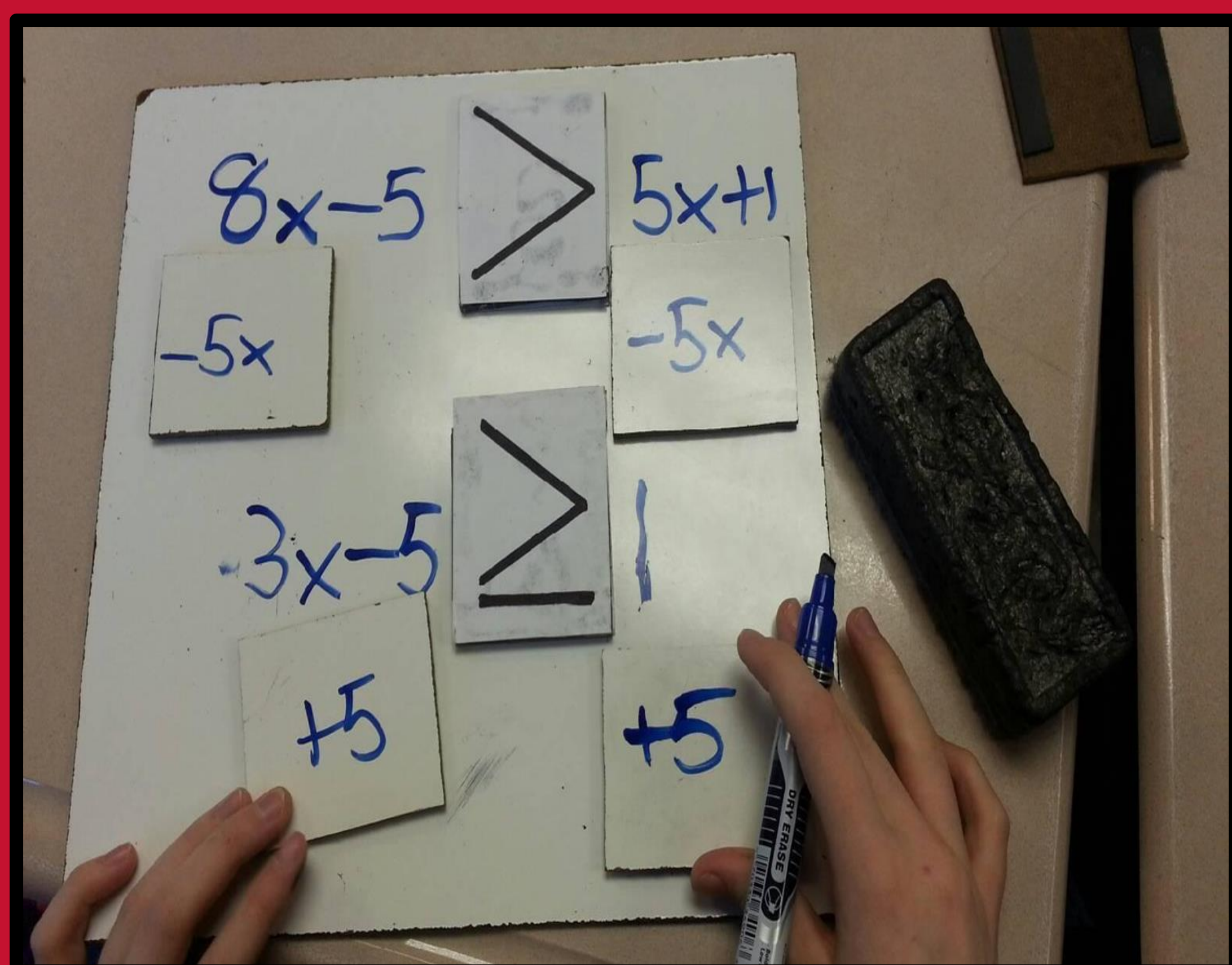


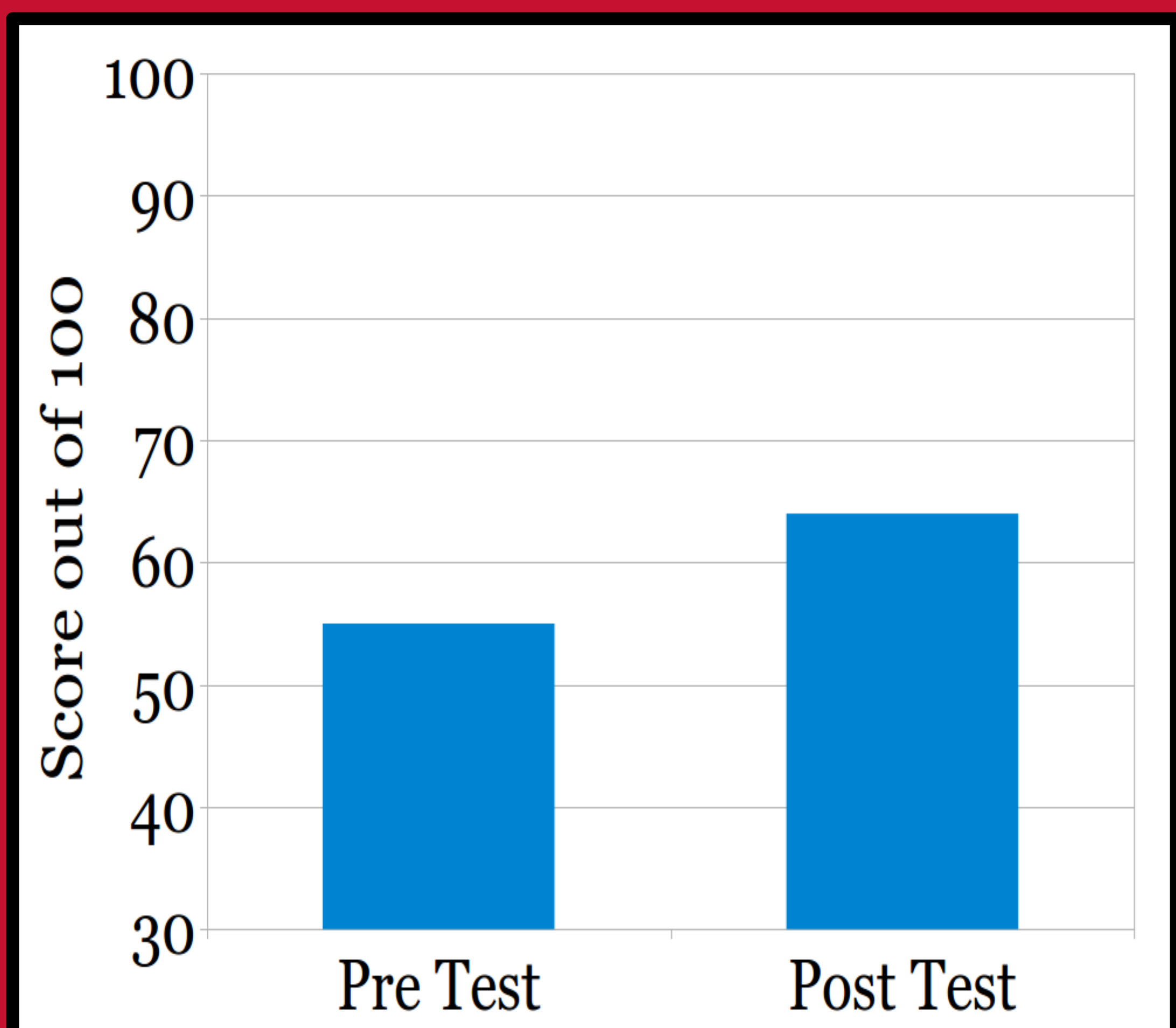
Background

- American 15 year olds rank 27th out of 70 nations in math¹
- Algebra is a gateway to higher math²
- Algebra Visualization tools improve understanding³

Algebra Tiles in Use



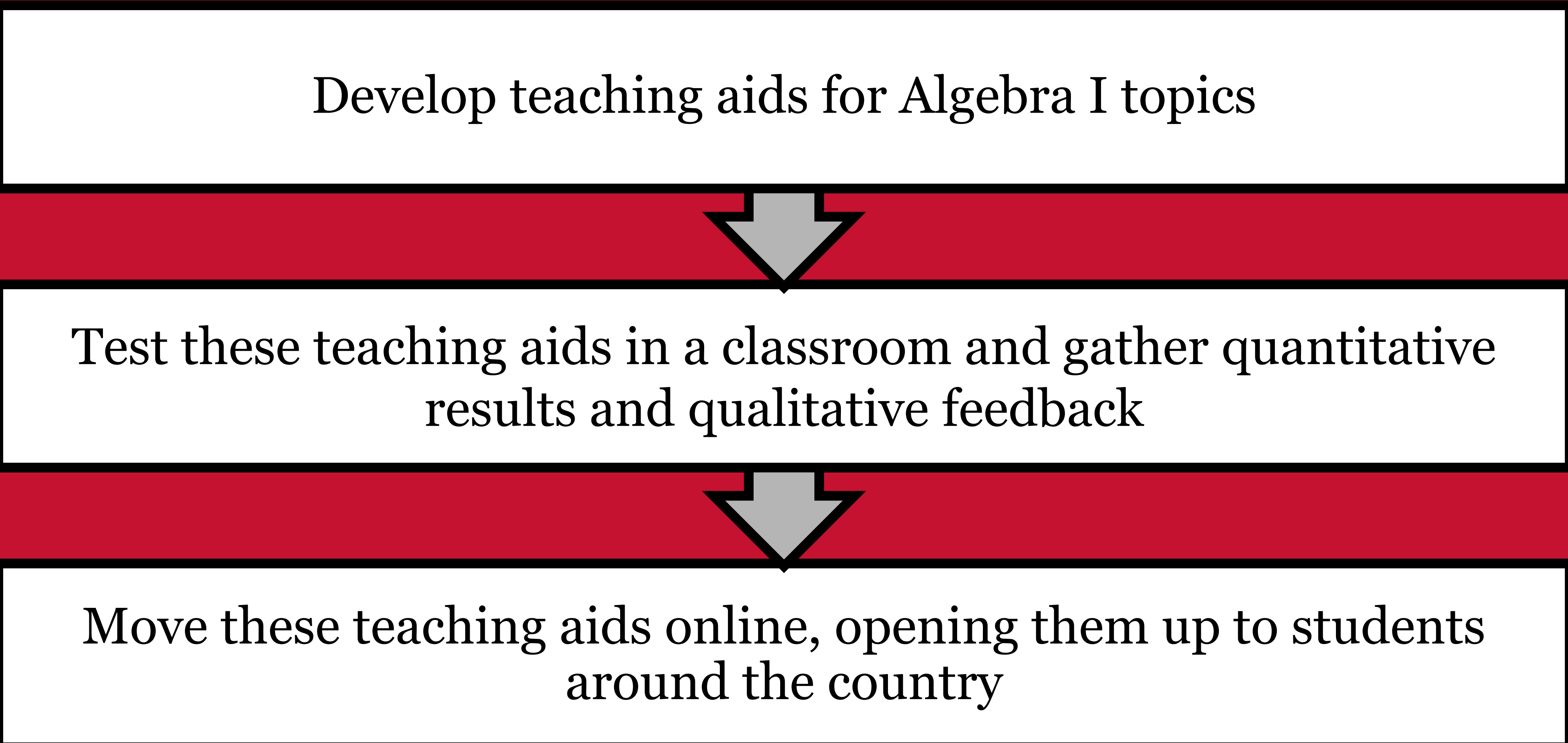
Improvement With Teaching Aids



Abstract

This project addresses the difficulty students have visualizing algebra. An online Algebra Scale and a set of Algebra Tiles were designed and developed. These tools were provided to a local 8th grade classroom, where they were used for three weeks. Our results show that students who used the teaching aids improved, and enjoyed the tools. However, they did not improve significantly more than the students who did not use the teaching aids.

Methods

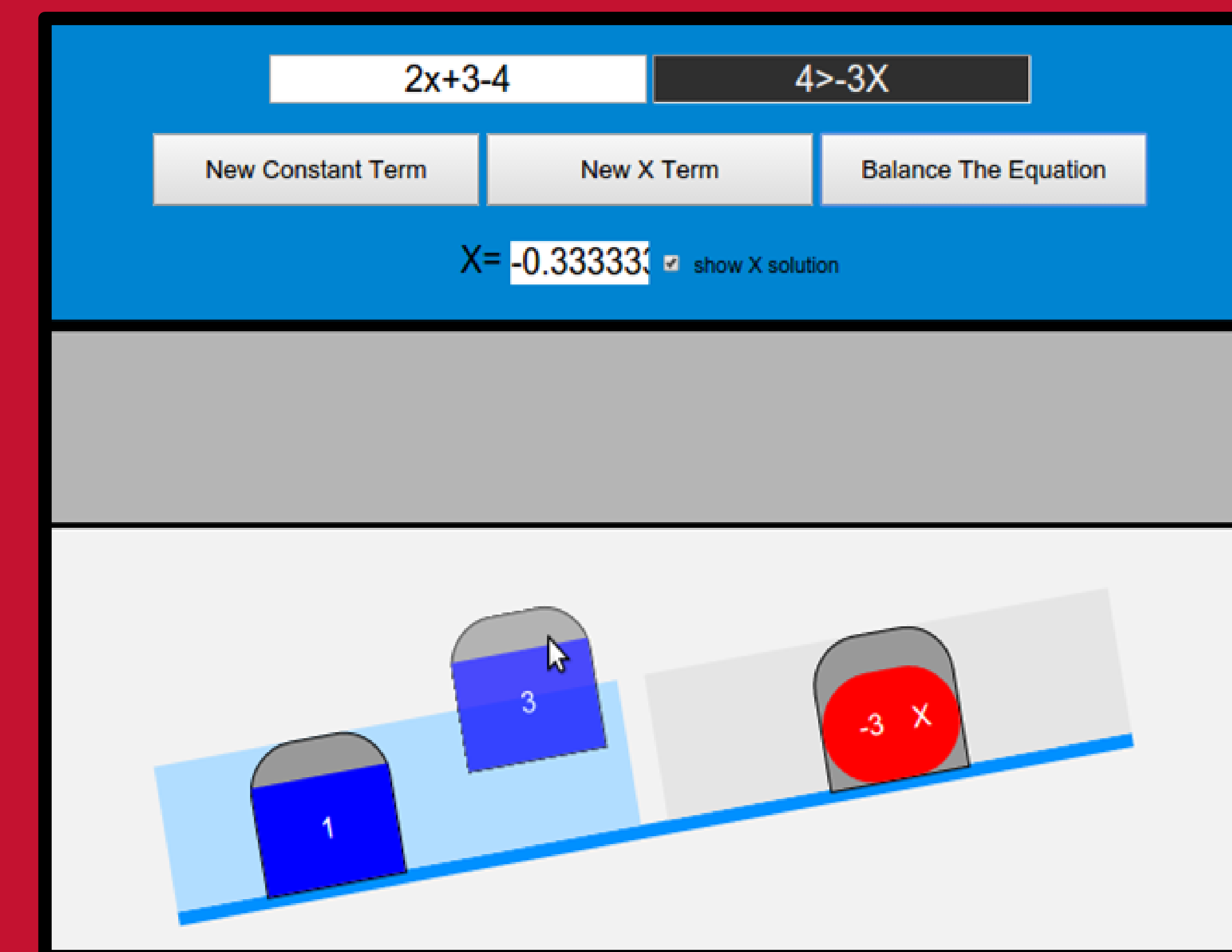


Results

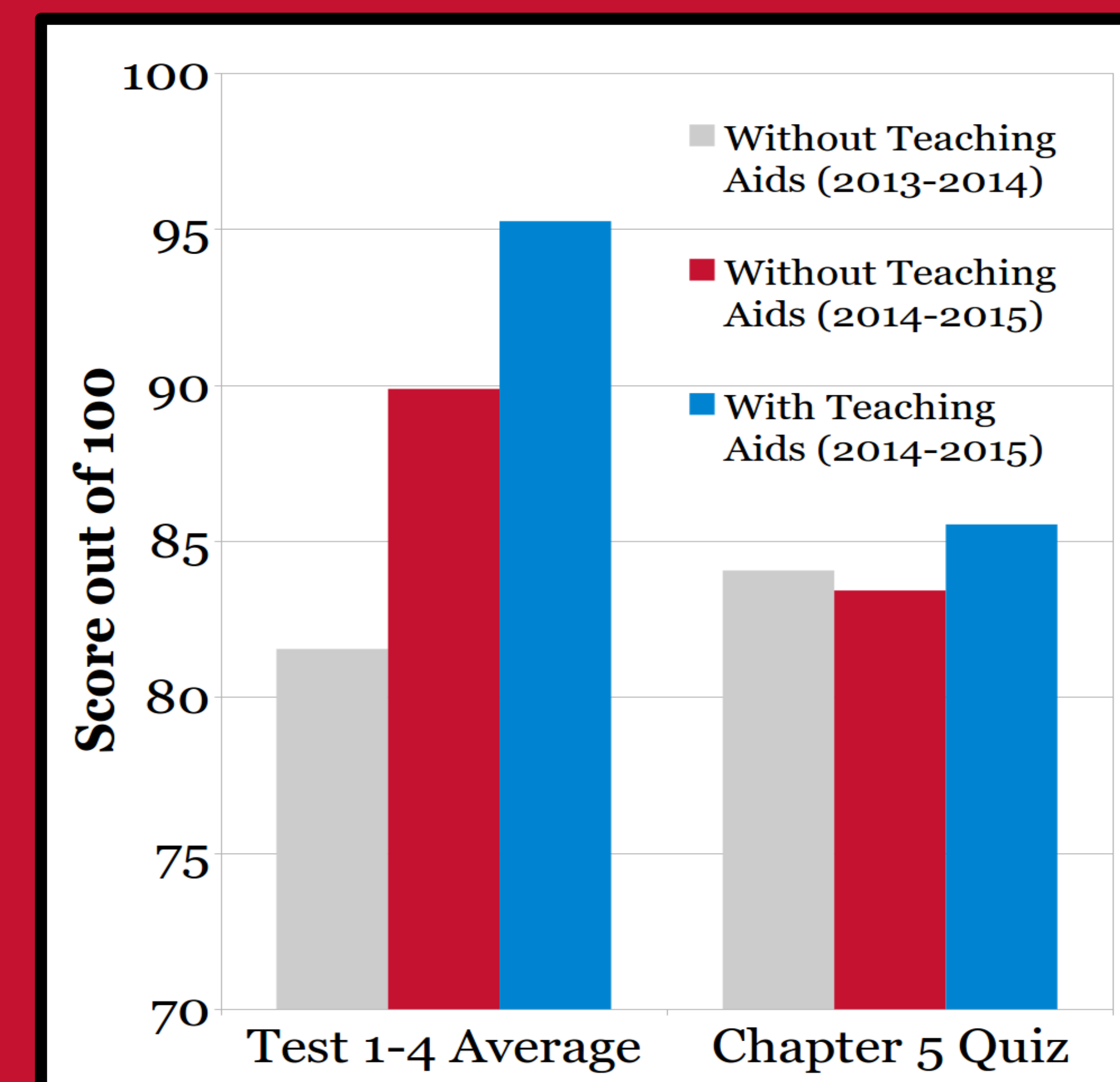
“I strongly feel that [the teaching aids] WORK to help demonstrate the idea of weights to keep a scale balanced”
-Mrs. Bement (8th grade teacher)

- Students taught with the teaching aids did not improve significantly more than those who were not
- Students thought the teaching aids were “Cool” and “Helpful”
- Hands on Algebra Tiles kept students focused

Screenshot of the Algebra Scale



Effectiveness Compared To Standard Methods



References

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[1] US Department of Education (2012). PISA International Data Explorer. *National Center of Educational Statistics*.

[2] Matthews, M. S., & Farmer, J. L. (2008). Factors affecting the algebra I achievement of academically talented learners. *Journal of Advanced Academics*, 19(3), 472-501.

[3] Caglayan, G. (2013). Prospective mathematics teachers' sense making of polynomial multiplication and factorization modeled with algebra tiles. *Journal of Mathematics Teacher Education*, 16(5), 349-378.