

Calculators in the Elementary Classroom

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The goal of this presentation was to demonstrate how the T-108 and T-15 calculators can be utilized in the classroom to meet the state standards. We provided a variety of materials that teachers can use and share with other teachers in their buildings. We also looked at how lessons and games could be modified in terms of skill level for differentiating instruction depending on students' needs.

We started our presentation with an activity where participants used the calculators to solve three problems. There were a variety of ways that participants could solve the problems, depending on the different key strokes they used. Participants discussed their work at their tables. Next, we went through the folders we had given them, which included handouts they could give to parents on why using calculators in the classroom is important; a handout of key calculator vocabulary to use in the classroom; a page of resources for more information on how to use the calculators; sample lessons from grades K through six where calculators are used; and a packet of calculator games.

After looking through the folder, we did a strand/standard trace, looking at lessons in grades K through six where calculators are used. First, as a whole group, we looked at the kindergarten lesson, looking for the standards that were covered and how the calculators were used. Next, we had each person at a table choose a lesson from a different grade level. They highlighted where the calculators were used and determined which standards were covered. After a few minutes, as a whole group, we discussed how the skills build throughout the grade levels and the many standards that are covered.

We had a few minutes to look at some of the games and activities provided in the folders. These included:

- *Calculator 10,000*: Object of the game is to get from a given number to as close as possible to 10,000. Students can use addition, subtraction, multiplication, and division, but each may be used only once.
- *Beat the Calculator*: This game is played in groups of three. One student draws two cards from the *Everyday Math* deck and calls out the numbers. The other two students multiply the two numbers, one with a calculator and one without. This game can be extended by increasing the value of one or both numbers by a factor of ten.

- *Broken-Calculator* games: Students pretend a given calculator key is broken. One student says a number and the other works to get the calculator to display the number without using the “broken” key. (For example, if the 8 key is “broken” and the students needs to display 18, she or he might use 2×9 , or $20 - 2$, or $6 + 6 + 6$.)
- *Broken Keys*: These are similar activities with more complex calculations. For example, one task might be to work out $798 + 549$ without using the number 9 key or $37 \div 14$ without using the division key.*
- *Rounding with a Calculator*: Students divide two numbers with a calculator and then round to the nearest whole number or to particular decimal places.*
- Fractions activities: Students use the calculator to convert given unit fractions to decimals. Then, using the same denominators and 2 and 3 as numerators, they determine the equivalent decimal numbers. Next they are asked to predict the pattern and what the rest of the fractions with that denominator will be.*
- *Words*: One person reads numbers out loud and everyone else adds them.**
- *Triples*: Using only five numbers (47, 17, 39, 23, 38) students choose what three numbers to use to get each of five different sums.**
- *Invaders*: Students begin by entering a six-digit number into the calculator. Then they try to change each digit to zero with as few turns as possible.**
- *Missing Operations*: The operation signs are missing from number sentences. Students use calculator to figure out what the missing signs are.**
- *Largest and Smallest*: Students find the largest and smallest numbers they can, they may use only the keys 1, 2, 3, 4, 5, x, and =, and they cannot use any key more than one time. This activity can also be done with the other five digits or using 6 or 7 digits.**
- *Only These Keys*: Using only the keys 3, 5, +, and =, students are asked to find which numbers from 1 to 20 they can get on the calculator and which is the largest number they cannot get. They can then try using different pairs of numbers.**
- *Six Keys*. Using only six given keys, students try to get to 20. This activity can also be done with other numbers or 5 or 7 keys**
- *Boxes*. Students fill in the addends or subtrahends and minuends for number sentences with sums and differences given (for example, $_ - _ = 68$).**

We quickly discussed some of the ways key games, like Beat the Calculator, could be modified for both lower and upper grades. Participants shared ways that they might use the games at their grade level and for their different-ability-level students. For example, someone shared that instead of playing the game with multiplication facts they might use exponents to make it more challenging.

Throughout the entire presentation we answered questions as they came up.

* These activities are available online at <http://www.numeracysoftware.com/Ten%20Calculator%20Activities.pdf>.

** These activities are from a book produced by the National Numeracy Strategy program in the United Kingdom. The booklet is available online at http://www.standards.dfes.gov.uk/primary/publications/mathematics/calculator_activities/nns_calculator_nns930.pdf.