Getting to Know the TI-Nspire

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Essential Question(s)

Which mechanics of the TI-Nspire are essential to know?

Summary

This resource provides an overview of the TI-Nspire calculator. Participants engage in hands-on exploration of the TI-Nspire, learn basic operations, and discover pre-made classroom activities for the calculator. Participants also learn about teacher-student connectivity options and how the additional technology can enhance learning in the classroom.

Learning Goals

- Explore the TI-Nspire mechanics for calculations, graphs, geometric conceptual development, and data analysis.
- Demonstrate the use of technology to enhance the learning of mathematics in the classroom.
- Determine appropriate calculator-related activities for the classroom.

Attachments

- BINGO_ Find Someone Who Can...—Getting To Know The TI-Nspire™.docx
- BINGO_ Find Someone Who Can...—Getting To Know The TI-Nspire™.pdf
- Professional Learning Presentation Slides—Getting To Know The TI-Nspire™.pptx
- Scavenger Hunt—Getting To Know The TI-Nspire™.docx
- Scavenger Hunt—Getting To Know The TI-Nspire™.pdf

Materials

- Presentation Slides (attached)
- Scavenger Hunt (attached; 1 per participant)
- BINGO: Find Someone Who Can... Card (attached; 1 per participant)
- Writing utensil
- Scratch paper, sticky notes, or index cards
- TI-Nspire calculator
- TI navigator system (optional)
- TI teacher software (optional)

5 minutes

Engage

Facilitator's Note: Scavenger Hunt Preparation

In the Explore, participants complete a scavenger hunt. The document is seven pages long and includes task cards specific to multiple content areas. If participants are teachers in one content area, consider printing only the pages with the task card for that content area. Alternatively, there is a digital copy of the Scavenger Hunt that participants can download onto a device.

Use the attached **Session Slides** to guide this professional learning experience. Use **slides 2–4** to introduce the topic, essential question, and learning objectives.

Move to **slide 5** and introduce the Magnetic Statements strategy to the group. As you move through the next few slides (**slides 6-10**), ask participants to read statements on the slides and move to the side of the room that attracts them. Adjust the number of questions and time allowed for each statement, if needed.

20 minutes

Explore

Move to **slide 11** and pass out the attached **Scavenger Hunt**, one per participant. Ask participants to work individually or in partners to learn about the basic functions of the calculator. After completing the first two pages of the Scavenger Hunt, ask participants to explore a task card activity that directly aligns with their content area. Participants can choose from pre-algebra & algebra I, geometry, algebra II, and pre-calculus.

After 20 minutes or if participants finish the task cards, bring the group back together to discuss the calculator in more depth. Move to **slide 12** and ask participants to Say Something! This strategy provides sentence starters, but it is intended as a model so teachers can use the strategy with students.

Participant Responses

If participants do not share the following, provide them with the information.

The TI-Nspire:

- is designed to be more streamlined.
- can be updated.
- is intended to have fewer buttons pushed than the TI-84. This means that there are more menus.
- has the same commands as computers.
    - Ctrl v
    - Ctrl c
    - Ctrl x
    - and more
- CX models can be used on the ACT (CAS models cannot).
- keyboard is not like a computer keyboard, which is why it's allowed on the ACT.

15 minutes

Explain

Move to **slide 13** to show the diagram of the calculator. Discuss the use of each key that is designated. Allow time for participants to investigate these keys on their own as each key is introduced. Move to **slide 14** to provide the use of each key.

Move to **slide 15** and introduce the TI teacher software. Explain that this software costs additional money, but it can be used to enhance the use of TI calculators in the classroom. Move to **slide 16** to show participants the QR code. Allow participants time to navigate the TI website and explore all of the free activities.

Move to **slide 17** to showcase the options to connect devices. The connectivity allows teachers to send and collect TI activities between teacher computers and student devices. With connectivity, teachers can also view student work in real time and spotlight specific student calculators to show the entire class.

Explain to participants that the USB connectivity cord usually comes with the calculator when purchased, but the navigator system requires an additional purchase.

Move to **slide 18** and once again ask participants to Say Something!

20 minutes

Extend

Move to **slide 19** and give each participant a copy of the attached **BINGO: Find Someone Who Can…** card. Ask participants to take a few moments to circle any spaces on the BINGO card that describe something they already know how to do on the TI-Nspire. When participants have circled the spaces for tasks they can complete, have them find someone who can teach them how to perform any task they cannot complete.

After collaborating for about 10 minutes, participants go back to their seats and initiate a whole-group discussion. Move to **slide 20**. Ask participants to discuss their Muddiest Point or to share out which boxes describe an action they are still not sure how to do.

5 minutes

Evaluate

Facilitator's Note: Activity Preparation

Find an empty trash can, plastic box, or tub and place it in the front of the room to collect the papers participants "toss."

Move to **slide 21** and pass out a piece of scratch paper to each participant. Introduce the Commit and Toss strategy to the group and ask them to write down one thing they have learned and one thing they still want to know.

After participants have an opportunity to respond, ask them to throw their paper in the designated container as they leave for the day. If time permits, ask a few participants to pull a paper from the container, read it aloud, and say whether they agree and why.

Research Rationale

Technology can play a fundamental role in mathematics education. The use of calculators in the classroom gives students more time to develop deeper mathematical understanding and reasoning. Integrating graphing calculators into mathematics instruction helps students make their learning more concrete and meaningful (Kandemir & Demirbag-Keskin, 2019). Research suggests students who lack mathematical skills, such as formulas, facts, and procedures, have difficulties in tasks that involve problem solving (Parrot & Leong, 2018). Research suggests graphing calculators to be an effective tool in promoting learning and problem-solving skills (Parrot & Leong, 2018). Graphing calculators provide opportunities for exploring problem-solving and increasing students' confidence in the classroom.

Resources

- K20 Center. (n.d.). Commit and toss. Strategies. https://learn.k20center.ou.edu/strategy/119
- K20 Center. (n.d.). Magnetic statements. Strategies. https://learn.k20center.ou.edu/strategy/166
- K20 Center. (n.d.). Muddiest Point. Strategies. https://learn.k20center.ou.edu/strategy/109
- K20 Center. (n.d.). Say something. Strategies. https://learn.k20center.ou.edu/strategy/778
- Kandemir, M.A. & Demirbag Keskin, P. (2019). Effect of graphing calculator program supported problem solving instruction on mathematical achievement and attitude. *International Journal of Research in Education and Science (IJRES)*, 5(1), 203-223.
- Parrot, M.A.S. & Leong, K.E. (2018). Impact of using graphing calculator in problem solving. *International Electronic Journal of Mathematics Education*, 13(3), 139-148.