Using Peer-Tutoring to Teach Science

What is the evidence base?

This is a research-based practice based for **students with disabilities** based on one methodologically sound group experimental study with random assignment across 62 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 Peer-Tutoring and Science is through the following research to practice lesson plan starters:

- [Using Peer-Mediated Embedded Instruction to Teach Inquiry Science in an Inclusive Setting (Jimenez, Browder, Spooner, & Diabiase, 2012)](#)

With who was it implemented?

- Students with:
  - Learning Disability (LD) (1 study) (n=33)
  - LD and Emotional Disorders (ED) (1 study) (n=2)
  - LD and Other Health Impaired (OHI) (1 study) (n=13)
  - Autism (1 study) (n=6)
  - Multiple Disorders (1 study) (n=2)
  - Speech and Language (1 study) (n=1)
  - OHI (1 study) (n=2)
  - Section 504 of the Rehabilitation Act of 1973 (1 study) (n=3)

- Ages ranged from 12-14
- Males (n=39), females (n=23)
- Ethnicity
  - Caucasian (n=48)
  - African American (n=6)
  - Hispanic (n=4)
  - Multi-racial (n=4)

What is the practice?

Peer tutoring or peer mediated instruction has been defined as having students of the same age tutor each other or work together as partners or in small groups to complete assignments (Maheady, Harper, & Sacca, 1988). There are potential benefits of peer-tutoring or peer mediated instruction including the ability to provide ongoing timely corrective feedback and increased opportunities to practice and respond to others (Hattie & Timperley, 2007).

How has the practice been implemented?

- In combination with time-delay and embedded instruction, peer-mediated instruction was used to teach students science content and how to use a KWHL (i.e., K = what do you Know?; W = What do you want to know?; H = How will you find out?; L = what did you Learn?) chart during inclusive inquiry science lessons (Jimenez et al., 2012).
- To teach middle school 8th grade science vocabulary for the Scientific Investigation Unit (Mastropieri et al., 2006).
- To provide instruction on science vocabulary and content across 5 units including (a) cell division through meiosis and mitosis, (b) analyzing personal traits and characteristics, (c) Mendel's work, (d) probability of traits and basic concepts of genetics, and (e) DNA.
- (McDuffie, Mastropieri, & Scruggs, 2009).

Where has it been implemented?

- General Education classroom (1 studies)

How does this practice relate to Common Core Standards?

- English Language Arts Standard for Literacy for Science and Technical Subjects (Grade 9-10)
    - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics CCSS.ELA-LITERACY.RST.9-10.4

    - Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words CCSS.ELA-LITERACY.RST.9-10.7

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

Environmental Service Systems Career Pathway (AG-ENV)
1. Use analytical procedures and instruments to manage environmental service systems.
2. Evaluate the impact of public policies and regulations on environmental service system operations.

3. Develop proposed solutions to environmental issues, problems and applications using scientific principles of meteorology, soil science, hydrology, microbiology, chemistry and ecology.
4. Demonstrate the operation of environmental service systems (e.g., pollution control, water treatment, wastewater treatment, solid waste management and energy conservation).
5. Use tools, equipment, machinery and technology common to tasks in environmental service systems.

References used to establish this evidence base:

McDuffie, K. A., Mastropieri, M. A., & Scruggs, T. E. (2009). Differential effects of peer tutoring in co-taught and non-co-taught classes: Results for content learning and student-teacher interactions. *Exceptional Children, 75,* 493-510.