

Broken Calculator

Number of players: one or more (a referee can act as leader or players can take turns quizzing one another)

Materials needed: calculator, playing cards (if desired), paper and pencil for calculating (if desired). An answer sheet is available for the scripted questions.

Broken Calculator is a well-known game where players attempt to uncover an “answer” without using a particular number on the calculator. It is simple to play and even easier to adapt to all levels and stages of learners. This is a great way for learners to “think backwards” about their math facts, or to develop relationships between the various functions. For example:

Show the answer of 4×3 without using a 4 or a 3. [6×2 , 12×1]

You can add layers of complexity to play by adding requests such as using two different functions in an equation, or providing a sum or product and asking players to develop an equation to equal it without using a certain number. For example:

Reach an answer of 144 using multiplication twice, but without using the number 12.
[$6 \times 6 = 36 \times 4 = 144$]

Reach the sum 280 using two different functions, but avoiding the number 4 [there will be all kinds of answers, such as $300 + 80 - 100$, $180 \times 2 - 80$, $600 \div 3 + 80$, etc...]

It is important to match your requests to the level of skill of the player. Challenges that are too complex will be difficult for some learners to break down into solvable pieces. Remember to walk through some of the complex questions, even with more skilled learners, to ensure they understand the steps involved.

Playing Cards

The cards included with the game are only a sampling of what can be done. Encourage players to make up their own questions for one another, or, have a referee make up a question and see who can calculate the answer first. Keep in mind that many of the questions will have more than one solution, and that is perfectly ok.

For the playing cards already made, keep in mind that the cards written in **blue text** cards are beginner, while those in **red text** are more advanced.