CASE STUDY

CARROLL COUNTY, MD

Building Number Sense

Tailoring Math Instruction to Individual Student Needs

CARROLL COUNTY FAST FACTS

- Top performing school district
- 23 Elementary schools
- 12,000 Pre-K–5 students

DREAMBOX IMPLEMENTATION

- Deployed since April 2009
- 23 Elementary schools
- 1,400 Students
- K–5 classrooms
- Intervention
- Enrichment

FUNDING SOURCES

- District curricular textbook funds
- General funds

ABOUT DREAMBOX LEARNING

DreamBox Learning's Intelligent Adaptive Learning™ program accelerates student learning by ensuring every student works continually in their optimal learning zone and helps all students achieve math proficiency.

BACKGROUND

One of the best-performing school systems in Maryland, Carroll County Public Schools, consistently ranks in the state's top tier for elementary mathematics.

Donn Hicks, supervisor of elementary mathematics for the district, leads a team of 12 math resource teachers who support teachers and students in 23 elementary schools. In 2009, they adopted DreamBox Learning Math to differentiate instruction with meaningful, independent learning activities.

"DreamBox Learning provides a seamless connection between what students are doing in class and their independent study. DreamBox knows what concepts the student understands, and offers appropriate, meaningful learning activities each time he or she logs in."

— Donn Hicks
Supervisor, Elementary Mathematics

→ CHALLENGE:

Help a broad range of students develop number sense

Elementary school teachers often struggle to help students develop number sense, and many lack time or pedagogical experience to tailor mathematics instruction to individual student needs. Carroll County math resource teachers were looking for a web-based program that would help students develop number sense and build a foundation for mathematics fluency.

"We were discouraged by most of what was out there. It was drill and practice," says Laura Hunovice, mathematics resource teacher for Hampstead and Linton Springs elementary schools. "Struggling students don't need more of the same — they need a different approach." In addition, students ready to work beyond their grade level need to build on concepts they understand, not review them.

→ SOLUTION:

Build conceptual understanding with virtual manipulatives

DreamBox Learning combines a robust mathematics program, based on Common Core State Standards, with an adaptive engine that presents students with appropriate activities based on demonstrated understanding of concepts. By integrating assessment and instruction, DreamBox Learning

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>
> — Laura Hunovice
> Mathematics Resource Teacher

engages all students in their optimal learning zone.

The visual models and scaffolding built into DreamBox Learning help all students develop foundational math skills.

Virtual manipulatives help to deepen students' conceptual understanding. DreamBox complements classroom instruction with tenframes, mathracks, number lines, and other manipulatives just like the ones students use in class. Carroll County teachers reported that students who were reluctant to use manipulatives in class were eager to use them in DreamBox, and their attitudes about using the physical manipulatives during lessons improved.

Developing computational fluency requires a balance and connection between conceptual understanding and computational proficiency. DreamBox presents students with appropriate activities based on demonstrated understanding of concepts. "With DreamBox, students are not relying on a set of procedures," says Hunovice, "but on an understanding of why these strategies work."

Finally, students put these strategies and mental models to use in problem-solving activities that let them informally explore concepts.

DreamBox Learning also helps primary teachers who may not have a math specialty prepare for the future. "I see a higher level of rigor coming with the Common Core State Standards," says Hunovice. "For primary teachers, DreamBox is a nice bridge for where we are right now and where we need to go."

→ IMPLEMENTATION:

From intervention to enrichment

Enthusiasm among students and their teachers encouraged Carroll County to expand DreamBox Learning from a pilot program used in select schools to one used in all 23 elementary schools, and from intervention for students below grade level to enrichment for all students. Teachers feel confident that students working independently on DreamBox are benefiting from highly individualized instruction at an appropriate level.

At budget time, Hicks asked teachers how they should allocate limited resources. Many decided to purchase DreamBox Learning licenses as opposed to spending money on consumable textbooks with tear-out worksheet pages.

→ RESULTS:

Individualized support for high-performing and struggling students

Donn Hicks and his team selected DreamBox Learning to help teachers and students continue to excel in mathematics. With DreamBox Learning as a resource available to teachers to supplement the curriculum in every Carroll County elementary school, Hicks reports that "our high-performing students are using the program to further strengthen their number sense comprehension while others, who may be below grade level, have benefited from spending extra time working on foundational basics. For both sets of students, the blend of classroom instruction and DreamBox Learning has been a big win."

For more information, contact Client Care at 877.451.7845, email **schools@dreambox.com** or visit **dreambox.com**.

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