

# Mathematical foundations that informed the development of our materials

## Our Instructional Approach

Carnegie Learning's instructional approach is based upon the collective knowledge of our researchers, instructional designers, cognitive learning scientists, and master math practitioners. It is based on a scientific understanding of how people learn and a real-world understanding of how to apply that science to mathematics instructional materials. At its core, our instructional approach is based on three simple yet critical components:

### Engage

Activate student thinking by tapping into prior knowledge and real-world experiences



### Develop

Build deep mathematical understanding through collaboration and questioning



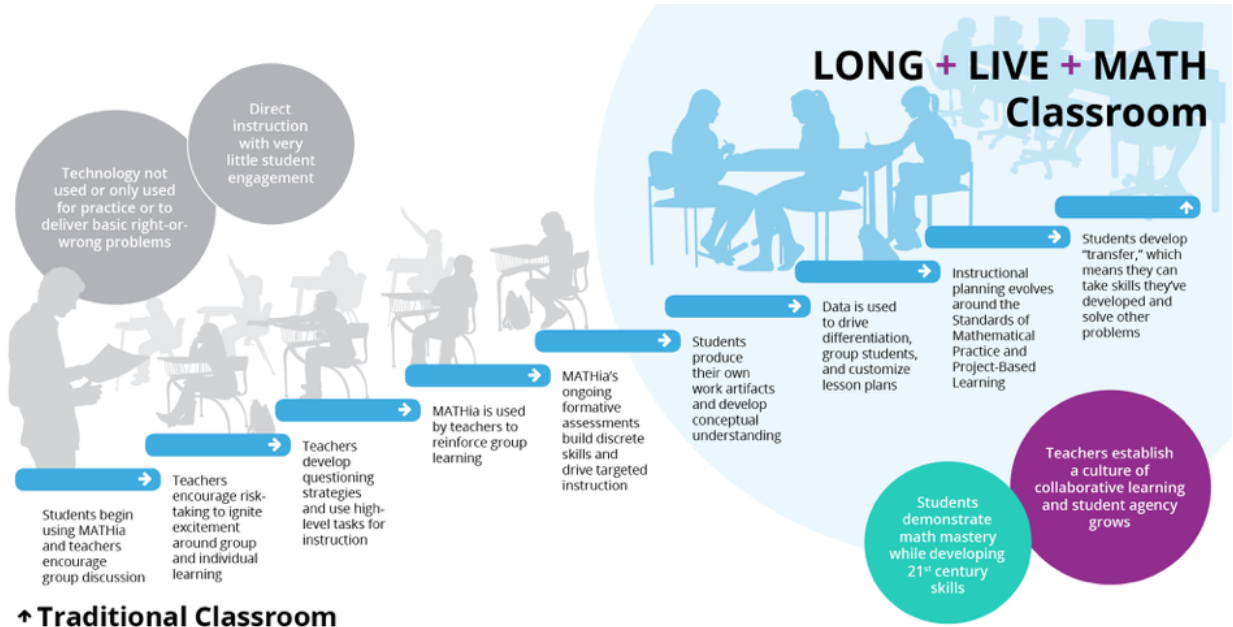
### Demonstrate

Students reflect on and evaluate what was learned



**Our Blended Learning**

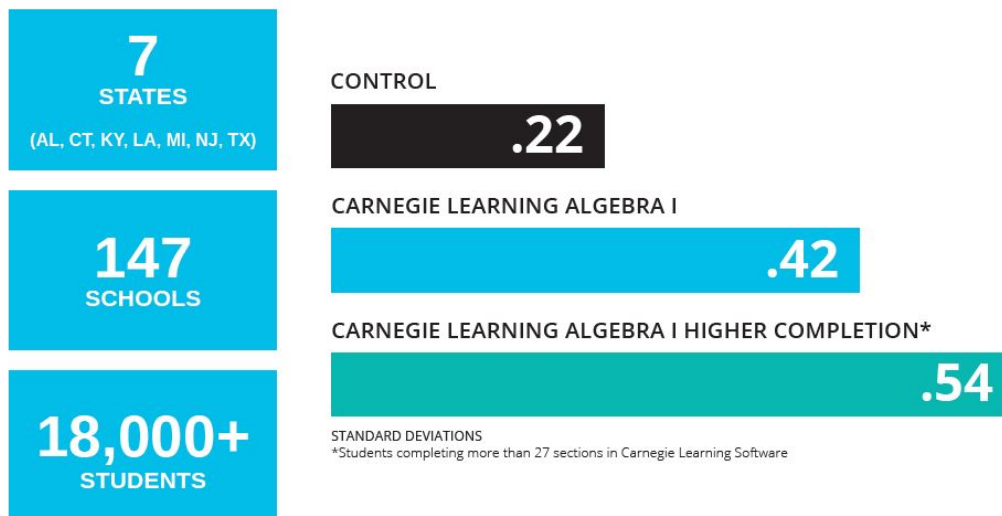
We believe that every student can learn math, and we are passionate about providing tools and support for every teacher to help make that learning happen. To some, blended learning means a mix of printed materials and online resources. At Carnegie Learning, we deliver a different brand of blended learning: one that combines collaborative group learning with focused individual learning:



## Evidence of efficacy

Founded by cognitive and computer scientists from Carnegie Mellon University, Carnegie Learning has been deeply immersed in research from the start. Our research extends far beyond our own walls, playing an active role in the constantly evolving field of cognitive and learning science. Our internal researchers collaborate with a variety of independent research organizations, tirelessly working to understand more about how people learn, and how learning is best facilitated. We supplement this information with feedback and data from our own products, teachers, and students, to continuously evaluate and elevate our instructional approach, as well as its delivery.

Research not only informs our approach, it validates it. In an independent “Gold Standard” study funded by the U.S. Department of Education and conducted by the RAND Corporation, the Carnegie Learning blended approach nearly doubled growth in performance on standardized tests relative to typical students in the second year of implementation.



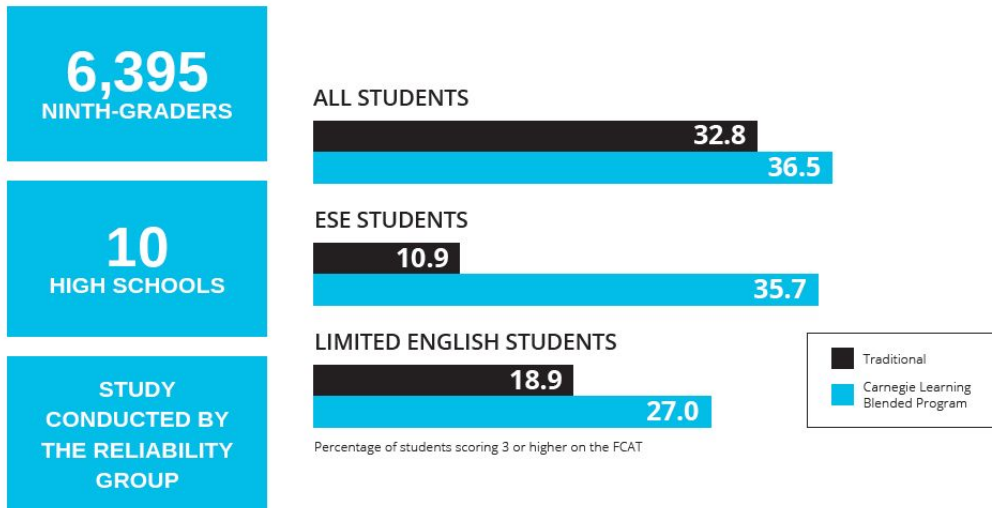
Below is a link for reviewers to view a brief of the study in its entirety:

[http://www.rand.org/content/dam/rand/pubs/research\\_briefs/RB9700/RB9746/RAND\\_RB9746.pdf](http://www.rand.org/content/dam/rand/pubs/research_briefs/RB9700/RB9746/RAND_RB9746.pdf)

Miami-Dade County Public Schools has partnered with Carnegie Learning for more than 15 years to increase student math achievement in the district. In 2002, the Reliability Group, an independent third party, conducted a study involving 6,395 high school students. The study concluded that students using the Carnegie Learning® curriculum scored significantly higher on the Florida Comprehensive Assessment Test (FCAT) than students using a different curriculum. The difference was particularly pronounced for Exceptional Education and Student Services students, including those with learning and behavioral difficulties, and for students with Limited English Proficiency.

**Closing the Gap, for All Students**

Case Study: Miami-Dade County Public Schools



To review the full study go to: [http://relgroup.net/articles/cognitive\\_evaluation\\_final.pdf](http://relgroup.net/articles/cognitive_evaluation_final.pdf)

In addition, a study by the Chicago Consortium on School Research (Cortes, et al., 2013) found that an Algebra program incorporating extended use of MATHia produced dramatic gains for students with poor reading skills. Such gains included an increase of 0.22 standard deviations in ACT scores, a 12.7% increase in high school graduation and 13.3% increase in college enrollment. Overall, students in the mathematics program increased their scores on the ACT verbal test by 0.2 standard deviations.

For more on the Double Dose study:

<https://files.eric.ed.gov/fulltext/ED512287.pdf>

## Supplemental services provided to support the implementation of our curriculum

Carnegie Learning's professional learning services help you transform math learning. Through in-person visits and virtual support, our professional Learning team delivers practical strategies, first-hand insights, and smart training that help teachers shift their mindset, deepen content knowledge, and create student-centered learning environments where everyone thrives. Carnegie Learning's Education Services Department has provided professional learning in a wide range of settings, from large urban schools to small rural schools, with diverse student populations. Our instructional support team is experienced in a variety of delivery models, including one-on-one, job-embedded, in-classroom support as well as large district-wide institutes with diverse teaching

needs. Our Managers of School Partnerships (MSPs) are full-time members of the Carnegie Learning team and are experts in curriculum, content and pedagogy. Carnegie Learning MSPs and our field staff will work with APS and building level personnel to customize a professional development plan to meet the district's needs. Our professional learning can also be delivered without our products.

### **Initial Implementation Workshop**

*Up to 25 participants*

The Initial Implementation Workshop gets your teachers and coaches started with Carnegie Learning curricula. Participants experience the research-based instructional model, become familiar with the teacher and student materials, and leave with an established process for planning and pacing throughout the school year.

### **Leadership Workshop**

*Up to 25 leaders*

This workshop is designed for building and district leaders who will be supporting educators implementing the Carnegie Learning curricula. Participants will receive an overview of the tools and strategies needed to monitor and sustain an effective implementation.

### **In-classroom Support**

*Limited to 4-6 teachers per day*

In-Classroom Support takes place within the classroom and provides side-by-side coaching from Carnegie Learning's master practitioners. Carnegie Learning master practitioners intentionally build relationships with teachers and leaders by offering ongoing support based on school/district improvement goals, with the common end goal of helping students achieve success in mathematics.

### **Demonstration Lesson Cycles**

*2-day cycle; up to 2 lessons per cycle*

Carnegie Learning master practitioners will work in partnership with a school/district to provide Demonstration Lessons. In an effort to model all phases of instruction including planning, implementation and reflection, the Demonstration Lesson Cycle is a two-day process.

### **Custom Implementation Fidelity Workshops**

*Up to 25 participants*

Carnegie Learning master practitioners will partner with schools to create professional learning opportunities tailored to each school's specific needs.

### **Status Meetings**

Status Meetings are the primary communication framework for data-driven decision making across key stakeholders. These stakeholders, including school, district, and Carnegie Learning personnel, make up the partnership team. During Status Meetings, the partnership team will review data from Teacher's Toolkit reports as well as observation summary reports and agree to implement recommendations aligned to a theory of action. Additionally, during this time, goals and benchmarks will be reviewed, revised, and amended to reflect the goals of the partnership team.

### **Online Professional Learning**

Carnegie Learning Online Professional Learning is designed to support APS teachers and leaders with on-demand, just-in-time learning. Available via the Carnegie Learning Resource Center, our

Online PL modules include video-based content, developed to make instructors more successful and confident using Carnegie Learning textbooks and resources.

We also invite you to visit [www.carnegielearning.com/amphitheater](http://www.carnegielearning.com/amphitheater) to learn more and watch our professional development in action.

### **Customer Support**

Carnegie Learning's Customer Support Team is available Monday - Friday from 8:00 a.m. to 9:00 p.m. ET. This expert team provides support for installations, networking, and other technical issues in addition to consulting on general questions related to pedagogy, classroom management, content and curricula via email or over the phone. They can call directly through our toll free number at 1-877-401-2527, to speak directly with a team member. These experienced team members can guide a teacher or administrator and address any challenges. Teachers and administrators can also access support through the Carnegie Learning online chat function.

### **MyCL Portal**

The MyCL portal provides a simple-to-use platform where educators and administrators access all of their Carnegie Learning products and resources. MyCL empowers teachers to access all text materials, customize curricula sequences, manage classes and student accounts, and access real-time reports with actionable insights into how well students are progressing in the Carnegie Learning materials and state standards.

Within MyCL is the Resource Center, an area for all teachers and administrators that serves as a central gathering site for educators and instructional resources. Teachers and administrators gain access to access the textbooks in PDF form. This online resource is available 24/7 anywhere with an internet connection and provides teacher materials for viewing as well as customizable implementation support tools such as online professional development, administrative reports, instructor resources and more.