

Improving Math Performance

What do you think is the single most important factor in dramatically improving students' math performance in your school?

Regardless of their specific mathematics programs, No Child Left Behind - Blue Ribbon Schools use many similar instructional techniques. All emphasize alignment of the school's mathematics curriculum with state standards and conduct frequent benchmark assessments to determine student mastery of the standards. All strive to allot sufficient time for math instruction each day to ensure that all students reach high levels of achievement.

Assessment is formative and ongoing, and students who experience difficulty mastering math concepts receive immediate intervention and additional instructional time. Many schools use manipulatives to help students understand math concepts. Mastery of computation is balanced with problem solving, applying mathematics, and making real world connections.

As in all Blue Ribbon Schools, quality teachers, parent involvement, and a coherent progression from grade to grade are key to student success. School comments about improved student math performance are organized below by topic—curriculum, teaching, student support, and assessment—with illustrations from survey responses. The following are excerpts of how Blue Ribbon schools' teaching strategies have improved their math scores.

Teaching strategies

Differentiated classroom instruction, flexible grouping, and immediate intervention for students who are not mastering math standards give students the individual instruction they need to succeed in math. Teacher collaboration, within and across grade levels, acknowledges the importance of year-to-year continuity in mathematics instruction. The quality of math teachers, particularly with regard to their content knowledge of mathematics, is critically important.

Richardson D. White Elementary School, Glendale, CA

“Assessment is ongoing, allowing teachers to re-teach as needed. Differentiation within the math block occurs via varied instructional strategies and tools including small group instruction.”

Walnut Grove Elementary School, Pleasanton, CA

“Our average student exits Walnut Grove (5th grade) performing above the 90th percentile in Math (SAT/9, CAT/6). . . . Our staff approaches the teaching of math with a heavy emphasis on the development of strong conceptual understanding. That translates to extensive early instruction with hands-on, manipulative materials. Number sense is heavily emphasized. Math is treated as much as a language as a subset of skills. Mathematical reasoning, mathematical communication, and mathematical application are clearly identified as schoolwide goals and staff training, collaboration, and reflection are aligned accordingly.”

Dennison Elementary School Lakewood, CO

“Teachers use assessment for learning, engage in ongoing staff development to improve their own

effectiveness, and plan with one another to ensure consistency and high expectations. Teachers analyze the data available to them and make adjustments as necessary to be sure students are learning what is necessary to meet state standards."

Holy Name of Jesus School, Indialantic, FL

"The most important factor is the involvement of a high quality teacher who will ascertain that students master a concept before moving on, work with struggling students, and provide a strong foundation in basic facts."

Eugene Field Accelerated School, St. Joseph, MO

"We at Eugene Field attribute our high math scores to rigorous, hands-on instruction that involves higher order thinking skills. Students are taught that a planned procedure is helpful in solving a problem and that process is emphasized in each math topic and unit. Students are required to communicate—first orally and later in writing—the process that was used or the reasoning used to arrive at the correct answer. Math games and manipulatives are used to enhance instruction and application of concepts."

Mt. Pleasant Academy Elementary School, Mt. Pleasant, SC

"Good teachers use direct instruction to model the learning, require and provide for time on task, have high expectations, and do not give up on any child."

Steenrod Elementary School, Wheeling, WV

"The teachers provide opportunities to apply problem-solving skills to relevant, everyday experiences. Manipulatives, computers, and calculators are part of math instruction at all levels to assure understanding of concepts, and daily math drills provide practice in mathematical communication and use of algorithms. Integration with other curricular areas is managed through thematic units and projects. Students use a variety of measuring, estimating, graphing, and problem-solving techniques. All teachers are aware that the concepts in math are like a set of stairs--one cannot reach the top by skipping too many steps."