

CARNEGIE  
LEARNING

CLEARMath®  
Elementary



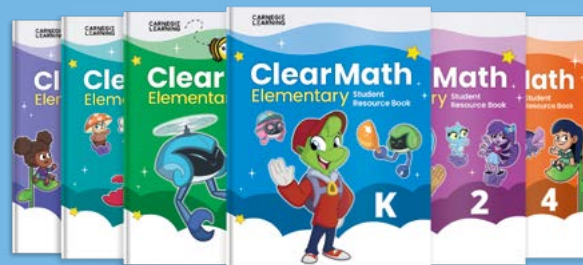
# The Research Behind ClearMath® Elementary

Building on decades of learning to unlock children's  
natural mathematical curiosity

# The Development of ClearMath Elementary

Behind ClearMath Elementary's proven track record of fueling curiosity and joyful learning in math lies a robust foundation of educational research that shaped Carnegie Learning's trusted curriculum.

Built upon [Education Development Center's](#) Think Math! solution, ClearMath Elementary leverages decades of research-based approaches to ensure engaging and effective learning.



## Identifying the Disconnect

EDC observed a persistent gap between what research tells us about how kids learn math and what most curricula actually do. While research shows children are natural problem solvers, most math programs work against this instinct rather than with it.

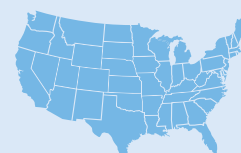
EDC has deep experience in developmental psychology and cognitive science, so they did something about it. With National Science Foundation funding, they created Think Math! Built on EDC's approach to using mathematical habits of mind, ways of thinking mathematically, and as an organizing principle for curricula (Cuoco, Goldenberg & Mark, 1996), Think Math! connects problem solving, skill building, and conceptual development.

Children constantly make sense of the world around them, so why not design a math curriculum that honors this natural curiosity? Carnegie Learning recognized the power of this approach and built ClearMath Elementary on Think Math!'s proven foundation.



**4 Years**

of design and  
prototype testing



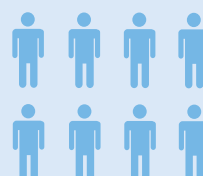
**150**

classrooms  
across diverse  
settings



**1,300 hours**

of classroom observations



**500 hours**

of teacher interviews



**19**

renowned scholar reviews,  
including Douglas H.  
Clements, Cynthia  
Halderson, Mark Jenness,  
and Julie Sarama

# What Was Discovered

Children are natural problem solvers. They constantly generalize their observations to make sense of their world and predict what happens next (Goldenberg, E.P., 2019). But EDC's research revealed that traditional curricula ignored this reality, creating three critical disconnects:

## Problem 1: Limited Problem-Solving Opportunities

Many math curricula are focused on rote procedures rather than engaging students' natural curiosity and reasoning abilities. Students aren't given chances to explore, discover patterns, or make mathematical connections.

## Problem 2: Fragmented Skill Development

Traditional approaches have treated mathematical skills as isolated facts to be memorized, rather than building fluency through engaging, meaningful practice that connects to students' developing number sense.

## Problem 3: Disconnected Mathematical Language

Typically, curricula have introduced mathematical vocabulary and notation without connecting it to students' informal understanding, creating barriers rather than bridges to mathematical thinking.

## Three Cornerstone Features

To address these critical gaps, EDC developed targeted instructional approaches that became the cornerstone features of ClearMath Elementary:

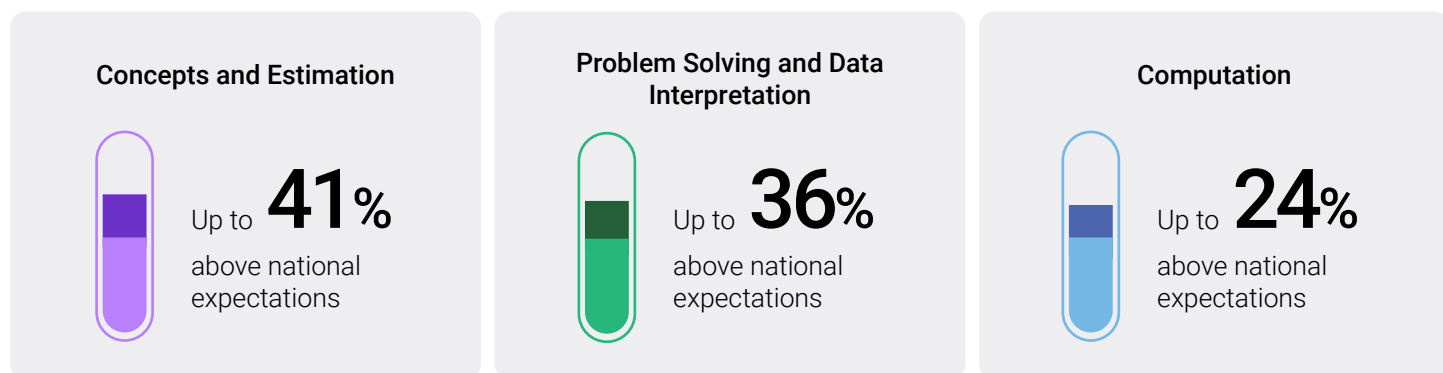
- **Headline Stories** – Daily open-ended problems that honor students' natural problem-solving abilities and deductive thinking
- **Mental Math Activities** – Fast-paced skill building that develops fluency through meaningful patterns and relationships rather than isolated drill
- **Mathematical Language Development** – Systematic vocabulary instruction that builds on students' informal mathematical understanding and connects to formal notation

This approach recognized that effective mathematics education must work with children's natural learning processes rather than against them (Goldenberg, Mark & Cuoco, 2010). Each feature was carefully designed to transform how students experience mathematics, moving from passive recipients of procedures to active mathematical thinkers. This approach proved effective, and children loved learning this way.



# The Results

When Think Math! was evaluated across three diverse school districts (2004-2006), the results were remarkable: students exceeded national expected gains by up to 41% (Conner et al., 2007).



In one year, first-grade students in Texas jumped from the 35th percentile to the 58th percentile. Even better? The approach particularly helped students who needed it most, as gains were significantly higher in lower socioeconomic districts.

## How Modern Learning Science Keeps Improving Our Approach

The beauty of building on this solid research? It keeps getting better. Built on Think Math!'s foundational research, Carnegie Learning's ClearMath Elementary also incorporates the latest learning science discoveries summarized by the Institute of Education Sciences' What Works Clearinghouse (2021), including:

- Systematic instruction that builds understanding step by step
- Clear mathematical language with precise vocabulary
- Multiple representations connecting hands-on, visual, and abstract thinking
- Strategic word problem instruction for deep understanding
- Fluency activities that build automatic recall

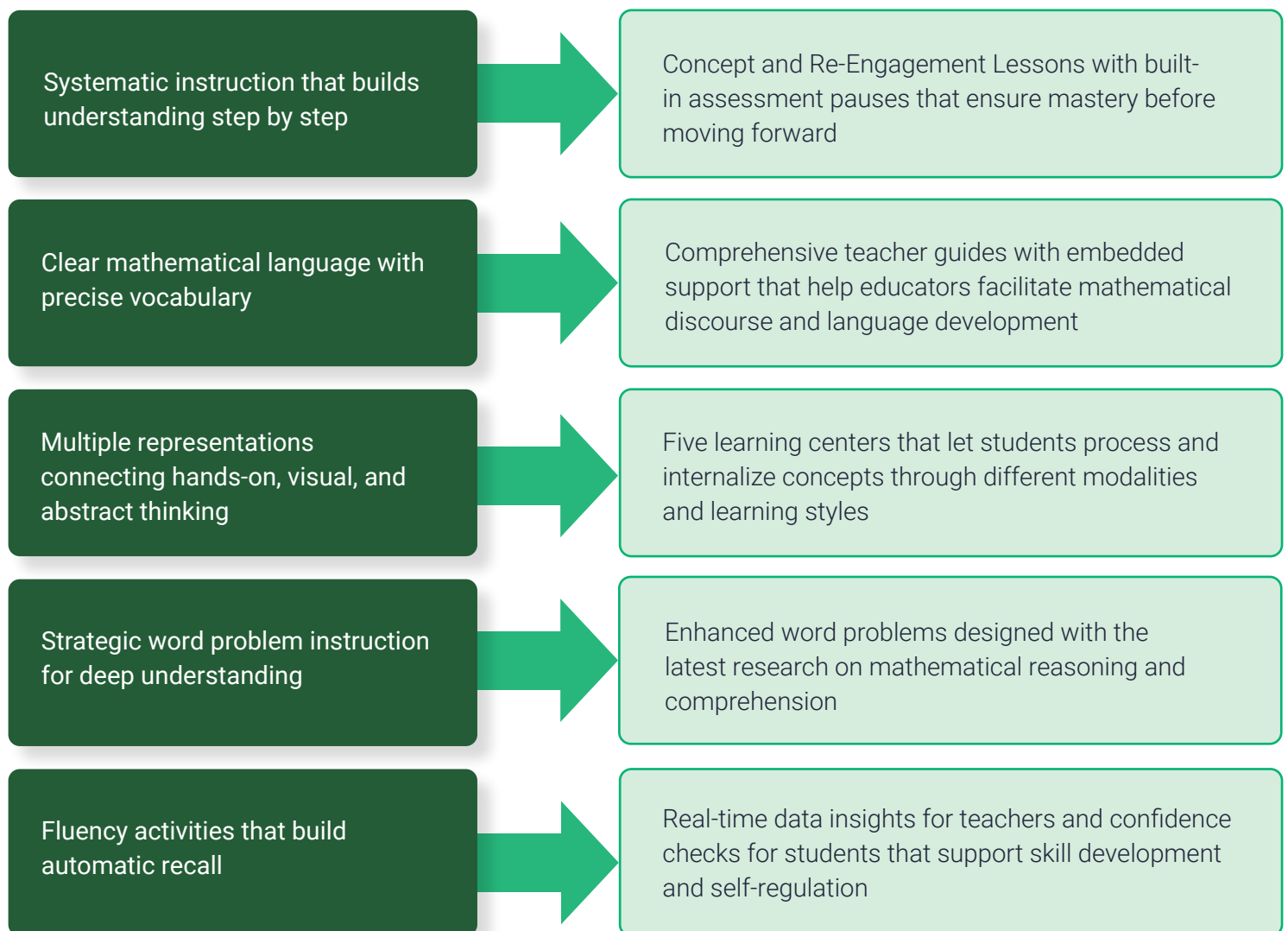
During ClearMath Elementary's development, Carnegie Learning identified demand for a digital component that extends the core learning experience's focus on conceptual understanding and procedural fluency. Research confirms that interactive learning games significantly improve early math learning (Ferdig & Kosko, 2017). We integrated the award-winning MATHia Adventure™ digital gameplay to fulfill this need and leverage established research on educational gameplay.

This comprehensive approach recognizes that mathematical success depends on more than just content knowledge—it requires developing executive function skills like attention, working memory, and flexible thinking. ClearMath Elementary systematically nurtures these cognitive abilities alongside mathematical concepts, creating a foundation for lifelong mathematical thinking.

# From Research to Real Classrooms

Carnegie Learning's instructional design team enhanced Think Math!'s proven foundation for today's classrooms while keeping its research-based heart intact. In building ClearMath Elementary, Carnegie Learning recognized that teachers need a curriculum that's both flexible enough to meet diverse student needs and structured enough to maximize precious instructional time.

## How We Applied the Latest Learning Science Discoveries







## Why Our Approach Works

Simple: we work with children's natural instincts, not against them. Instead of fighting kids' curiosity and problem-solving drive, we channel these strengths to build deep mathematical understanding.

The result? Daily math exploration, systematic skill-building in engaging contexts, and multiple pathways to mathematical success.

## The Bottom Line? We Know How to Teach Math

In a world where most curricula ignore learning science, Carnegie Learning doesn't just implement it—we thrive on it. We understand that children's natural curiosity and the joy they find in mathematical discovery are powerful learning forces, and ClearMath Elementary harnesses both systematically and effectively.



### Ready to See the Difference?

Contact Carnegie Learning to discover how ClearMath Elementary will bring research-proven math instruction to your students.



[www.carnegielearning.com/solutions/math/elementary-math-solution](https://www.carnegielearning.com/solutions/math/elementary-math-solution) ►

# References

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