



Chemistry with TI-Nspire™ and TI-Nspire™ Navigator™ – Day 2

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Materials for Workshop Participant*

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T³ Professional Development Categories and Learning Objectives

There are three categories of T³ Professional Development, each with a unique set of learning objectives. This workshop is focused on technology integration, and its objectives are as follows:

Technology Integration

- Emphasis on learning to use TI technology, with broad “how-to” coverage highlighting a wide range of features
 - Subject/content-focused training on appropriate usage of TI technology in the classroom
 - I am comfortable with essential technology skills for exploring math and science content.
 - I can design opportunities for students to use technology as a tool to deepen their understanding of mathematics and science.
 - I can locate and download TI activities that align to my standards.
 - I can describe the role technology should play in the successful implementation of my standards, and I can implement a vision of a classroom where students routinely use technology to engage in the practice and content standards.
-

Workshops focused on instructional practices and content knowledge have the following objectives:

Instructional Practices

- Emphasis on classroom practices with technology as a tool to enhance student learning
- Models CCSS, TEKS, and NGSS tasks using in-depth discussions, reflective practices, and essential technology skills
 - I can demonstrate the importance of teacher actions for students’ engagement in the Practices, and I can take actions that will enable students to become mathematical and scientific practitioners.
 - I can describe the role that technology should play in the successful implementation of my standards, and I can implement a vision of a classroom where students routinely use technology to engage in practice and content standards.
 - I can design tasks for students to employ the Practices, using technology as a tool to deepen their understanding of mathematics and science.
 - I can ask questions designed to make student thinking visible – to push them to think about connections, make comparisons, or probe their understanding.

Content Knowledge

- Emphasis on content with technology as support
- Addresses critical, tough-to-teach topics and new content standards for CCSS or TEKS
 - I have a deeper understanding of the mathematics and science in my content area, and I am aware of the shifts in content that affect what I teach.
 - I can design opportunities for students to use technology as a tool to deepen their understanding of mathematics and science.
 - I can locate and download TI activities that align to my standards.
 - I can describe the role technology should play in the successful implementation of my standards, and I can implement a vision of a classroom where students routinely use technology to engage in the practice and content standards.



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TI-Nspire™ and TI-Nspire™ Navigator™ “I Can...” Statements

Day 2

TI PROFESSIONAL DEVELOPMENT

I can...	HH/Nav/DC
Locate a TI-Nspire document on the website.	Nav
Save and identify the components of the activity.	Nav
Send a TI-Nspire document to my class in multiple ways.	Nav
Use Class Capture to capture students' screens.	Nav
Use Live Presenter in the classroom setting.	Nav
Show and hide student names in the Class Capture.	Nav
Refresh students' screens in the Class Capture.	Nav
Use the Quick Poll feature of TI-Nspire Navigator.	Nav
Create a document using the TI-Nspire™ Navigator™ Teacher Software; convert English length to metric length.	Nav
Add a Notes page and include a title; add a Lists & Spreadsheet page, name columns (creating variables), and enter data; add a Data & Statistics page and graph and analyze data.	Nav
Add questions to the document following the Data & Statistics page; send questions as individual Quick Polls and as a TI-Nspire document.	Nav



The TI-Nspire™ Navigator™ Classroom

TI PROFESSIONAL DEVELOPMENT

Objective

- Perform various TI-Nspire™ Navigator™ skills demonstrated in previous activities.

About the Lesson

- Participants will role-play in this activity as a teacher and/or a student.
- The participant playing the role of the teacher will conduct a directed lesson using the features of the TI-Nspire Navigator System.
- The participant playing the role of the student will perform the tasks of a student for the lesson.
- Participants should then switch roles and repeat the process for another lesson.

TI-Nspire™ Navigator™ Features

- Setting Up a Class
- Sending a Document
- Class Capture
- Live Presenter
- Quick Poll
- Student Portfolio
- Student Data

Roles

Working in pairs, assign one role as the teacher and one role as the student. The “teacher” will operate the computer, and the “student” will operate two TI-Nspire handhelds.

Participants will have an opportunity to switch and experience both roles.

Instructions

If a step below has **Teacher** in front of it, the participant operating the computer will perform the task. If the instruction has **Student** in front of it, the participant operating the TI-Nspire handhelds will perform the task.

TI-Nspire™ Technology Skills:

- Opening a TI-Nspire document
- Navigating a TI-Nspire document

Lesson Materials:

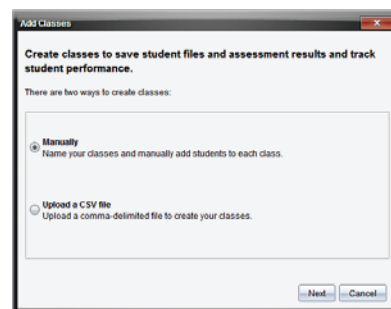
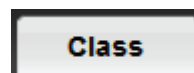
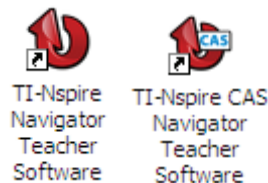
Equipment

- Computer with TI-Nspire™ Navigator™ Teacher software (for a pair of participants) with two USB ports
- Two TI-Nspire™ learning handhelds per participant
- Standard A to Mini-B USB Cables

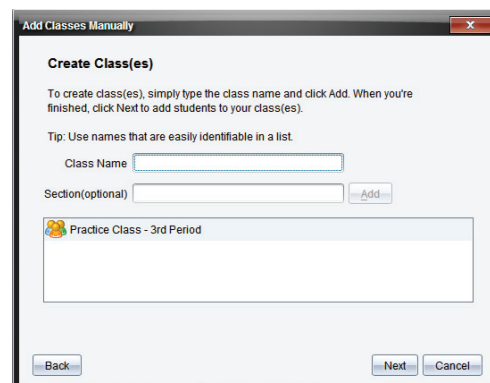
The TI-Nspire™ Navigator™ Classroom TI PROFESSIONAL DEVELOPMENT

Adding a Class

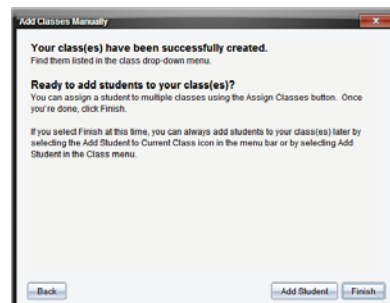
1. **Teacher:** Open the Teacher Software on the computer by double-clicking the Teacher Software icon on the desktop.
 - If necessary, close the Welcome Screen.
2. **Teacher:** If necessary, open the Class workspace by clicking on the **Class** tab.
3. **Teacher:** Select the **Add Classes** icon from the tool bar, or select **Add Classes** from the **Class** menu.
4. **Teacher:** Click on **NEXT** to enter the class and students manually.
 - The process for uploading a CSV file to create classes is located in a tip sheet. It can be discussed at a later time.
5. **Teacher:** Enter “Practice Class” as the class name and “3rd Period” as the section.
 - It is not necessary to complete the Section field. But it allows teachers to name classes by subject only (e.g. Algebra) and use the section field to distinguish between classes of the same subject (e.g. 3rd Period).



6. **Teacher:** Click on the **Add** button.



7. **Teacher:** Click **Next**.





Adding Students

1. **Teacher:** To immediately add students to the class, click the **Add Student** button.

- If the teacher closes the Class Wizard by clicking **Finish**, select the **Add Student** icon or select **Add Student** from the **Class** menu.



2. **Teacher:** For each student below, enter the first name, last name, and user name into the Add Students window. Select **Add Next Student** to add another student.

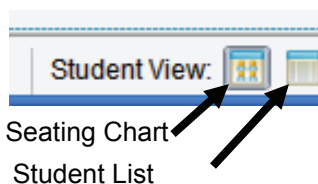
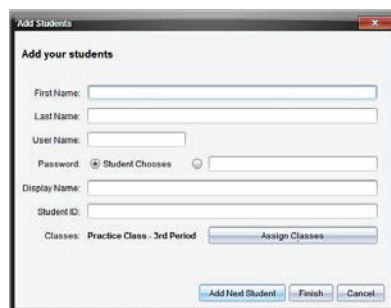
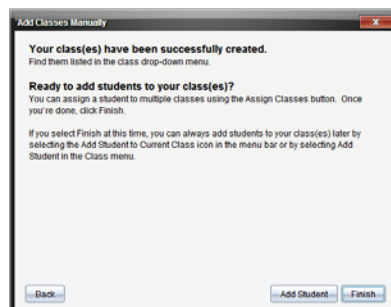
- Jon, Smith, Jon
- Deb, Jones, Deb
- Marco, Polo, Marco
- Sonja, Perez, Sonja
- Raymone, Tyson, Raymone

3. **Teacher:** You can choose a password for each student, or each student can choose his or her own password when they log in to the class for the first time.

- This will then be the student's password unless the teacher chooses to reset it.
- By default, the Display Name is the student's first name. The Display Name can be edited as desired.
- The Student ID is optional but sometimes important if you want to import grades into grade book software.

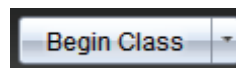
4. **Teacher:** After the last student's name is entered, click **Finish**.

5. **Teacher:** To switch the student view between **Seating Chart** and **Student List**, use the Student View icons in the lower right corner of the software.



Log in Students

1. **Teacher:** Begin the class by clicking **Begin Class**.
 - Each student's icon should change from light gray to light blue/yellow.
2. **Teacher:** Connect both of the TI-Nspire handhelds to your computer using USB cables. One end goes into your computer's USB port and the other into the TI-Nspire handheld.






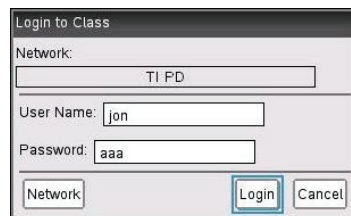



The TI-Nspire™ Navigator™ Classroom

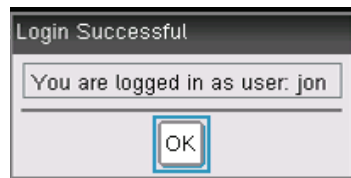
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Note: In your classroom, each student's handheld will not be connected to your computer in this way. They will each have their own wireless module that will communicate with your computer.

3. **Student:** Turn on each handheld.
4. **Student:** Log in a student on one of the handhelds.
 - The login window should pop up on the handheld's screen.
 - If it does not, press  to access the Home screen, select  for Settings and  for Login.








5. **Student:** Type **jon** as the username of one handheld, press ▼ on the Touchpad/Clickpad, type **abc** as the password, and press .
 - You will see a message pop up on the handheld stating: "You are logged in as user: jon"



6. **Student:** Press  to select the OK button.

Note: The passwords used can be the same for all students or unique to each individual. Some teachers assign everyone the same password so that they do not have to reset any passwords. Some teachers allow students to pick their own passwords.

7. **Student:** Log in as **deb** on the other handheld.
 - If necessary, press  to access the Home screen, select  for Settings & Status and  for Login.
 - **Student:** Type **deb** as the username of another handheld, press ▼ on the Touchpad/Clickpad, type **abc** as her password, and press .
 - You will see a message pop up on the handheld stating: "You are logged in as user: deb"
8. **Student:** Press  to select the OK button.

Send a Document

1. **Teacher:** Click **Send to Class**.
2. **Teacher:** Browse for the TI-Nspire document titled *Density_of_Metals.tns* provided for this activity in the location specified by your instructor. Click on the TI-Nspire document name so that it is highlighted.
 - Each person, when in the Teacher role, should use *Density_of_Metals.tns*.

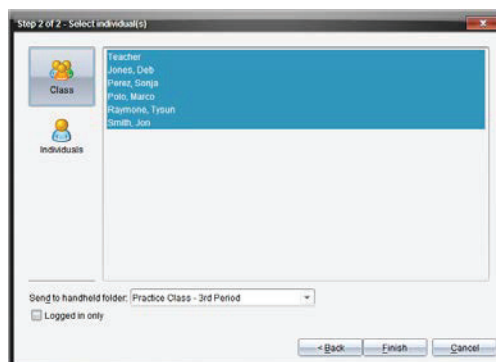




The TI-Nspire™ Navigator™ Classroom

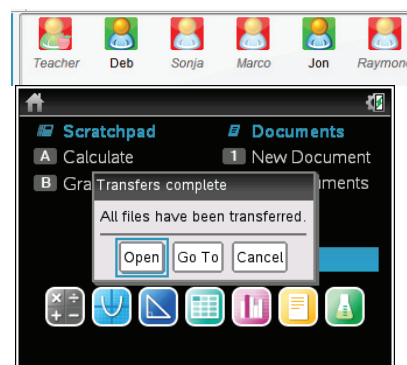
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3. **Teacher:** Click **Finish** to send the document to the handhelds.





- You are able to send a document to specific individuals. However, the default is to send to the entire class. This is advisable because late students automatically get the document after they log in with minimal disruption.
 - You do not have to wait until the students log in before sending a TI-Nspire document. Documents can be sent any time after a class has been started.
 - On the handheld, all documents will be sent to a folder with the same name as the class (in this case, the Practice Class – 3rd Period folder).
4. **Teacher:** Click on the 1st row in the Class Record. The row will turn blue, and you will see red and green student icons in the Classroom View.
- A green icon indicates that the student has received the document; a red icon indicates that that student has not received the document.
 - Students with a red icon might be absent, or communication has been disrupted.
 - It is good practice to monitor the transfer of the documents sent to ensure that your students receive them.
5. **Student:** Students know they have received a document based on the “Transfers Complete” pop-up window.

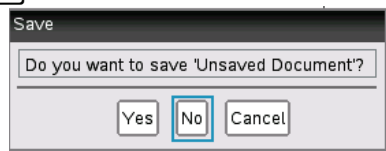
Class Record		
Action	File Name	Status
	NavLinTransformati...	2 of 6



Open the Document

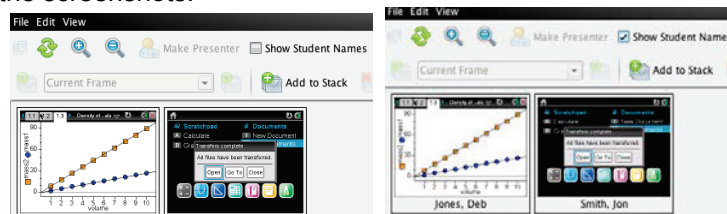
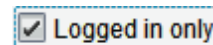
Remember: The participant in the **teacher** role should be looking at the computer screen and not the handhelds. The participant in the **student** role should be looking at the screen of their handheld and not the computer screen. This is to model the classroom experience.

1. **Student:** Pick **one** of the two handhelds and follow the Teacher's instructions in step 2.
 2. **Teacher:** Say: "Open the document that was just sent to your handheld. To do this, Press **enter** or  **del**."
- If the handheld had a document open prior to opening this one, you would be asked to choose whether to save the prior document. Select No by pressing .



Class Capture and Live Presenter

1. **Teacher:** Without looking at the student handhelds, press the **Take Screen Capture** icon and select **Class Capture**.
2. **Teacher:** Click on the check box next to "Logged in only" to place a check mark inside. This will show screen captures for only those students that have logged in. Click **OK** to display the screens.
3. **Teacher:** If the student only opened the document on one handheld as requested, the participant playing the role of teacher will notice that one student in the class has not opened the document.
4. **Teacher:** Click on the check box beside Show Student Names, and observe the names appearing under the screenshots.



Pause and Think About:

- i. Are there scenarios where you want to see the name with the screenshot of each handheld?
- ii. Can you think of a scenario where you would not want the names displayed?
- iii. If you notice that a student has not yet followed your instructions, how could you get the student back on track?



The TI-Nspire™ Navigator™ Classroom

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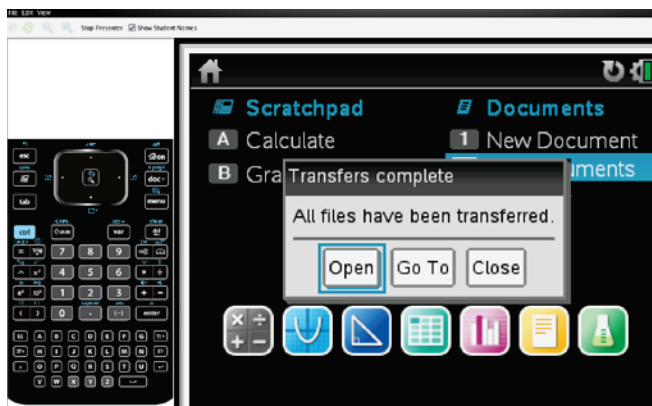
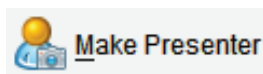
5. **Teacher:** Click on the one screen capture that does not have the first page of the document. It might be Jon's or Deb's handheld.
 - You want all students to properly process your verbal instructions. Class Capture can help you in this regard.


How do you get this student back on track?

- One strategy makes use of the Show Student Names feature within Class Capture to identify students that are having difficulty. Students close to them can help them get back on track.
- Another strategy to get a student back on track is to make the student the Live Presenter and coach the student back. This is the strategy described below.



6. **Teacher:** Click on the Screen Capture of the student who is not on the appropriate screen, and click the **Make Presenter** button. You can now view a live feed of the handheld belonging to that student.
 - You will see the student's handheld on your computer screen.
 - The Live Presenter is a tool inside Class Capture that will show what the student is doing in real time. See Below. Note that you will see the handheld type used by the student according to the keypad they are using. This student is using TI-Nspire with Touchpad.



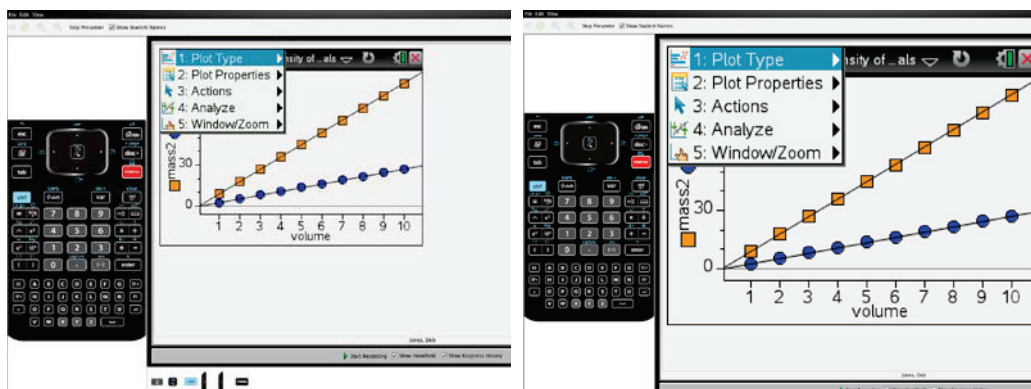
7. **Student:** Pick up the second handheld that has Deb logged into it, and follow the teacher's directions.
8. **Teacher:** Direct the student to press **enter** or  on the handheld to open the document that was sent to the class.



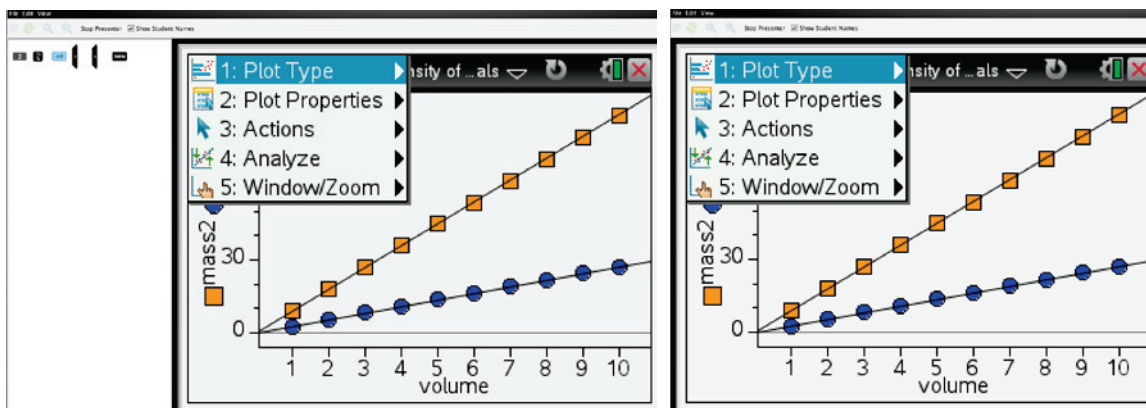
The TI-Nspire™ Navigator™ Classroom

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Note: The teacher can customize the layout of the presenter. Currently, the default is to show the Handheld and Key Press History. You can turn off either or both of these views to customize the Live Presenter. You will see the key press history and the screen changing in real time. Notice on your computer software that you will see the specific buttons the student pushes identified by red outlines.



Show Handheld and Key Press History Show Handheld Only



Show Key Press View Only Neither Handheld Nor Key Press History

Note: One other important feature of Live Presenter is the ability to record keystrokes. Pressing **Start Recording** initiates the recording of an .avi video file. When you press **Stop Recording**, you will be prompted to save the .avi file in the Practice Class folder that exists on your computer.

9. **Teacher:** Once this student has opened the document, click on the **Stop Presenter** button.

Start Recording

Stop Recording

Stop Presenter



The TI-Nspire™ Navigator™ Classroom

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10. **Teacher:** Direct the student to interact with the document using the accompanying Student Activity handout (if applicable).
11. **Student:** Interact as directed with the TI-Nspire document.
12. **Teacher:** While students are working, monitor their progress with the Class Capture. Refresh manually or set up Auto-Refresh as desired



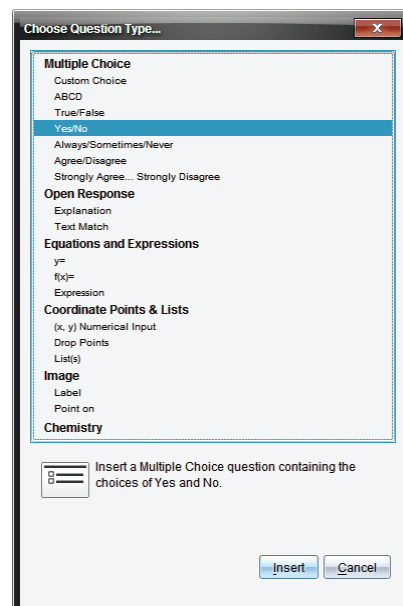
Auto-Refresh: 30 seconds

Pause and Think About:

How could the use of Class Capture and Live Presenter change the way you can teach?

Quick Poll

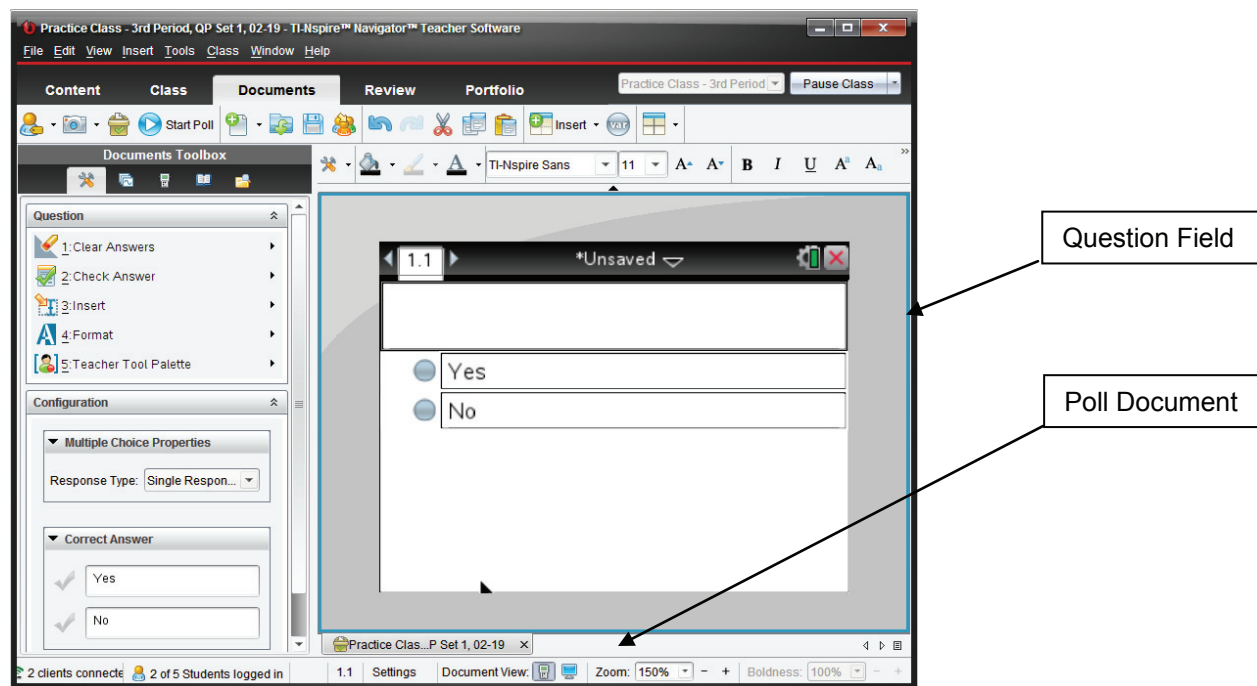
1. **Teacher:** Close the Class Capture feature of the software on your computer.
2. **Teacher:** Now, click the **Quick Poll** icon.
 - The Choose Question Type dialog box appears.
 - There are a variety of question types available:
 - Multiple Choice: Custom Choice, ABCD, True/False, Yes/No, Always/Sometimes/Never, Agree/Disagree, Strongly Agree... Strongly Disagree
 - Open Response: Explanation, Text Match
 - Equations and Expressions: $y=$, $f(x)=$, Expression
 - Coordinate Points & Lists: (x,y) Numerical Input, Drop Points, and List(s)
 - Image: Label, Point on
 - Chemistry
3. **Teacher:** Select the Multiple Choice - Yes/No question type and press **Insert**.
 - A document titled “Practice Class – 3rd Period, QP Set 1, DATE” opens in the Document workspace with a question page.
 - If desired, the question can be entered into the question field or it can be left blank and the question can be asked orally.





The TI-Nspire™ Navigator™ Classroom

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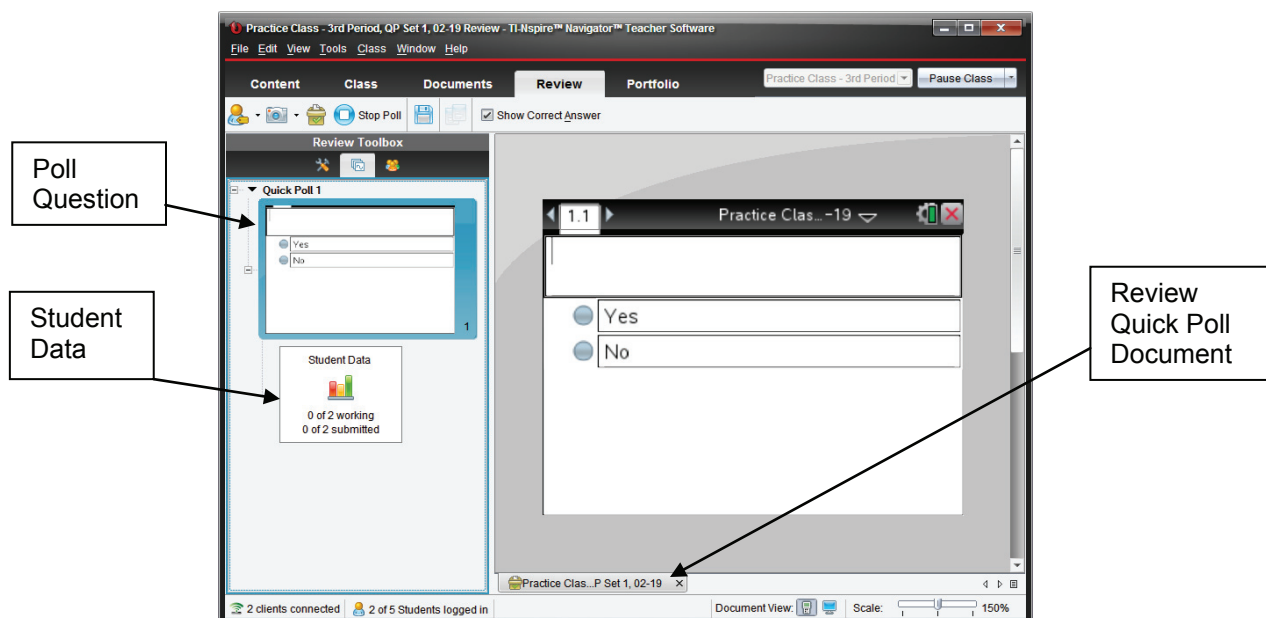


4. Teacher: Press the **Start Poll** button.

- Assume that you are going to ask the following question orally to your class without the need for the question text.
- Ask the student a yes/no question orally about the activity.





Note: Immediately after pressing the **Start Poll** button, the software opens to the Review workspace and creates a Review Poll document containing the Poll Question and Student Data.

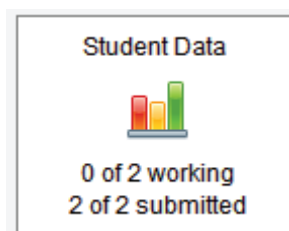
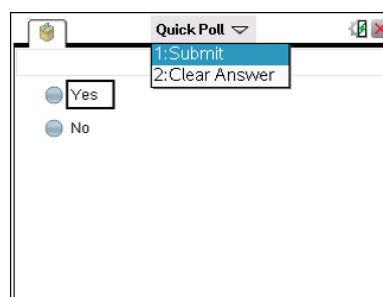
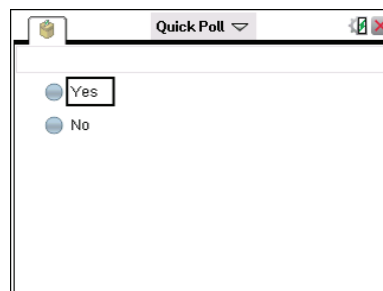




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5. **Teacher:** Monitor the number of incoming responses by watching the Student Data.
 - As the students begin to answer the poll, the numbers will change in real-time according to the number of students working on the question and the number of students who have submitted their answer.
 - Shown to the right is what a student sees on his or her handheld. All students have been sent the poll.
6. **Teacher:** If this is the first time a student has been asked to respond to a poll, you might have to give instructions for answering a poll and submitting an answer. Tell the student:
 - “To answer the question, use the arrow keys to move to the Yes or No answer. Press the click key to “color” in the answer bubble of your choice.”
 - “To submit your answer, press the DOC button and select **1:Submit**.
 - Alternatively, click on the down arrow to the right of the words **Quick Poll** at the top of the screen. Select **1:Submit**.
 - On a Clickpad handheld, press   to open the Quick Poll pull-down menu.
7. **Student:** Follow the teacher’s instructions to send student responses from each handheld to the teacher’s computer. On one of the handhelds, send Yes as the answer to the poll. On the other handheld, send No as the answer to the poll.
8. **Teacher:** Monitor the Student Data, and click the **Stop Poll** button once you have received an answer from each handheld.
 - As the students begin to answer the poll, the numbers will change in real-time according to the number of students working on the question and the number of students who have submitted their answer.

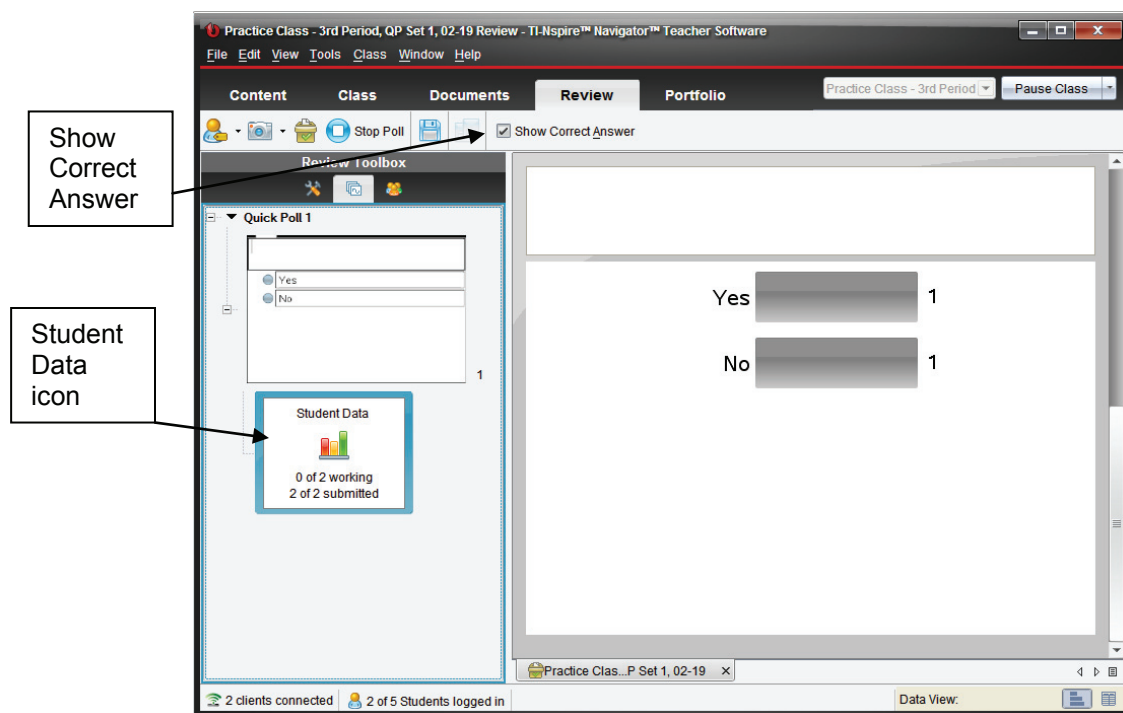




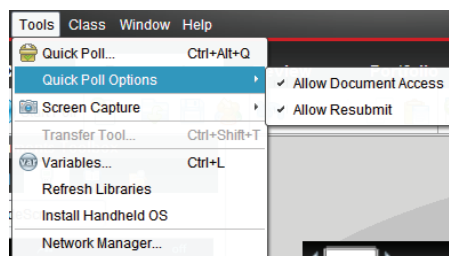
The TI-Nspire™ Navigator™ Classroom

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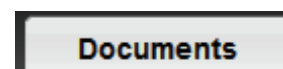
9. **Teacher:** Click the **Student Data** icon, and note that the incoming answers have been collected and organized for you.



Note: By default, the “Allow Resubmit” option is turned off. This option allows students to resubmit their answers until the poll is stopped. When the “Allow Resubmit” option is turned off, then the student has only one chance to respond to the question and the poll will disappear as soon as the student submits an answer.



10. **Teacher:** The “Allow Resubmit” option is located in the Documents workspace under the **Tools > Quick Poll Options** menu. Return to the Documents workspace, and select **Allow Resubmit**.



Pause and Think About:

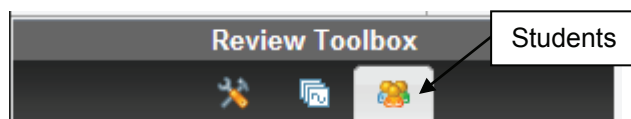
When would you want students to Resubmit answers to a poll?

When would you not want students to Resubmit answers to a poll?

The TI-Nspire™ Navigator™ Classroom

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11. **Teacher:** Type the text of another appropriate yes/no question for the activity in the Quick Poll Question page that is already open.
12. **Teacher:** Press the **Start Poll** button.
13. **Student:** Select a response, and submit it for both handhelds.
 - The Quick Poll window remains open on the handhelds since the teacher selected the Allow Resubmit option.
14. **Student:** Change an answer on one handheld and resubmit.
15. **Teacher:** Monitor the Class Results, and click **Stop Poll** once you have received answers from all of your “students.”
16. **Teacher:** Click on the **Student Data** icon for Quick Poll 2 to see the student responses.
17. **Teacher:** Click on the **Students** icon under the Review Toolbox to see each student's response. The students' names that are in red have not answered the poll.



18. **Teacher:** Click on the check box beside **Display Student Responses**, and observe what happens. Notice all the responses are hidden, but the teacher knows who has responded.

Review Toolbox		Review Toolbox	
<input checked="" type="checkbox"/> Display Student Responses		<input type="checkbox"/> Display Student Responses	
Student	Response	Student	Response
<input checked="" type="checkbox"/> Deb	No	<input checked="" type="checkbox"/> Deb	<Responded>
<input checked="" type="checkbox"/> Jon	Yes	<input checked="" type="checkbox"/> Jon	<Responded>
<input checked="" type="checkbox"/> Marco		<input checked="" type="checkbox"/> Marco	<No Response>
<input checked="" type="checkbox"/> Raymone		<input checked="" type="checkbox"/> Raymone	<No Response>
<input checked="" type="checkbox"/> Sonja		<input checked="" type="checkbox"/> Sonja	<No Response>

Pause and Think About:

- i) How could you use this feature in your classroom?
- ii) Are there times when you want or don't want your students to see the responses?
- iii) Is there pedagogical value in the information provided?

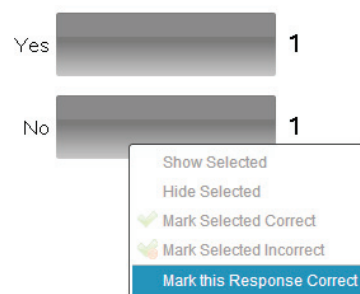
The TI-Nspire™ Navigator™ Classroom TI PROFESSIONAL DEVELOPMENT

19. **Teacher:** In the Class Results display area, right-click on the bar representing the answer No, and select **Mark this Response Correct**.

- The bar next to the word No will change to green to signify that it has been recorded as the correct answer if **Show Correct Answer** is selected.

☒ **Show Correct Answer**

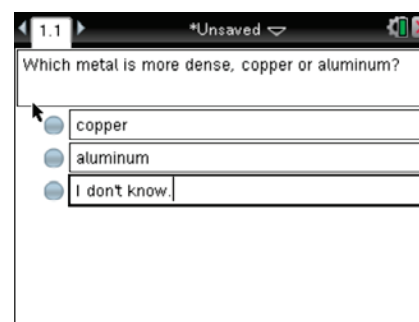
- This will allow the teacher to record and track the correctness of each student's answer to the question posed.
- If the correct answer to a question is never marked, the teacher can still gauge class understanding from the results, but the question will not be included in any scoring when the results are saved into the Student Portfolio.



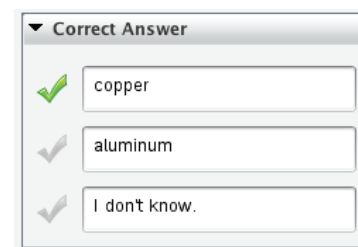
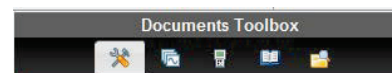
20. **Teacher:** Return to the Document workspace.
21. Turn off the "Allow Resubmit" option by pressing **Tools > Quick Poll Options**.
22. **Teacher:** Click the Quick Poll icon.



23. **Teacher:** Select the Multiple Choice - Custom Choice type of question, and press **Insert**.
24. **Teacher:** Click in the question field, and type an appropriate question for the activity.
25. **Teacher:** Click in the first answer field, and type the first answer choice.
26. **Teacher:** Using **Tab** or the down arrow, navigate to the second answer field. Type the second answer choice.
27. **Teacher:** Press **Enter** to open an additional answer field, and type in a third answer choice.
- To remove an empty answer field, click in that field, and press **Backspace**.



Note: If this process is not being completed in front of students, the teacher could mark the correct answer when writing the question. Open the **Document Tools** in the Documents Toolbox and click on the checkmark in front of the correct answer.

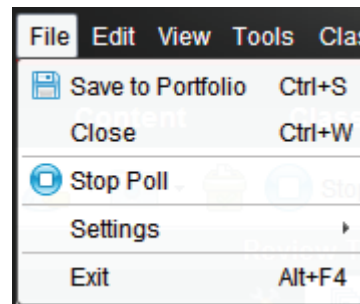
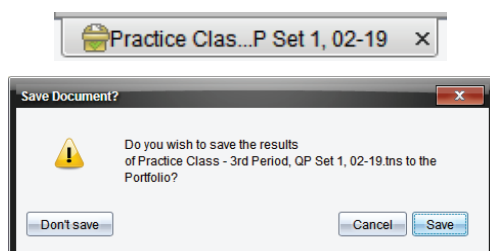


28. **Teacher:** Send the Quick Poll to the class by pressing **Start Poll**.
29. **Student:** Answer the Quick Poll question on both handhelds, and submit the responses.
30. **Teacher:** Monitor the incoming responses. If necessary, repeat instructions on how students submit a Quick Poll response.
31. **Teacher:** Click on the **Stop Poll** button after students have responded to the question.

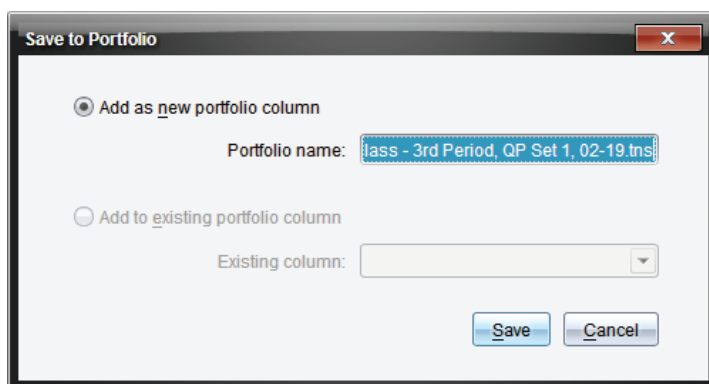
Saving to the Portfolio

The Quick Poll questions and class results for a class session are compiled into one Review Document for up to 15 Quick Poll questions. If more than 15 Quick Poll questions are sent during a class session, another Review Document will open and compile the next 15 Quick Poll questions and results. These results can be saved into the Portfolio at any time during the class session. Saving the results will help the teacher monitor student progress over time and make diagnostic decisions regarding student performance.

1. **Teacher:** Click on the X to close the Review Document containing the Quick Poll questions and class results, and click **Save**. Alternatively, select **File > Save to Portfolio**.



2. **Teacher:** If desired, change the name of the portfolio column, and click **Save**.





The TI-Nspire™ Navigator™ Classroom

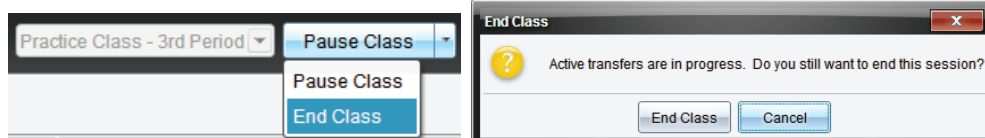
TI PROFESSIONAL DEVELOPMENT

3. **Teacher:** To view the portfolio, go to the Portfolio workspace. The Assignment Summary displays the results in a gradebook type display.
- The portfolio will be discussed in depth in a later activity in the workshop.

Portfolio

Assignment Sum...	Practice Class Po...	Average
Column Actions		
Class Average	50%	50%
Date	08-07	
Deb	0%	0%
Jon	100%	100%
Marco		
Raymone		
Sonja		

4. **Teacher:** To end the class, select **End Class** from the pull-down menu next to the Class Name.
- If a pop-up window indicates 'Active transfers are in progress,' press **End Class**. The alert indicates that the TI-Nspire document sent to the class is still available for those who have not yet logged in to the class session.



Switch Roles

Now switch roles and repeat the activity. When creating a new class, be sure to use a different class name and select that class name before starting the class.

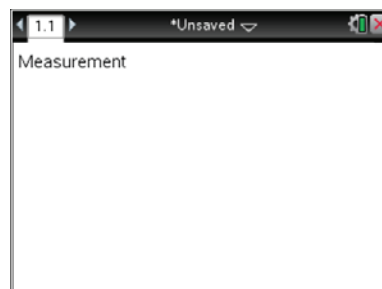


Measurement Activity

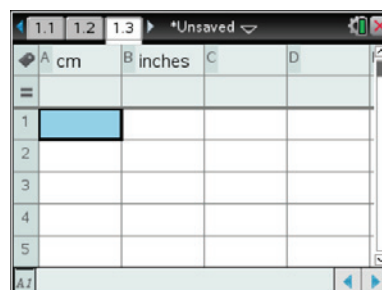
TI PROFESSIONAL DEVELOPMENT

Goal: Create a TI-Nspire™ document for students to use for conversion of measurements.

1. Add a Notes page and title it “Measurement”.
2. Add a Notes page. Add instructions for student to measure five objects in cm and inches and enter the data in the spreadsheet.



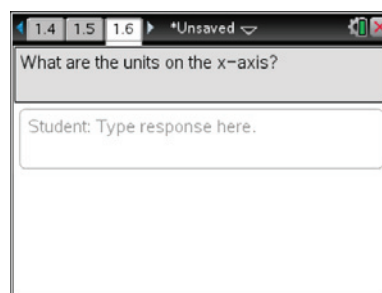
3. Add a Lists & Spreadsheet page. Have students enter **cm** for column A and **inches** for column B.



4. Add a Notes page instructing students to add a Data & Statistics page and graph the data by clicking the **Click to add variable** boxes. Have them graph inches on the x-axis and cm on the y-axis.
5. Instruct students to create a line of best fit (model) for the data.



6. Create a set of questions to ask them what the model means.
7. Name the document “Measurement Conversion”.





Measurement Activity

TI PROFESSIONAL DEVELOPMENT

Using the TI-Nspire™ Navigator™ System:

1. Start a sample class.
2. Connect a TI-Nspire to the computer and log in.
3. Send the document you created to the handheld.
4. Follow your instructions on the handheld.
5. Enter the appropriate data. Graph the data and equation.
6. Answer the questions.
7. Retrieve the document from the handheld using the TI-Nspire Navigator System.
8. Open the document in the Review Workspace.
 - a. Move through each page and observe the outcome of your answers.
 - i. What would you discuss with your students in class?
 - ii. How would you modify your teaching based on their responses?
 - iii. How do you solidify their understanding of conversions?
 - iv. Reviewing the cycle you just went through how would you change your questions to better understand what the students know or don't know?
 - b. Mark responses correct or not correct.
9. Save document to the portfolio.
 - a. Evaluate the responses in the Portfolio Workspace.
 - b. Change an answer to correct or incorrect in the portfolio.
 - c. How can this data help guide you in instructional decisions?
 - d. What do you do when less than 60% of your students get the right answer?