so one handheld is assigned to three different students. At the beginning of class, students are asked to report any problems with their handhelds — otherwise, they will be considered responsible. My students have handled this system very well, and we have experienced no damage to the handhelds. With this system, students clearly feel responsible for the care of their handhelds.

-Breanna Harrill | Athens Drive High School | Raleigh, NC

Find What You Want Faster

When you use TI-Nspire™ technology, you don’t have to remember where to find operations in the menus anymore! You can simply type in what you want the TI-Nspire handheld to do and it automatically recognizes the function.

For example, if you want to select a random integer between 1 and 10, just type in randInt(1,10) using the green letter buttons and hit enter. It’s fast and easy, especially for my students, who are used to text messaging each other by typing with both hands!

-Sonia Dupree | Middle Creek High School | Apex, NC

(See Page 22 for more Tips & Tricks)
Passing the Test
Standing up to the challenge of college entrance exams with the TI-Nspire™ and TI-Nspire CAS handhelds

My student, Matthew, a senior at Lyme Central School in Chaumont, New York, was among the first students in the nation to use the TI-Nspire handheld on his SAT exam in October 2007.

By Lisa Blank
Mathematics and Science Teacher
Lyme Central School | Chaumont, NY

Matthew gained familiarity with the TI-Nspire handheld and its similar computer capabilities. As he engaged with TI-Nspire technology, he learned that students today have grown up with technology, latch on to new ideas quickly and thrive on learning about the latest technologies.

Growing up with computers, students learn TI-Nspire technology quickly. I am very impressed with how quickly Matthew gained proficiency with this new tool, and I attribute the ease of use of the TI-Nspire handheld to its similarity to personal computers. Our students in schools today have grown up with technology, latch onto new ideas quickly and thrive on learning about the latest technologies.

According to the College Board calculator policy, and ACT, Inc. calculator policy, the TI-Nspire handheld is permitted for use on SAT®, ACT®, PSAT®, and Praxis exams. The TI-Nspire CAS® (Computer Algebra System) handheld is permitted for use on SAT®, PSAT®, and AP® exams.

The TI-Nspire and TI-Nspire CAS® computer software, it is not activated. Your choices when opening it will be running the software in its 30-day trial mode or activating it. Once the software is activated, you will have full use of its features on your computer with no time limit. To activate the software, click on the radio button next to Activate My Software, and then click Next. This will bring you to a screen with four options:

Q: I activate my TI-Nspire or TI-Nspire CAS computer software?

TI-CARES: Activation is the process of unlocking the software for full use. When you first install TI-Nspire or TI-Nspire CAS computer software, it is not activated. Your choices when opening it will be running the software in its 30-day trial mode or activating it. Once the software is activated, you will have full use of its features on your computer with no time limit. To activate the software, click on the radio button next to Activate My Software, and then click Next. This will bring you to a screen with four options:

1. Option 1 – Internet. This option will take you through the steps to activate from right within the software. You will be prompted for your license and serial numbers, and then for your contact information. Once you enter this information, it is sent to TI for validation, and an Activation ID is returned by email. The software will be fully activated and ready to go, and you will receive an email for your records with the information submitted to TI. This is the fastest option, and is available 24 hours a day, 7 days a week.

2. Option 2 – Web Portal. This will open a browser window to a section of TI's Web site. You will be prompted to enter your license and serial numbers, as well as a special Installation ID which will be validated on the back of the TI-Nspire or TI-Nspire CAS® computer software CD package. After entering this information, you will receive an Activation ID which you need to enter into the TI-Nspire or TI-Nspire CAS® computer software. After entering this information, you will be prompted for your contact information. Once your information is received by TI, you will receive an email for your records with the information submitted to TI. This option takes slightly longer than the Internet option, but does not require a direct Internet connection on the computer running the software. It is also available 24 hours a day, 7 days a week.

3. Option 3 – Phone. This option displays a phone number to call and blank fields for your license and serial numbers, as well as your Installation ID. The representative on the phone at 1.800.TICARES will ask you for all 3 IDs, as well as your contact information, and will verbally give you the Activation ID. Once the Activation ID is entered into the software, along with the license and serial numbers, the software will be activated. As with the first two options, you will receive an email for your records with the information submitted to TI. This option takes a little more time, but works without an Internet connection. This option is available Monday through Thursday from 8 a.m. to 7 p.m. CST and Friday from 10 a.m. to 7 p.m. CST.

4. Option 4 – I already have an Activation ID. Use this option if you already have an Activation ID, but your software has somehow been deactivated. Please ensure that all numbers (license, serial and Installation IDs) match up before attempting to enter the Activation ID. If you encounter problems with this option, please call 1.800.TICARES for assistance.

Q: If I upgrade the operating system on my TI-Nspire technology, will I need to reinstall the applications (Apps) that I use with the TI-84 Plus Keypad?

TI-CARES: Yes. Within the TI-Nspire operating system (OS) is the TI-84 Plus software, which includes Apps you use with the TI-84 Plus Keypad. When you update the TI-Nspire OS, the Internal TI-84 Plus software memory is overwritten with default preload-ed Apps – so you will need to reinstall your specific TI-84 Plus Apps. If you are using the TI-Navigator™ system, you will also need to reinstall TI Navigator Flash Apps anytime you reload or update the OS.

Q: I have a question about TI-Nspire technology, get in touch with TI-Cares Customer Support by email at ti-cares@ti.com or by phone at 1.800.TICARES (800.842.2737).
Getting Ready for an Exam?
Just Press, Then Test!

The new Press-to-Test feature for TI-Nspire technology provides a unique solution to quickly and easily prepare student handhelds for exams.

Press-to-Test performs security tasks as well. During test mode, the handheld will blink green if geometry restrictions are selected, and blinks yellow if they are not selected. In addition, Press-to-Test automatically deletes test documents at exit. The TI-Nspire CAS handheld offers the same Press-to-Test capabilities except the blinking LED security function.

When you have many students taking the test, not only do you have to help them prepare but you also have many handhelds to configure. The enhanced Press-to-Test feature for TI-Nspire and TI-Nspire CAS handhelds is a fast way to configure virtually hundreds of student handhelds on exam days.

**TI-Nspire Press-to-Test Mode Keystrokes**

1. Turn the handheld OFF with the [ctrl] [on] keys.

2. With the handheld turned OFF, press and hold down the [esc] key, “home” icon key and [on] key to bring up the Press-to-Test Mode dialog box (press and hold all 3 at the same time). Release the keys after you see the dialog box.

3. Make your selections for default angle setting and/or whether or not to allow the interactive geometry menu features for: Measurement, Constructions, Transformations and Coordinates & Equations. Limiting geometry functions disables these features of the interactive geometry functionality that some exam boards do not want available during an exam. Use the [tab] key to move to the different options in the dialog box and click to select. Highlight OK and press [enter]. The TI-Nspire handheld will reboot with a status bar.

4. Notice the flashing LED at the top end of the TI-Nspire handheld. It will be green if you checked “Limit geometry functions” and it will be amber/yellow if you unchecked that box. During the rebooting process, there is also a red light combined with the green or amber light. Once reboot is complete, the red light goes away and the green/yellow continues to flash.

5. After the reboot, you will immediately see a unique dialog box showing that the handheld was just put into Press-to-Test mode and is confirmed to be disabled and “cleared for use”. This dialog box says “Press-to-Test invoked.”

6. During or after the exam, you can tell if a handheld is still in Press-to-Test mode by the flashing LED, and also by turning the handheld OFF and back ON, to see the dialog box (below) stating that it is in Test Mode.

7. Restoring the handheld from Test Mode will delete the documents created during test mode and restore all previous working documents.

**SECURITY:**

- The blinking LED is hardware-secure and cannot be impacted by coded software.
- The student cannot get out of this mode by removing the batteries or by resetting the device.
- The student cannot change the keypad while in the Press-to-Test Mode, or they will get a dialog box to change the keypad back to the one where Press-to-Test was invoked.

To download the latest operating system with Press-to-Test and more new features, visit ti-nspire.com.
Educators and students alike can celebrate “Pi Day” on March 14 with this new activity for TI-Nspire technology.

**Materials**
- TI-Nspire or TI-Nspire CAS handheld or computer software

**Overview:**
By the time students reach high school, they usually know that pi is a non-terminating, non-repeating number. But they usually only know 3.14 and \( \frac{22}{7} \) as estimates of pi. This activity introduces other estimates.

**Procedure:**
- Students need to open the file ApproxPi.tns. For each regular polygon on pages 1.3 and 1.4, students are to use the Length tool (MENU > Measurement > Length) to find the perimeter and length of the given diagonal.
- Once those measures are found, students can use the Text and Calculate tools (MENU > Tools) to find the ratio of the perimeter to the given diagonal for each of the six polygons. Students should change the size of the polygons to check if the ratios remain constant.
- Discuss with students what is true about the ratios and diagonals. They should notice that the ratios are increasing and getting closer to pi. They should also notice that the given diagonals all pass through the center of the polygon and that the polygons become closer to forming a circle as the number of sides increases.
- Students are to use the Compass tool (MENU > Construction > Compass) to confirm that each diagonal is the diameter of the circle that circumscribes the polygon. They should be able to conjecture that as the number of sides increases infinitely, the polygon becomes a circle and the ratio becomes pi.
- Discuss how Archimedes of Syracuse (approx. 250 BC) used a polygon with 96 sides to estimate the value of pi.
- Students can change their Document Settings to display more digits (File > Document Settings). They need to change Display Digits to Float 12 and then advance to page 1.9 to show the value of pi to 11 decimal places. (3.14159265359)

**On page 2.1,** students can see the formula for percent error of a measurement. It is 100 times the relative error, which is the ratio of the difference between the measurement and the true value to the true value.

**On page 2.6,** students are to compare three fractional approximations for pi. While \( \frac{22}{7} \) is a better approximation than \( \frac{355}{113} \), it is a widely used estimate because it is easier to remember and use.

**Lastly,** students are to use the spreadsheet on page 3.2 to show that \( \frac{2}{1} + \frac{4}{3} + \frac{6}{5} \) approaches pi as \( n \) gets larger. Students can generate the sequence in parentheses by pressing MENU > Data > Generate Sequence and entering the formula \( \frac{1}{n} \).

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Call for **TI-Nspiring Times** Submissions…

We want to hear from you! Share your ideas on TI-Nspire™ technology, tips and tricks, classroom activities, success stories and more. Send your submissions to nspiringtimes@list.ti.com.

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**Tips & Tricks**

*By Patricia Kehoe*

*Itinerant Teacher, Student Success Department*

*Ottawa Catholic School Board | Nepean, ON*

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**Letting Students Draw Their Own Line of Best Fit**

When exploring the line of best fit with my Grade 9 students, I find they need the experience of drawing the line themselves with the TI-Nspire™ handheld.

To start, we all create a scatter plot from the same data set.

We then choose the Line tool. Every student uses the tool to construct their own line.

We click twice and the line is drawn. Students love the Undo feature (press Ctrl esc) in case they draw their line and then decide they want to redraw it.

Students then use the Tools menu to find the equation of the line they drew.

We all enjoy comparing the equations of the lines we have drawn for the same set of data. The discussion ends with someone in the class finding the actual regression line and displaying it using the overhead palette. Students are always interested to see how close their estimate comes!

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**TI Nspiring Times Sudoku Puzzle**

Answers in the next issue

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