

At RAFT, we know that children learn best by doing.

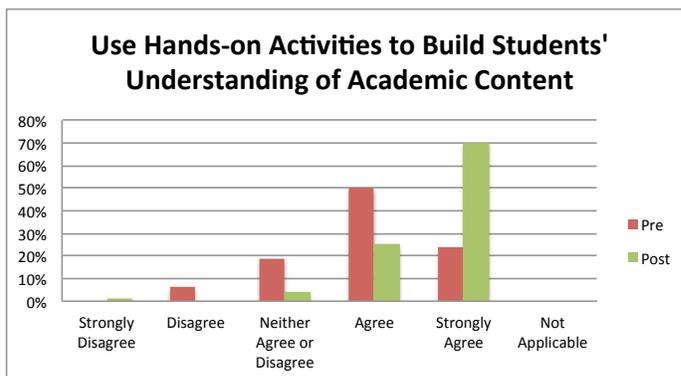
Providing them with hands-on experiences gives them opportunities to think creatively and critically, solve meaningful problems, and build relationships with others and the world. And guess what? Kids don't need expensive materials to create priceless experiences.

Does Hands-On Learning Matter?

Yes! A meta-analysis of 15 years of research on the advantages of hands-on learning, including 57 studies of 13,000 students in 1,000 classrooms, demonstrated that **students in activity-based programs performed up to 20% higher than groups using traditional or textbook approaches.** The greatest gains occurred in creativity, attitude, perception and logic.³ This makes sense: brain scans show that students who take a hands-on approach to learning a particular topic have activation in more parts of their brain when they later return to thinking about those concepts.⁴ Unsurprisingly, teachers who conduct hands-on learning activities on a weekly basis out-perform their peers by more than 70% of a grade level in math and 40% of a grade level in science.⁵ Links to the full report, as well as a Student Impact Study commissioned by RAFT in San Jose that documents the effect of RAFT hands-on activities on student learning, are available on line.⁶ By serving teachers (rather than serving students directly), we can broaden the reach of our resources to build teachers' capacity to provide and facilitate hands-on experiences, and our impact is sustainable in that the teachers we impact will serve more students every year.

Does RAFT Really Help Hands-On Learning Happen?

Given that RAFT does not serve students directly, measuring impact is challenging – but given the research above and our particular expertise, we will put our point of accountability on whether teachers are intentionally providing more hands-on activities as a result of their contact with RAFT.



Participants experienced a positive movement in their ability to use hands-on activities to build students' understanding of academic content with 70 percent of participants (n=119) selecting that they strongly agreed with the statement.

¹ G.J. Dencan, C.J. Dowsett, A. Claessens, et al. "School Readiness and Later Achievement." *Developmental Psychology*, 43, 1428-1446, 2007.

² Morgan, Paul, Farkas, George, Hillemeier, Marianne, and Maczuga, Steve. "Science Achievement Gaps Begin Very Early, Persist, and Are Largely Explained by Modifiable Factors." *Educational Researcher*, Vol. XX No. X, pp 1-18, <http://er.aera.net>.

³ Bredderman, Ted. "Effects of Activity-based Elementary Science on Student Outcomes: A Qualitative Synthesis." *Review of Educational Research*. 53.4 (1983): p499-518.

⁴ <https://news.uchicago.edu/article/2015/04/29/learning-doing-helps-students-perform-better-science>.

⁵ National Assessment of Educational Progress, U.S. Department of Education, 1999.

⁶ See <http://www.raft.net/public/pdfs/case-for-hands-on-learning.pdf> and Bass, Kristin M., Danielle Yumol, and Julia Hazer. "The Effect of Raft Hands-on Activities on Student Learning, Engagement, and 21st Century Skills." See also RAFT Student Impact Study. Rockman et al, 2011, <http://www.raft.net/public/pdfs/case-for-hands-on-learning.pdf>.