Getting Started with the TI-Nspire™ Navigator™ System in Secondary Science

Workshop Loan List

- TI-Nspire™ CX CAS Navigator™ 30-user system
- 30 additional TI-Nspire™ CX CAS handhelds
- 60 standard-A to mini-B USB cables
- 30 stainless steel temperature sensors
- 30 Vernier EasyLink® USB sensor interfaces

Supplies List

- 10 measuring tapes and/or meter sticks

Software Requirements

- TI-Nspire™ CX or TI-Nspire™ CX CAS Navigator Teacher Software

Getting Started with the TI-Nspire™ Navigator™ System in Secondary Science

Instructor Notes

Student Login

PD Objectives

- Participants will log in to the TI-Nspire™ CX Navigator™ network as students in an existing class.

Materials Needed/Set Up Requirements

- Two TI-Nspire™ CX handhelds for each participant

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- Distribute the loaner TI-Nspire™ CX handhelds to participants.

- Provide information to participants regarding his/her User Name.

- Have participants log in to the TI-Nspire™ CX Navigator™ class.

- If participants brought their own TI-Nspire™ handhelds, you will have opportunities later to help them update the operating system on each of their handhelds. It is suggested that you not spend time updating on the first morning of the workshop.

- Consider setting up a "parking lot" so that participants can list any questions or concerns.

Technology Tips

- Prior to the start of the workshop, create a TI-Nspire™ CX Navigator™ class using participants' names.

- If the names of the participants are not available prior to the workshop, use an existing class in your TI-Nspire™ CX Navigator™ Teacher Software or use the practice class provided with the workshop loan equipment. Or if time permits, set up a new class, and have each participant **Add a student to current class**, entering First Name, Last Name, and User Name.

- Inform participants that a network only needs to be selected once, not every time a handheld is logged in.

Instructor Notes

The TI-Nspire™ CX Navigator™ Experience

PD Objectives

- The focus of this demonstration activity is to model a constructivist science lesson that uses many features of the TI-Nspire™ CX Navigator™ System.

Materials Needed/Set Up Requirements

- *What_is_a_Chemical_Poll.tns*
- *Chemical_PreSurvey.tns*
- *Is_it_a_Chemical_1.tns*
- *Is_it_a_Chemical_2.tns*
- *The_Chemical_List.tns*
- *The_Real_Chemical_List.tns*

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- The most important part of this lesson is to ensure that participants take on the role of student in a science classroom. If they answer questions as teachers, remind them to think about how students would respond to this activity.

Technology Tips

- Participants may need assistance when first attempting to "grab and drag" as they move the words around. Log on yourself and be a Live Presenter to show them how to do this.

Summary Reflection Questions

- How was the instructor able to interact with the class using the TI-Nspire™ CX Navigator™ System?

- How did the instructor use these interactive features to guide the group through the activity?

- Pick one of the TI-Nspire™ CX Navigator™ features you saw demonstrated. What could be another use of this feature in the classroom?

Instructor Notes

TI-Nspire™ CX Scavenger Hunt – The Calculator Application
PD Objectives • The primary goal of the activity is give participants practice using the Calculator application.
Materials Needed/Set Up Requirements • If needed, explain the difference between the Calculator application and the Scratchpad. • Do not introduce participants to the Scratchpad until later to avoid confusion.
Main Focus • Participants will become familiar with the Calculator application. • The instructor role for this activity is to walk around and observe.

Instructor Notes

Demonstration – Formative Assessment

PD Objectives

- The focus of this demonstration activity is the use of the TI-Nspire™ CX Navigator™ System for assessment.

Materials Needed/Set Up Requirements

- *Demo_FA_Math.tns*, or
- *Demo_FA_MG_Science*.tns, or
- *Demo_FA_HS_Science.tns*

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- Participants will play the role of students who respond to questions in an assessment document sent to their handhelds by the TI-Nspire™ CX Navigator™ System.
- The instructor acts as the class teacher. The instructor again demonstrates how to send a document to a class.
- Use the Auto-Refresh feature of Class Capture to demonstrate the monitoring of student work during a class.
- Demonstrate how to collect a document, save it to Portfolio, and show the Class Results in the Review Workspace.
- Compare this assessment to the Quick Polls that were sent during other activities.
- The participant materials for this activity are designed to serve as a guide for the demonstration. Ask the participants to NOT follow along with the print materials while you are giving the demonstration, but assure them all the steps to perform the TI-Nspire™ CX Navigator™ tasks are in the materials. They will have many opportunities to discuss and practice various assessment options available with the TI-Nspire™ CX Navigator™ System.

Technology Tips

- Remind the participants that they do not submit their responses as they did for Quick Polls.

Summary Reflection Questions

- How does the ability to compare a previous assessment of the same concept in the Portfolio enable you to more easily gauge the growth of student?
- What benefits does the use of the Auto-Refresh feature of Class Capture provide when students are working on an assessment or any other assignments?

Instuctor Notes

The River of Life

PD Objectives

- The intent of this activity is for participants to become more familiar with the Lists & Spreadsheets and Data & Statistics applications.

Materials Needed/Set Up Requirements

- *The_River_of_Life_HS.tns* (for HS Science)

- *The_River_of_Life_MG.tns* (for MG Science)

- Send the documents to participants using the TI-Nspire™ CX Navigator™ System.

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- This will most likely be the first time that participants encounter these two powerful applications for science classrooms – Lists & Spreadsheets and Data & Statistics. Be patient while they learn how to use these apps.

- Get the participants to talk about the pros and cons of each of the three different methods used in this activity to determine blood volume and weight (estimating from the graph, using graph trace, and using the formula relating weight and volume).

Technology Tips

- You might want to log in yourself and use Live Presenter to show participants how to select the variables in each axis on the Data & Statistics page.

- You might also want to show them how to grab the linear equation generated and move it to different positions on the screen.

Summary Reflection Questions

- Why are the skills explored in this activity important?

- How might you use this activity with your students?

- How does the manner in which a question is asked relate to a student's understanding of the relationship between blood volume and body weight?

- What steps would you take for students to be successful at answering the more challenging level of questions at the end of the activity?

Instructor Notes

The TI-Nspire™ CX Navigator™ Classroom

PD Objectives

- Participants will role-play and perform various TI-Nspire™ CX Navigator™ skills.

Materials Needed/Set Up Requirements

- Each pair of participants will need at least two TI-Nspire™ documents for this activity. You can send the documents to them through TI-Nspire ™ CX Navigator™ and have them transfer from their handhelds to the computers they are using; you can provide the documents on a jump drive for each participant to load onto the computers during a break; or you can have them download the TI-Nspire™ documents from the Math Nspired or Science Nspired websites.

MG Math	HS Math	MG & HS Science
Multiple_Representations.tns	*Domain_and_Range.tns*	*Density_of_Metals.tns*
Solving_Percent_Problems.tns	*Arc_Length_and_Sectors.tns*	
Variables_and_Expressions.tns	*Families_of_Functions.tns*	

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- The participants will work in pairs during this activity. One participant will play the role of the "teacher" and operate the computer. One participant will play the role of "students" and operate the TI-Nspire™ CX handhelds. After they complete the activity, they should change roles and repeat the activity using different files.

- Give the participants a brief overview of the various workspaces in the software. The overview of the workspaces should be just detailed enough so that they understand directions such as "Go to the Documents Workspace". A more detailed overview will be given in another activity.

- Monitor groups to be certain they are stopping to discuss the various "Reflection" components.

Technology Tips

- The class is created manually. If a teacher is interested in knowing how to upload a CSV file to create classes, they should be directed to the tip sheet.

- When logging in to the system, inform participants that handheld screens slightly differ depending on whether USB connection cables or wireless modules are used. The screens in the activity result when connected via the USB connection cable, so screens may be slightly different when using wireless modules in the classroom.

Summary Reflection Questions

- How can the TI-Nspire™ CX Navigator™ skills explored in this activity be used to facilitate the teaching and learning of mathematical concepts?

- How can the TI-Nspire Navigator skills explored in this activity be used to engage your students?

Instructor Notes

Practice Using Assessment Documents
PD Objectives •   To become more familiar with the available types of assessment questions •   To practice sending and collecting TI-Nspire™ documents •   To practice reviewing the class results
Materials Needed/Set Up Requirements •   *Density_Questions.tns*
Main Focus – Suggested Questions/Strategies for Accomplishing Objectives •   Help participants think about how the TI-Nspire™ CX Navigator™ Teacher Software is set up to assist teachers in the collection and analysis of student data. For example, how do the various pictures/icons for sending, collecting and deleting student documents relate to the task at hand? •   This activity is designed for participants to work together in pairs with each person taking on the role of the student and the teacher. At some point midway through the lesson, you may wish to have a group discussion about how the activity is progressing.
Technology Tips •   Participants might need to be reminded that a correct answer is marked in the Documents Toolbox section of the software and not directly on the question page of the TI-Nspire™ document.
Summary Reflection Questions •   There are several reflection questions built into the document. You might want to have participants focus on these questions during and after the activity.

Instructor Notes

Reflection
PD Objectives • This time is provided for the participants to reflect on the day's activities.
Materials Needed/Set Up Requirements • TI-Nspire™ CX Navigator™ Skills Rating Checklist – Appendix • Ticket Outta Here – Appendix
Main Focus – Suggested Questions/Strategies for Accomplishing Objectives • Participants will reflect on the day's activities. • To help monitor the progress of each participant on the various TI-Nspire™ CX Navigator™ skills, you will find a "Skills Rating Checklist" at the end of the participant binder materials. Use this checklist at the end of each day so that participants can think through what they have learned and what they still need to know and/or practice. • Ask participants to complete the "Ticket Outta Here."
Summary Reflection Questions • Was today's pace all right? • Is there any activity that you would like to review briefly tomorrow? • What was your favorite activity today?

Instructor Notes

Class Capture Features for Science
PD Objectives • The focus of this demonstration activity is to showcase many of the features of the Class Capture tool of the TI-Nspire™ CX Navigator™ System by teaching a lesson on temperature and phase changes.
Materials Needed/Set Up Requirements • *Class_Capture_Features_Science_QP.tns*
Main Focus – Suggested Questions/Strategies for Accomplishing Objectives • During the activity, the instructor provides various prompts and uses Class Capture to lead a discussion of how the temperature of water changes during the conversion of ice to steam. • Use Live Presenter so that a participant can demonstrate how to name a list, enter data, and grab & drag data points on a Data & Statistics page. If something interesting occurs when using Class Capture, let that participant be the Live Presenter to showcase his or her graph or list. • The participant materials for this activity are to serve as a guide for the demonstration for you and later for the participants in their own classrooms. Ask the participants to NOT follow the materials while you are giving the demonstration, but assure them all the steps to perform the TI-Nspire™ CX Navigator™ tasks are in the materials • Be sure to Click Add to Stack whenever an interesting set of captures are displayed and as they make changes to their data and graphs. • There are many opportunities to stop and discuss various situations and display interesting patterns.
Technology Tips • Participants might need assistance when first attempting to "grab and drag" as they move the data points on their Data & Statistics page to modify their graph. • In the Class workspace, go to **File > Settings > Teacher Preferences** to select or deselect **Randomize order in Screen Capture**.
Summary Reflection Questions • How can Class Capture and Live Presenter be used to engage students in a lesson? • How can Class Capture, Screen Stacks, and Live Presenter be used to assist students who might be unsure about how to interact with a TI-Nspire™ document? • How can Class Capture and Live Presenter be used to encourage students to "talk about" the science in a lesson? • How can you use Screen Stacks during and after a lesson?

Instructor Notes

Introduction to the Vernier® DataQuest™ Application

PD Objectives

- The purpose of this activity is for participants to experience the "plug-and-play" feature of the Vernier DataQuest™ app and how Class Capture can be used to enhance class discussions.

- There are 3 parts to this activity. Parts 1 & 2 are done in succession. Part 3 is completed later and has its own Instructor Notes page.

Materials Needed/Set Up Requirements

- Stainless Steel Temperature Sensors

- Vernier EasyLink™ USB interfaces

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

Part 1: Exploring DataQuest

- The participants will take the role of students. They will experience the plug-and-play feature of the DataQuest app on the handheld by collecting surface temperature data on various body parts. Focus on being able to use the probes with no button pushing on the handheld.

Part 2: Using the Temperature Sensor

- The participants will take the role of students as they learn to set up a temperature sensor experiment and warm the sensor with their fingers to see how data is collected. They will use the data to figure out how the sensor works.

- Divide the group in two, <u>remind them not to touch the metal part of the sensor</u>, and ensure that they make predictions. Run this like a classroom—and talk about it at the end.

- Show Screen Captures of representative and exemplary data displays to facilitate discussion. Run this like a classroom—and talk about it at the end.

- Have some fun. Use this as a chance for everyone to get to know each other a little better. If time permits, run the maximum temperature assessment challenge

Technology Tips

- Don't pass out the temperature sensors until you are ready to use them. Caution participants from "playing" with the sensors. They can do this in Part 2 of the activity!

Summary Reflection Questions

- What is the pedagogical importance of making your predictions and writing them down?

- With the TI-Nspire™ CX Navigator™ System, when should student work be displayed with a name, and when should it be displayed anonymously?

- How did Class Capture enhance this activity?

Instructor Notes

TI-Nspire™ CX Navigator Performance Reflection for Science

PD Objectives

- The purpose of this activity is for participants to discuss the information on student understanding provided by Quick Poll student data.

Materials Needed/Set Up Requirements

- A TI-Nspire™ document, *Navigator_Performance_Relection_Science.tns*, has been created so that participants can use these questions with their students if they choose to do so. It is not necessary to send the document to the participants for this activity.

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- The intent of the activity is for participants to examine response data and attempt to understand the errors students have made.

- Have them examine the sets of Quick Poll responses and share their thoughts on the questions in the activity.

- As participants consider the errors that students made, encourage them to think about the information about student thinking that can be gained from incorrect responses to a question.

Summary Reflection Questions

- How can asking students to explain their thinking about a problem provide information that could help improve other students' problem solving skills?

- How can good distractors in multiple choice questions provide valuable information on student misconceptions?

- How can considering possible student errors when we write test questions help us plan follow-up questions that could be asked to help students remedy their errors or misconceptions?

Instructor Notes

Linking Data from the Vernier® DataQuest™ Application

PD Objectives

- The purpose of this activity is for participants to practice using the built-in Vernier DataQuest™ app, and then link their data to other TI-Nspire™ apps (Lists & Spreadsheet and Data & Statistics).

- Live Presenter and Class Capture will be featured as ways to facilitate classroom laboratory activities.

- This is a continuation (Part 3) of the Introduction to DataQuest app.

Materials Needed/Set Up Requirements

- Stainless Steel Temperature sensors

- Vernier® EasyLink™ USB interfaces

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- The participants will take the role of students. They will determine the time graph settings for their data collection and what temperature data they would like to collect. Encourage them to use a 2-minute limit for their experiment. Use the Class Capture to monitor for issues.

- After data collection, use Live Presenter to share the data. Have the participants tell the story of their data collection, or have the audience try to figure out how the data was collected.

- Demonstrate how the TI-Nspire™ CX Navigator™ System can be used to monitor student progress during the linking of variables in the Lists & Spreadsheet and Data & Statistics portion of the activity. Try using Live Presenter with an experienced participant.

Summary Reflection Questions

- With the TI-Nspire Navigator System, when should student work be displayed with a name, and when should it be displayed anonymously?

- Which students would you make Live Presenters? Why?

- How did Class Capture enhance this activity?

Instructor Notes

Demonstration – Travel Distance
PD Objectives • The focus of this demonstration activity is to have the participants experience aggregating data with the TI-Nspire™ CX Navigator™ System or TI-Nspire™ Navigator™ NC System from the student perspective.
Materials Needed/Set Up Requirements • *Travel_Distance_QP.tns*
Main Focus – Suggested Questions/Strategies for Accomplishing Objectives • The participant materials for this activity are to serve as a guide for the demonstration. Ask the participants to NOT follow the materials while you are giving the demonstration, but assure them all the steps to perform the TI-Nspire™ CX Navigator™ tasks are in the materials. • Participants should be encouraged to consider how the various TI-Nspire™ CX Navigator™ components are used throughout this lesson. Ask participants to note those features that "stood out to them" and allow them time to discuss the potential use of these features in their classrooms.
Technology Tips • Add one extra student to the class. This "absent" student is useful for demonstrating the meaning of the numbers displayed with the transfers in the Class Record. For example, if the TI-Nspire document is not sent to "Logged in only," at least one student - the "absent" student - will not have received the document. • Assist participants in setting up a scatter plot on a Data & Statistics page as needed. You might want to make one participant the Live Presenter to demonstrate the steps in this process.
Summary Reflection Questions • How was the instructor able to interact with the class using the TI-Nspire™ CX Navigator™ System? • How could these interactions engage students?

Instructor Notes

Inserting an Image into a TI-Nspire™ Document

PD Objectives

- Participants will use the TI-Nspire™ CX Teacher Software to insert images into the Graphs and Geometry applications.

Materials Needed/Set Up Requirements

- TI-Nspire™ CX Teacher Software

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- Participants will insert an image that has been automatically pre-loaded in the **My Documents > TI-Nspire > Images** folder. Emphasize that all jpg, jpeg, bmp, and png formats are supported, so participants and students can load their own images.

- Images can be easily moved and resized within a TI-Nspire™ document. Though images can also be vertically and horizontally compressed and stretched, tell participants to consider cropping images as necessary before inserting them into a TI-Nspire™ document.

- Images seen in the Teacher Software may have a slightly different appearance than an image viewed on a handheld. Encourage participants to preview images on a handheld before utilizing them in the classroom.

- For the TI-Nspire family of handhelds with Touchpad or Clickpad, images appear in gray scale as long as the operating system is up to date. Consider previewing an image for the participants in the Teacher Software's TI-SmartView™ **e**mulator using the Touchpad or Clickpad display.

Technology Tips

- If a TI-Nspire™ document requires students to plot points or graph functions on an image, consider increasing the transparency of the image. To do this, insert the image in a Geometry application and change the page to a Graphs application by selecting **View** > **Graphing**.

- To delete an image in the Teacher Software, select the image and press the Backspace key.

Summary Reflection Questions

- How can images be used to make connections between real-world objects and mathematical concepts?

- What types of images might be particularly useful to promote these connections?

- How might the use of student-generated images promote engagement?

- What issues should be considered when inserting images?

Instructor Notes

Practice Creating an Assessment Document

PD Objectives

- Practice creating Custom Choice, Chemistry, and Open Response questions with TI-Nspire[TM] CX Navigator™ Teacher Software.

- Practice saving TI-Nspire™ documents.

- Practice sending, collecting, and saving files to the Student Portfolio.

- Practice opening and reviewing results in the Review Workspace.

Materials Needed/Set Up Requirements

- *Solubility.tns*

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- The purpose of this activity is to give participants the opportunity to create five questions (of various types) based on a diagram given at the start of a pre-made TI-Nspire™ document. They are asked to type in two of the five questions "as is" and then to create three more questions on their own.

- This activity is designed for participants to work together in pairs with each person taking on the role of the student and the teacher. At some point midway through the lesson, you might want to have a group discussion about how the activity is progressing.

- If time allows, consider asking participants to log back in and (using Live Presenter) have a few of them share their questions with the group.

Technology Tips

Summary Reflection Questions

- What are the characteristics of an effective question used for formative assessment?

- Are all question types equally effective in determining student knowledge of a concept?

- Classify all five questions that you wrote using Bloom's Taxonomy (or a similar tool).

Instructor Notes

Resources
PD Objectives • In this activity, participants explore the Content Workspace of the TI-Nspire™ CX Navigator™ Teacher Software and investigate the resources available to support the use of the technology in their classrooms.
Materials Needed/Set Up Requirements • TI-Nspire™ CX Navigator™ Teacher Software or TI-Nspire™ CX Teacher Software • Internet access
Main Focus – Suggested Questions/Strategies for Accomplishing Objectives • Before participants explore the Content Workspace, discuss the different workspaces available with the TI-Nspire Navigator Teacher Software to ensure that they understand each one's use(s). • Discuss the preview options in the Content Workspace and how to preview TI-Nspire™ documents. • Encourage teachers to explore Math Nspired, Science Nspired, and Building Concepts in Mathematics for lessons available in different content areas. • Be sure that they explore the Video Tutorials as well as the Alignment tools. • Participants will select a lesson from the Math Nspired or Science Nspired website and download the TI-Nspire™ document, Student Activity, and Teacher Notes separately. They will then practice transferring a TI-Nspire™ document from the computer to a handheld. • If time permits, ask participants to briefly share information on the activity that they chose to download.
Technology Tips • If participants explore the TI Activities website, remind them that they must select "TI-Nspire technology" to review activities created for the TI-Nspire™ rather than the TI-84 Plus family.
Summary Reflection Questions • How can the resources available on the TI websites help you prepare to use the TI-Nspire™ in your classroom? • How can the activities available at the various websites be used in conjunction with your curriculum?

Instructor Notes

Reflection
PD Objectives • This time is provided for the participants to reflect on the day's activities.
Main Focus – Suggested Questions/Strategies for Accomplishing Objectives • Participants will reflect on the day's activities. • To help monitor the progress of each participant on the various TI-Nspire™ CX Navigator™ skills, you will find a "Skills Rating Checklist" at the end of the participant binder materials. Use this check list at the end of each day so that participants can think through what they have learned and what they still need to know and/or practice. • Ask participants to complete the "Ticket Outta Here."

Instructor Notes

The Portfolio Workspace

PD Objectives

- The intent of this activity is for participants to become more familiar with the Portfolio Workspace and its various grade-related features such as changing the answer key, grading student work from the Portfolio Workspace, and exporting assignment data.

Materials Needed/Set Up Requirements

- *Lab_Safety_Quiz.tns*

- *Element_Quiz_1.tns*

- *Element_Quiz_2.tns*

- *Density_of_Water.tns*

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- Send the documents to the participants through TI-Nspire™ CX Navigator™ and have them transfer from their handhelds to the computers. Alternatively, provide the files on a jump drive for each participant to load onto the computers during a break.

- Be sure to discuss the importance of the Portfolio Workspace for teachers in their classroom. The Portfolio allows the teacher to easily manage assignments for absent students and gives the teacher a "picture over time" of student understanding if used regularly to assess student knowledge.

Summary Reflection Questions

- Why are the skills explored in this activity important?

- How do the Portfolio and Class Record options make it easy to include all students' work in the analysis of class data?

Instructor Notes

Data Aggregation in the Science Classroom

PD Objectives

- The intent of this activity is for participants to become familiar with the Data Aggregation with Lists technique using the TI-Nspire™ CX Navigator™ System.

Materials Needed/Set Up Requirements

- *Data_Aggregation.tns*

- Be sure to have measuring tape and/or meter sticks for participants to measure their "wingspan." It is preferred that there is a measurement tool for every 2 to 4 participants. (Note: The activity asks participants to measure their armspan length or "wingspan" in inches and not centimeters. The rationale for this is that the other variable (height) is usually known in inches and not centimeters. Since most measurements in science are done in metric units, this is an obvious exception. Be prepared to offer this rationale or feel free to change the units for both variables to metric units.)

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- This technique is a powerful method of quickly and efficiently aggregating data in the classroom. Be sure to sell this approach compared to the "old days of having students write their data on the chalkboard and everyone copying the information."

- It is important that participants practice this technique as it involves a few specific steps. Be ready to help them through any trouble spots when they practice this technique themselves in Part 2 of the activity.

Technology Tips

- If the data is "messy" (i.e. there are gaps in some of the data or there are obvious mistakes that need to be cleaned up), show participants how rows of data can be deleted within the Lists & Spreadsheets application (highlight the row and then right-click to delete the row).

- Be sure to show the other options available when right-clicking on the data (Send Table to New Document for example). It's now even easier to send the data to students than it was before.

Summary Reflection Questions

- How might you use this specific technique with your students in your subject area?

Instructor Notes

Create Your Own Assessment

PD Objectives

- The purpose of this activity is to help participants become comfortable creating useful, powerful, and effective assessments based on their own subject matter.

- It is important that this activity ends with a discussion of the strengths of differing question types and that participants share and constructively critique each others' work in the spirit of improvement.

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- Participants will use the TI-Nspire™ CX Navigator™ Teacher Software to create their assessment document. It would be helpful if internet access was provided to obtain images.

- Creating an effective assessment document is fairly simple in terms of the technology experience needed but could be challenging based on the educator's experience level. Not only do you want to serve as the technology coach, but you might also want to consider asking probing questions about the effectiveness of questions being created in the document. For example, the following questions are suggested to help create effective questions:

  - *What type of assessment document is this?*

  - *Are you trying to uncover student misconceptions at the beginning of a unit?*

  - *Is this a summative assessment at the end of a unit?*

  - *Is this an assessment that focuses on a single topic or a broad range of topics?*

- Be sure to have a discussion about the rationale behind each question created within a document. Try to focus on many question types as well as multiple science disciplines.

Technology Tips

- Have participants transfer their document to a handheld and then log them all in with TI-Nspire™ CX Navigator™. Use Live Presenter to allow participants to showcase their creations.

Summary Reflection Questions

- Is one question type more effective than another one to uncover students' understanding of a concept?

Instructor Notes

Demonstration of the PublishView™ Feature

Overview

- Provide a brief overview of PublishView™ features using pre-made PublishView™ documents.

Materials Needed/Set Up Requirements

- *If_a_Tree_Falls_english.tnsp* (automatically pre-loaded in My Documents\TI-Nspire\Examples)

- *Stopping_Distance.tnsp* (Instructor use only)

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- When the software is installed, a sample PublishView™ document (*If_a_Tree_Falls_english.tnsp)* is loaded in My Documents\TI-Nspire\Examples. When **Open Document** is selected, the TI-Nspire folder is the default location.

- Participants should open *If_a_Tree_Falls_english.tnsp* in the TI-Nspire™ CX Teacher Software. Allow participants to investigate the document without instruction.

- Answer any questions regarding PublishView™ features that participants have while exploring *If_a_Tree_Falls_english.tnsp.*

- Demo *Stopping_Distance.tnsp* for participants.

Technology Tips

Summary Reflection Questions

- How do you foresee using the PublishView™ feature?

- How does PublishView™ facilitate multiple representations and interconnectivity of problem situations?

- How does PublishView™ assist teachers in planning lessons and organizing lesson components?

- How can PublishView™ be used to engage students (the hook)?

- How could your students use the PublishView™ feature?

Instructor Notes

Weaving in the TI-Nspire™ CX Navigator™ System

PD Objectives

- The primary goal of the activity is give participants time to think about how to use the TI-Nspire™ CX Navigator™ System to administer and enhance an activity.

Materials Needed/Set Up Requirements

- If Internet access is not available, the following activities are provided in the folder for the workshop.

- All lessons are from Science Nspired unless otherwise noted.

MG Science

- Life Science > Classification of Life > Needs of Living Things > Photosynthesis in Plants
- Life Science > Classification of Life > Needs of Living Things > Needs of Living Things
- Earth Science > Earth's Surface > Earth's Lithosphere > Ring of Fire
- Earth Science > Space > Earth's Seasons > Tilting Earth
- Physical Science > Electricity > Electricity > Electric Field Hockey
- Physical Science > Energy > Heat Absorption and Color > Color and Heat

HS Science

- Biology > Cells > Photosynthesis and Transpiration > Recipe for a Living World
- Chemistry > Gases, Liquids, and Solids > Density of Matter > How Does it Stack
- Physics > Work, Energy, and Momentum > Work and Power > Energy of a Roller Coaster

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- Participants can work in pairs or individually if they choose. If colleagues are taking the workshop, then this activity is a great opportunity for them to collaborate on a concept of mutual interest.

- Some of the activities the participants download will already have tips referencing TI-Nspire™ CX Navigator™ usage, but they will most likely b™e general references. Have participants think very specifically about TI-Nspire™ CX Navigator usage for the activity.

- The instructor role for this activity is to walk around and observe. Be sure the participants are not trying to perform the TI-Nspire™ CX Navigator™ actions; this activity is for planning a lesson using the TI-Nspire™ CX Navigator™ System.

Technology Tips

- When downloading activities from the Content Workspace using the "Save this Activity to the Computer" button, the files are saved as a lesson bundle with the extension .TILB. A lesson bundle is a packaged file that contains **all** of the documents for the activity.

Instructor Notes

Reflection

PD Objectives

- Participants will reflect on how their classroom practice will change based on what they have learned in the workshop.

Main Focus – Suggested Questions/Strategies for Accomplishing Objectives

- As a closure/wrap-up discussion, ask participants to think about their current practice in the classroom and how their classroom practice will change based on what they have learned in the workshop.

- Ask them to do a pair/share with a partner. They should share a goal with their partner. Then, the partner would share that goal with the larger group. For example, if Alice shared her goal with Chris, Chris would report to the group: Alice's goal is to increase the use of technology in her classroom by first incorporating Quick Polls and Class Captures. (Note: If time does not permit sharing with the larger group, at least have participants share with their partners.)

- To help participants monitor their progress on the various TI-Nspire™ CX Navigator™ skills, you will find a "Skills Rating Checklist" at the end of the participant binder materials. Use this check list at the end of each day so that participants can think through what they have learned and what they still need to know and/or practice.

- Provide an opportunity for participants to share contact information.