Touch Points

Why Is This Strategy Useful?

Many students with severe and multiple disabilities have difficulty learning the basic arithmetic operations used in everyday life. Research shows that the “touch points” strategy is a viable method for teaching single-digit addition to students with various disabilities. This strategy uses an embedded instructional-prompt approach with numbers containing corresponding touch points or dots to represent the numbers. The numbers 1 through 5 have single touch points or dots. The numbers 6 through 9 use double touch points, which are characterized by dots within circles. Students touch the touch points and double touch points and count aloud to assist with computation. This strategy is appropriate for students with health impairments, learning disabilities, and mild intellectual disabilities. General education students in kindergarten, first, or second grade may benefit from this strategy as well.

Description of Strategy

Instruction should include explicit training, modeling, shaping, and differential reinforcement. Teachers should instruct students to use touch points in the following way. Each number from 1 through 9 has touch points corresponding to the digit’s quantity: Numerals 1 through 5 use single touch points, or dots. Numerals 6 through 9 use double touch points, symbolized by a dot inside of a circle. Students touch single touch points once and double touch points twice, each while counting aloud. By touching the touch points and counting aloud, the teacher engages the visual learner, the auditory learner and the kinesthetic learner. In touch points computations, students always touch the numbers in the touching/counting pattern specified for a particular numeral, as demonstrated here:

1. The one is touched at the top while counting: "One."
2. The two is touched at the beginning and the end of the numeral while counting: "One, two."
3. The three is touched at the beginning, middle and end of the numeral while counting: "One, two, three."
4. The four is touched and counted from top to bottom on the down strokes while counting: "One, two, three, four."
5. The five is touched and counted in the sequential order pictured: "One, two, three, four, five." Memory Cue: To help in remembering the fourth touch point, it may be referred to as the "belly button."
6. The six begins the use of dots with circles. The encircled dots should be touched and counted twice, whenever they appear. Six is touched and counted from top to bottom: "One-two, three-four, five-six." Memory Cue: Touch at the top, middle, bottom.
7. The seven is also touched and counted top, middle, bottom: "One-two, three-four, five-six," followed by the single dot: "seven." Memory Cue: The single touch point can be thought of as the nose. Teachers sometimes tell young or remedial students to go back and "touch him on the nose" to help them remember the final touch point.
The eight is touched and counted from left to right: "One-two, three-four, five-six, seven-eight." Memory Cue: Tell the young or remedial students that the eight looks like a robot. Count his eyes first, then his arms.

The nine is touched and counted from top to bottom: "One-two, three-four, five-six, seven-eight," followed by the single dot: "nine." Memory Cue: Tell the young or remedial student that the nine is the tallest number and the only number with a "hat". They should begin counting at the hat and continue straight down the body. Again, the single touch point can be thought of as the nose.

In touch points addition, students count forward. In subtraction, they count backward. In multiplication and division, they count in sequences. Students touch, count and repeat the problems and answers aloud to ensure success.

Source: TouchMath®: How It Works.
http://www.touchmath.com/index.cfm?fuseaction=about.welcome&gPage=23

Research Evidence

At least two small studies with students with disabilities support the use of this strategy. Three elementary students with autism participated in the first study. The study examined the differential effects of the number line and touch points on the acquisition performance of each student. The percentage of single digit addition math problems answered correctly was used to assess the performance of participants. At baseline, the three students averaged 0.7% math problems correct. When using the touch points intervention, students’ single-digit addition problem-solving skills improved to an average of 72%. Overall, the results indicated that touch points was an effective method for solving single-digit addition problems.

Sample Studies Supporting this Strategy

Available at: http://foa.sagepub.com/cgi/content/abstract/23/3/131

Three elementary students with autism were taught single-digit addition problem-solving skills using number and touch point strategies. Prior to the study, all students were unable to correctly calculate single-digit addition problems. An alternating-treatments design was used to compare the acquisition performance of single-digit addition problem-solving skills. The results indicated that the touch-point strategy was more effective in teaching single-digit addition skills. The touch-point strategy was then replicated using the nonpreferred strategy’s content, improving all students’ addition skills.

Available at: http://www.informaworld.com/smpp/content~content=a713698580~db=all

This study was designed to determine if children with learning disabilities in mathematics could be taught three-row, double-digit addition problems using a dot-notation method. Three children
with learning disabilities in mathematics were selected for the study. Prior to the intervention, these students employed a combination of count-all and count-on strategies when solving addition problems and relied on concrete referents such as fingers or tallies. A multiple-probe design was used to evaluate the effectiveness of the intervention. The experiment consisted of a teaching phase where students learned to count the dots on numbers 1 to 9 in a specified pattern, and an intervention phase where students progressed through nine levels of addition problems. Results indicated that the three subjects were able to learn and apply the dot-notation method successfully, and to retain the method from one-and-a-half to four-and a-half months after completing instruction.

Additional Resources


Touch Math background information, available at: [www.touchmath.com](http://www.touchmath.com)