

Activity 3b: Broken Calculator

Recommended Grades: 2–3

Activity Instructions

1. In this game, you try to reach the goal number while pretending that certain keys on the calculator don't work.
2. Why didn't we provide answers? Because there are so many! Plus, once you get one answer, you'll see that you were correct or incorrect immediately on the calculator. If by some chance you didn't find one correct path, then try again—that's why you have a calculator!

Where's the 1?

Restriction: The #1 key is broken!

Goal: We need to make the number 11 show up on the calculator screen.

1. Explain your strategy.
2. How many moves did it take you?
3. Can you do it in fewer moves? More?
4. Is there a different operation you can use?

Now try 111. Then 1,111.



Year of birth

Restriction: The only keys that work are 1, 0, +, −, =

Goal: Can you get the display to show the four-digit year of your birth? (e.g., 1990, 2011)

1. Explain your strategy.
2. How many moves did it take you?
3. Can you do it in fewer moves? More?
4. Can you get the display to show your parents' years of birth?
5. Explain your strategy. Did you use the same strategy or a different one?
6. How many moves did it take you?
7. Can you do it in fewer moves? More?



Virtual Game Link:

<https://jamboard.google.com/d/1j2oUQ7uwRflmjttVxma2GQtxPnDYgalBwo52hvBjTc0/copy>

Family Prompts

- Try different options and be patient with your children and yourself if you don't get to the goal number quickly.
- Ask your children to share their solutions and then ask the questions in the game.
- Ask them if they can do it another way.
- If your child reaches a solution quickly, try to display another family member's birth year (e.g., aunt, uncle, grandparent).

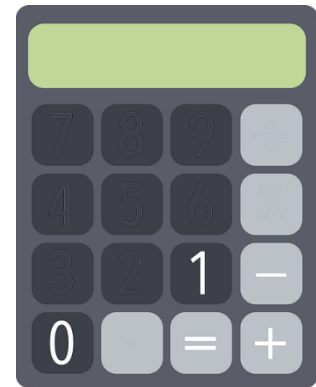
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Supporting Materials

Restriction: The only keys that work are 1, 0, +, −, =.

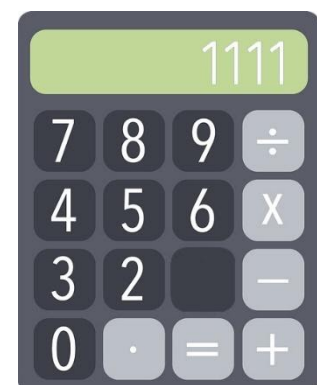
Goal: Can you get the display to show the four digit year of your birth? (e.g., 1990, 2011)



1. Explain your strategy.
2. How many moves did it take you?
3. Can you do it in fewer moves? More?
4. Can you get the display to show your parents' year of birth?
5. Explain your strategy.
Did you use the same strategy or a different one?
6. How many moves did it take you?
7. Can you do it in fewer moves? More?

Restriction: The #1 key is broken!

Goal: We need to make the number 1,111 show up on the calculator screen.



1. Explain your strategy.
2. How many moves did it take you?
3. Can you do it in fewer moves? More?
4. Is there a different operation you can use?