



## ***Using TouchMath to Teach Mathematic Computation Skills***

### **What is the evidence base?**

- This is a research-based practice for **students with disabilities** based on two methodologically sound single-subject studies across six students with disabilities.

### **Where is the best place to find out how to do this practice?**

The best place to find out how to implement TouchMath to teaching mathematics computation skills is through the following website:

<http://www.touchmath.com/>

### **With who was it implemented?**

- Students with:
  - Intellectually Disabled Moderate/Severe (2 studies, n=6)
  - Autism (2 studies, n=4)
- Ages ranged from 13-16
- Males (n=5), females (n=1)
- Ethnicity
  - None reported (n=6)

### **What is the practice?**

The TouchMath program is a multi-sensory “dot-notation” system, often referred to as “touch points”, used to teach mathematics skills to students with disabilities, which was originated by Kramer & Krug (1973). The numbers of touch points on numbers one through nine are used to represent the (FIX) number. For example, a single touch point on the number one would represent a count of one. Whereas five touch points on the number five represents a count of five. Numbers higher than five have a dot with a circle around it to represent two counts. Numbers one through nine each have specific touch point placement to allow students to become familiar with identification of touch points. Students are encouraged to touch or tap the touch points as a multi-sensory approach. As the program progresses, touch points are faded and students may rely on memory for use of touch points.

TouchMath provides strategies from the pre-school level through secondary grades, including basic math computation (i.e., addition, subtraction, multiplication) up to more complex concepts such as division, fractions, decimals, time, money, geometry, and pre-algebra.

The studies used to establish the evidence base for using TouchMath to teach mathematics computation skills included:

- Teaching addition facts to middle school students (Fletcher, Boon, & Cihak, 2010)
- Teaching money computation skills to high school students (Waters & Boon, 2011)

### **Where has it been implemented?**

- Special Education classroom (2 studies)

### **How does this practice relate to Common Core Standards?**

- Mathematical Standard for Geometry (Grade 8)
  - Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. <http://www.corestandards.org/Math/Content/G/>
- Number and Quantity (High School)
  - Reason quantitatively and use units to solve problems. <http://www.corestandards.org/Math/Content/HSN/Q/A/1/>
- Algebra: Creating Equations (High School)
  - Create equations that describe numbers or relationships. <http://www.corestandards.org/Math/Content/HSA/CED/#CCSS.Math.Content.HSA.CED.A.1>

### **How does this practice relate to the Common Career Technical Core?**

Apply appropriate academic and technical skills.

- Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation. [https://careertech.org/sites/default/files/CCTC\\_Standards\\_Formatted\\_2014.pdf](https://careertech.org/sites/default/files/CCTC_Standards_Formatted_2014.pdf)

### **References used to establish this evidence base:**

Fletcher, D., Boon, R. T., & Cihak, D. F. (2010) Effects of the Touchmath program compared to a number line strategy to teach addition facts to middle school students with moderate intellectual disabilities. *Education and Training in Autism and Developmental Disabilities, 45*, 449-458.

Waters, H. E., & Boon, R. T. (2011). Teaching money computation skills to high school students with mild intellectual disabilities via the TouchMath program: A multi-sensory approach, *Education and Training in Autism and Developmental Disabilities, 46*, 544-555.

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