The No Child Left Behind Act has focused greater attention on the results that our classrooms produce. Expectations are higher for all students. In addition, educators are accountable for the achievement results of all students. Schools must demonstrate that they are making Adequate Yearly Progress with the goal that all students will achieve proficiency.

In a global economy, all children must learn more mathematics with deeper understanding. Higher-order thinking is now seen as a basic skill for every student. This represents an important development in mathematics instruction: the idea that all students should be prepared for a more ambitious curriculum.
Research-based
A large body of research on learning and instruction, especially the cognitive revolution of the past two decades, has helped to inform educators and curriculum developers about how best to teach children mathematics. This research has been integral to the development of *Everyday Mathematics*®.

During the 1980s, Max and Jean Bell, the original developers of *Everyday Mathematics*, interviewed hundreds of primary students from diverse backgrounds on a variety of mathematical tasks. Their basic finding – that the curricula of that time greatly underestimated students’ capabilities and mathematical knowledge – laid the groundwork for Kindergarten and all other grades of *Everyday Mathematics*.

Field Tested
Research on student thinking and achievement, classroom interactions, and teacher implementation guided the program’s development and revision as each subsequent grade of *Everyday Mathematics* was written. Case studies from the “trenches” have also been important – with classroom teachers advising at each phase of development. A five-year longitudinal study of *Everyday Mathematics* students, which was funded by the National Science Foundation to evaluate the progress of students in a standards-based curriculum, also provided valuable information for development and revision of the program.
This research base has shaped the principles applied during the development of *Everyday Mathematics*:

- Children begin school with a great deal of mathematical knowledge and intuition. Rather than ignoring this knowledge, instruction should build on their prior knowledge and everyday experiences.

- All students are capable of learning more mathematics in a more challenging curriculum. Manipulatives, models, mathematical tools, real-life contexts, and group work and discussion help to expand children’s “learning zone.”

- Paper-and-pencil calculation is only one strand in a well-balanced computational curriculum. Flexible number sense, estimation and mental arithmetic skills, and good judgment about using calculators are at least as important as paper-and-pencil skills.

- Investigations in geometry, data and statistics, and algebra should begin in Kindergarten and continue with growing sophistication throughout the grades.

While cognitive science shows that students construct their knowledge, the teacher is nevertheless vitally important in providing a guide for learning important mathematics. Teachers’ knowledge of both mathematic content and children’s thinking is important to the advancement of students’ knowledge. Ongoing teacher training is important in implementing standards-based curricula.
Aligned with

NCTM Standards

*Everyday Mathematics* is based largely on the same body of research that led to the NCTM standards consensus. During the 1980s, a consensus emerged among mathematics educators about how best to teach mathematics to children in school. Educators called for instruction, curricula, and tests that place a greater emphasis on problem solving, applications, and more complex mathematical topics at earlier grades.

*Everyday Mathematics* provides a balanced approach to learning mathematics, in which computational skill, conceptual understanding, and reasoning develop together during meaningful activities that emphasize problem solving and real-life applications.

Everyday Mathematics Gets Results

As the test data from a variety of sources highlighted in this booklet indicate, *Everyday Mathematics* works. It’s working for over 2.8 million elementary school students throughout the United States – in urban, suburban and rural areas – across all socioeconomic lines.

*Everyday Mathematics* students are mathematically literate on a wide variety of measures: state mandated tests, local district tests, commercially available standardized tests, tests constructed by UCSMP staff, and tests written by independent researchers. The student test data on the pages that follow were shared with us from across the country.
# Table of Contents

- Moving Students Forward on the Northwest Evaluation Association Assessment ........................................ 2
- Achieving More on the Washington Assessment of Student Learning ..................................................... 3
- Outstanding Results on the Florida Comprehensive Assessment Tests .................................................. 4
- Increasing Mathematics Performance on the California Standards Test ................................................ 5
- All Students Excel on the New Jersey Assessment of Skills and Knowledge .......................................... 6
- Progress on South Carolina’s Palmetto Achievement Challenge Test ...................................................... 7
- Raising Student Performance on the Texas Assessment of Knowledge & Skills ....................................... 8
- Higher Performance on the Pennsylvania System of School Assessment ................................................ 10
- Maintaining Success on the Massachusetts Comprehensive Assessment System ..................................... 12
- Improving Scores on the Arkansas Benchmark Exam ................................................................................. 13
- Meeting the Goals of the No Child Left Behind Act ................................................................................. 14
The Penn-Harris-Madison (PHM) School Corporation serves nearly 10,000 students in Grades K–12 in north central Indiana, just east of South Bend. The district’s diverse set of communities includes middle and upper-middle class suburbs, working class areas and rural, farming communities.

PHM adopted Everyday Mathematics in fall 1998. Pam Holt, currently the curriculum coordinator for the school corporation, recalls the adoption process: “As the PHM math adoption committee reviewed the several math programs approved by the state, the Everyday Mathematics program dramatically stood apart from all the others. The conceptual approach to mathematics was readily apparent. At the end of the review process, our committee strongly endorsed the adoption of Everyday Mathematics.”

In addition to the committee’s review, Everyday Mathematics was piloted in Grades K–5 in two PHM schools. The feedback from the teachers who piloted Everyday Mathematics was enthusiastic. Holt explains, “Teachers noted that the children were introduced to more mathematical concepts at earlier levels compared to other math series. Importantly, the children responded positively to Everyday Mathematics, and indeed were learning the mathematical concepts.”

Over the length of the math adoption in Penn-Harris-Madison Schools, Holt reports a paradigm shift about mathematics education. “The children want to do mathematics, allowing our teachers to teach math for longer periods. Everyday Mathematics is a kid-friendly, hands-on program with practical applications. These practical applications make sense to the children at their own levels,” she said.

The Penn-Harris-Madison School Corporation administers the Northwest Evaluation Association (NWEA) Assessment. The NWEA Assessment is a standardized test that reports student scores on a continuum, meaning that student scores advance on the same scale as they progress through the grade levels. The NWEA Assessment also provides a norm score at each grade level that indicates the amount of progress students typically make over the course of the school year.

The results in mathematics on the NWEA Assessments are noteworthy. Since the first administration of these assessments in 2001, the median score in Grades 2–5 has been consistently above the NWEA norm score. Additionally, the median mathematics scores in Grades 2–5 has increased further above the norm score each year in the trend period of 2001–2005.

Holt sums up, “Our experience over the past six years confirms that Everyday Mathematics presents more math content in a conceptual way that the children understand. The results are clear as measured by NWEA, as well as by the strong conceptual understanding of mathematics developed by our students.”
Located halfway between the cities of Seattle and Tacoma, the Kent School District encompasses six municipalities as well as unincorporated areas of King County. Though established in the 1860’s to serve a rural farming community, today Kent is the fourth largest school district in the state and enrolls 27,000 students in Grades K–12.

As the student population increased, diversity in the Kent School District rose as well. Within the district, there are 5,000 students who speak a combined total of 101 languages. The City of Kent is home to an official relocation center for Eastern European immigrants and a significant number of English Language Learners in the district arrive from countries such as Russia and Ukraine. Often, these students have strong computational math skills yet they face significant hurdles with the mathematics vocabulary while learning the English language.

In order to reach students in as many ways as possible, teachers employ whole group as well as small group instruction, and include individual, partner and small group activities. It is a dynamic way of teaching that engages students and supports various learning styles.

“When teachers vary their instructional methods in math, they find that Everyday Mathematics is very complementary,” comments K–12 Curriculum Coordinator Jeff Barth. “The three-part lessons in Everyday Mathematics, including opportunities for small group and partner activities, games and hands-on explorations, help all types of learners in mathematics.”

A key factor in the district’s success is the dedication of the teaching staff and the direct support of district specialists. Building and district staff development classes have supported teachers in their efforts to steadily refine their math instruction and improve student learning to raise achievement levels.

“As I used Everyday Mathematics with third-graders, I appreciated how the built-in activities and games allowed me to individualize my students’ learning,” said Barth, who is also a former Grade 3 teacher.

The Washington Assessment of Student Learning (WASL) is a means of measuring student achievement on the state’s rigorous academic standards. The percentage of Grade 4 students at Kent School District passing math standards before Everyday Mathematics was fully implemented was 38%. After six years, in 2005, that percentage has moved to 68%, a meaningful 30 percentage point increase and seven percentage points higher than the state average.

Furthermore, all Kent elementary schools made Adequate Yearly Progress, or AYP, in 2005. In addition, all groups of students – minority, low-income, and special education – have increased scores on the Washington Assessment of Student Learning.

Outstanding Results on the Florida Comprehensive Assessment Test

The Citrus County School District serves a rural community located approximately 70 miles north of Tampa. It is situated along the western coast of Florida and known for its coastal wetlands, estuaries and lakes. Citrus County is a high performing school district that consistently ranks near the top on state measures of testing and accountability. In fact, the state ranked it an “A” district for the 2005–2006 school year.

This district is considerably smaller than most other districts in Florida and enrolls 16,500 students in Grades K–12 in 10 elementary schools, four middle schools and three high schools. The student population is 87% Caucasian, 4% African American, and 4% Hispanic. About one-half of students in the elementary grades are eligible for the free and reduced-price meal program.

Prior to the 2003–2004 state math adoption, a committee was organized including curriculum specialists, teachers and administrators representing all 10 elementary schools. They researched best practices, as well as national and state standards, to develop a list of criteria to evaluate each math program. Their goal was to find a balanced approach to mathematics instruction – one that promoted math readiness skills also while developing conceptual understanding and problem-solving skills.

After thoroughly evaluating four elementary math programs, the committee determined Everyday Mathematics was the top match and would best meet the learning needs of Citrus County students. The district fully implemented the program in Grades K–5 during the 2004–2005 school year.

All teachers received training on Everyday Mathematics materials, including how to differentiate instruction to meet the learning needs of all students. In addition, teachers from each elementary school came together as a committee to incorporate Florida’s Sunshine State Standards into the elementary mathematics curriculum. Their goal was to create meaningful learning experiences teachers could use in their classrooms.

Scores on the Florida Comprehensive Assessment Tests (FCAT) began to rise in all schools. It was exciting for the district to not only see a big jump in scores, but also to see the number of students moving to higher FCAT achievement levels and meeting state standards.

In Grade 3, 79% of students met the state standards in mathematics on the 2006 FCAT compared to 72% of the state total. In addition, Citrus County logged a 14 percentage point increase in the share of Grade 3 students who met mathematics standards since 2003.

In 2006 at Grade 4, 75% of Citrus County students met mathematics standards compared to 67% of the state total. The 2006 results represent a significant 19 percentage point increase over 2003 FCAT scores.

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**SCHOOL PROFILE**

| Name: Citrus County Schools |
| Community: Rural Florida Coast |
| Grade Levels: K–12 |
| Number of Students: 16,500 |
| Test: Florida Comprehensive Assessment Test (FCAT) |
Increasing Mathematics Performance on the California Standards Test

The Glendale Unified School District serves approximately 29,000 students in 20 elementary, 4 middle and 3 high schools. The student population is 56% Caucasian, 23% Hispanic and 13% Asian-American. Thirty percent (30%) of the students are classified as English Learners, with Armenian, Spanish and Korean being the most commonly spoken native languages. District-wide, approximately 22% of Glendale students qualify for the free and reduced-price meal program.

Schools in Glendale have a reputation of high performance, and the community is committed to the education of its youth.

Ongoing professional staff development has accompanied the implementation of Everyday Mathematics since the decision was made to adopt the program. According to Bonnie Gould, Glendale’s math supervisor, a successful implementation of Everyday Mathematics requires a consistent effort on the part of district administrators and principals to work with teachers to help them teach the program. “Everyday Mathematics is a complex, well-built program containing strong mathematical content. Teachers in Glendale work to prepare Everyday Mathematics lessons and hands-on activities. Due to their efforts, the teachers are seeing results.

“The level of mathematical content in Everyday Mathematics is so much more than what was traditionally expected. Teachers are surprised to see the level of mathematics at which elementary students are performing. Teachers too, often learn more mathematics from the Everyday Mathematics program than they had previously encountered.”

One of the student outcomes resulting from the Everyday Mathematics program is that mathematical thinking becomes intrinsic for the students. While children are challenged by the program, they are developing problem solving and higher ordered thinking skills. Because Everyday Mathematics applies mathematical thinking to everyday situations, students recognize and appreciate how frequently mathematics intersects their lives.

The results of Glendale students on the California Standards Test clearly surpass the state averages. In Grade 3, 66% of Glendale students perform at the Advanced and Proficient levels, compared to 54% of all students in the state. In Grade 6, a very consistent 62% of Glendale students are still achieving at the Advanced and Proficient levels while 40% of the state’s students attaining these levels.

Gould cites the Everyday Mathematics curriculum for strong student performance on the CST. “The content of Everyday Mathematics exceeds the California State Mathematics Standards at every grade level, so the students are learning more mathematics. The consistency of the spiral curriculum builds and reinforces the mathematical content, leading to a cumulative effect that is evidenced by strong student performance in Grades 4–6.”

Glendale Unified believes in working towards excellence in the education of the community’s children. “We are constantly raising our expectations for success,” concludes Gould. “Our district goal is to be the best in the state of California.”
When the West Deptford Township Schools in working-class suburban Philadelphia first considered implementing *Everyday Mathematics*, a key step in the decision process included visiting other schools using the program. In 2000, Patricia Ripley, Supervisor of Curriculum K–12, led the effort to visit Haverford and Abington, two very high-achieving districts that were early adopters of *Everyday Mathematics*. The team liked what they saw and chose to implement *Everyday Mathematics*.

*Everyday Mathematics* was first introduced to Grades K–1 during the 2001–2002 school year. In each successive year, a grade level was added. By the 2004–2005 school year, *Everyday Mathematics* was used in Grades K–4, and in 2005–2006, it was added to Grade 5.

Each year, professional development was provided for teachers in the grade level preparing to implement *Everyday Mathematics* the following year. Professional development included in-class observations, workshops with mathematics consultants, and lesson planning with colleagues.

This process allowed teachers to be introduced to *Everyday Mathematics* long before their respective grade level began using it, which helped ensure success.

In addition, the district had made *Everyday Mathematics* a priority. Middle school and high school chairpersons were involved in the professional development in addition to the elementary team. Most importantly, parents are educated on the theory through on-going presentations.

Special education teacher for Grades 5–8 Joan Pacini echoed those thoughts. “I believe our special education students are achieving success with *Everyday Mathematics* because of its spiral structure that allows students to use a math strategy many times before they must achieve mastery,” she added.

The results are clear on the New Jersey Assessment of Skills and Knowledge (NJASK) scores. During the 2004–2005 school year, the total elementary population had a proficiency rate of 91% while the special education proficiency rate was 83%, an increase of more than 30 percentage points over the previous year.

The scores suggest the gap between regular education students and special education students is closing. In 2002–2003, the percent of the total Grade 4 population scoring advanced was 30%, while just 13% of special education scored at this level. By 2004, the gap closed from 17 percentage points to 11.

*Everyday Mathematics* was first introduced to Grades K–1 during the 2001–2002 school year. In each successive year, a grade level was added. By the 2004–2005 school year, *Everyday Mathematics* was used in Grades K–4, and in 2005–2006, it was added to Grade 5.

At West Deptford Township Schools, teachers hold high standards for all students—even special education students, which account for 16% of the student body. *Everyday Mathematics* is taught in both self-contained and resource rooms with a modified pacing and attention to reinforcement of skills.

“Teaching real-life math skills is important for students with special needs,” said Jennifer Preziosi, a special education teacher for Grades 1–3. “*Everyday Mathematics* allows me to better prepare my students for the real world.”
Horry County is the easternmost county in the state of South Carolina. Located along the Atlantic coast, Horry County includes coastal regions and the city of Myrtle Beach. This culturally and economically diverse county school system also serves rural areas where the primary industry is agriculture. Horry County Schools operates a total of 45 school buildings and enrolls approximately 34,000 students in Grades K–12. Close to 60% of students are eligible for free or reduced-price lunches.

Horry County Schools is the third largest district in the state, and has gained a reputation as one of South Carolina’s fastest improving and strongest performing school districts. Thirteen Horry County Schools, almost twice as many schools as any other district, earned honors in 2005 from the state’s Education Oversight Committee for closing the achievement gap for all students.

Student achievement in elementary mathematics matches the district’s overall record of consistent improvement. Results in mathematics on the Palmetto Achievement Challenge Test (PACT) in Grades 3–5 have dramatically improved in Horry County Schools since the test was first administered in 1999. That year, approximately 45% of the students in Grades 3–5 scored in the Below Basic category in mathematics.

By 2003, only 10% of the students were in the Below Basic category while 90% of students in these grades scored at the Basic, Proficient and Advanced categories in mathematics.

The high level of achievement in mathematics was maintained through 2004 and 2005. In 2005, Horry County Schools were the second highest scoring district in math in the state.

Horry County Schools began piloting Everyday Mathematics in Grades K–2 during the 1996–1997 school year. The program was completely implemented in Grades K–5 during the 2000–2001 school year.

According to Gloria Brown, Learning Specialist for Elementary Math, Horry County students have more mathematical knowledge than before the implementation of Everyday Mathematics. As cohorts of students had more years of learning with the program, the effect on the students’ math skills was noticed by teachers, administrators and the students themselves. Results on the PACT mathematics test confirmed their impressions.

In Horry County Schools, Brown reports that the students are talking about math outside of the classroom. One of her favorite impressions of Everyday Mathematics is hearing first graders use words like ‘decimal,’ ‘algorithm,’ and ‘polyhedron.’ “There is much earlier exposure to math vocabulary in the Everyday Mathematics program.”

“Our teachers in Horry County Schools are responsible for our students’ success in mathematics. Teachers have embraced the Everyday Mathematics program and have found success in schools all across the district,” states Brown.
The El Paso Independent School District (EPISD) enrolls more than 63,000 students on 92 school campuses. Organized in 1883, EPISD is located in the far western corner of the state and includes 57 elementary schools, 15 middle schools, 11 high schools, alternative schools, adult education centers, an occupational center and several magnet schools. The student population is predominantly Hispanic at 81%, while 13% of the students are Caucasian and 4% are African American. Two-thirds (67%) of the students are identified as economically disadvantaged by the state and 32% have limited English proficiency. Everyday Mathematics was first adopted in one EPISD school in 1998. Each year thereafter, five or six more schools implemented the program. Word started to spread among teachers that Everyday Mathematics works. While test scores were on the rise, students as well as teachers were learning more mathematics. The EPISD fully implemented Everyday Mathematics in all elementary schools district-wide in Grades K–5 during the 2005–2006 school year.

With a large number of elementary schools and teachers implementing Everyday Mathematics, continual teacher training is vitally important to the successful implementation of the program, notes Bertie Lopez, the district’s math supervisor. Lopez leads a team of more than 50 math coaches, one in each elementary building, who have taught Everyday Mathematics in the classroom and who are now helping other teachers achieve success with it.

“Anything worth doing is going to take time,” notes Sylvia Gallagos, a district math coach. “I tell teachers that if they use Everyday Mathematics, they will see growth in student achievement as well as in their own professional development. A teacher who is confident with the mathematical content can impart this to students. Students then have the ability to fly.”

Lisa Kepple, another EPISD math coach, comments, “After one year of teaching Kindergarten Everyday Mathematics, I saw a difference in the students. They were excited about math and thought math was fun. They couldn’t wait to learn with the activities in the program.”

One measure of mathematics success in the district is the amount of learning teachers have experienced through teaching Everyday Mathematics. Math coach Kepple states, “By using this program, teachers increase their understanding of mathematics, number fluency and ability to do mental math. It offers a foundation in mathematics to students as well as to the teacher.”

When Everyday Mathematics is consistently implemented, teachers see the success that their students achieve on the Texas Assessment of Knowledge and Skills (TAKS). Students are not only passing the TAKS mathematics tests but are scoring at the Commended Level.

Gallagos said, “I have seen Everyday Mathematics implemented in schools that serve affluent neighborhoods, as well as in schools with a high poverty level. When teachers embrace the program, the results are the same. Children are children.”

Both Kepple and Gallagos note the rigor of Everyday Mathematics is above and beyond the Texas Essential Knowledge and Skills (TEKS) standards.

Kepple concludes, “Beginning in Kindergarten, children develop strong foundations that will support their mathematics learning in the upper grades. Our children will be working in 21st-century jobs that require higher-order skills. Students need a strong foundation in mathematics to prepare for their futures.”
Dallas ISD

The Dallas Independent School District is the twelfth largest school system in the United States. Approximately 162,000 students attend 217 schools in grades PK – 12. The majority of the students are Hispanic, 63%, and African-Americans represent another 31% of the student population. Approximately 74% of the students are identified as economically disadvantaged, and 32% receive bilingual or English as a Second Language (ESL) instruction. The district estimates that 70 different languages are spoken in the homes of Dallas students.

Everyday Mathematics was piloted in a few Dallas ISD elementary schools beginning in 1996. The outcome was positive; good results in student learning and mathematics achievement were occurring in these pilot schools. The successful implementation of the program in Dallas schools was a key factor in the decision to adopt and implement Everyday Mathematics as the elementary mathematics program. The Dallas ISD completed the full implementation of Everyday Mathematics in Grades K–6 in fall 2002.

“Importantly, Everyday Mathematics is aligned with the standards of the National Council of Teachers of Mathematics (NCTM),” notes Camille Malone, Executive Director of Mathematics in the Dallas ISD. “Mathematics means more when it is rooted in real-life problems and situations. Children’s mathematical knowledge should grow from their experiences, giving them a rich store from which they can develop mathematical insight, reasoning and creativity.”

Since 2003, the state of Texas has administered the Texas Assessment of Knowledge & Skills (TAKS) to measured student performance in Grades 3-11 against state learning standards, the Texas Essential Knowledge and Skills (TEKS) curriculum. TAKS results for the state, districts and schools are reported as the percentage of students meeting Texas state standards.

It is important to note that under the provisions of the federal No Child Left Behind Act, all students must meet state standards in all curriculum areas by the year 2010. Therefore the Student Passing Standards for proficiency on state tests, such as TAKS, are increasing each year. Given these ever-rising goals for proficiency, students in the Dallas ISD are achieving at higher levels in mathematics on the TAKS in Grades 3-6.

Based on the 2005 Student Passing Standard, 71% of Grade 3 Dallas ISD students met state standards in mathematics. In Grade 4, 68% of Dallas ISD students were proficient in mathematics while in Grade 5, 79% of Dallas students met the standards in mathematics. Sixty-seven percent (67%) of Dallas ISD Grade 6 students met state standards in mathematics in 2005.

Malone states, “In Dallas ISD, teachers, administrators and the Board of Trustees are working together help students meet the challenging targets set for student performance.”

**DISTRICT PROFILE**

**Name:** Dallas Independent School District  
**Community:** Dallas, Texas  
**Grade Levels:** PK-12  
**Number of Students:** 161,927  
**Number of Elementary Schools:** 155  
**Test:** Texas Assessment of Knowledge & Skills (TAKS)
The Montgomery Area School District serves a rural area in central Pennsylvania with a total population of 7,500. The District educates nearly 1,000 students in one building that houses elementary, middle and high school students and a satellite elementary building.

Since the district first implemented Everyday Mathematics in Grades K–5 in 1997, teachers have taken ownership of the program and are committed to it. The Montgomery Area School District has become a role model for how to accomplish great advances in elementary mathematics instruction using Everyday Mathematics.

Director of Curriculum & Instruction Linda Gutkowski said the combination of an excellent mathematics curriculum and excellent instructional practices, developed through good teacher training, has led to the success achieved in mathematics by Montgomery Area schools. In addition, Gutkowski notes that teachers use all of the components and features of Everyday Mathematics in their instruction. “The games are so important in reinforcing basic facts and fostering automaticity. The children have fun learning while they also develop a positive attitude toward mathematics.”

“Math is a high priority in the district, Superintendent Daphne Ross reports. All students, including those in special education, learn with the Everyday Mathematics program. “The nature of Everyday Mathematics has led our district to great results,” Ross said. “Teachers have embraced the program, and students love math classes.”

Since 1996, the State of Pennsylvania has tested students at Grade 5 in mathematics and reading with the Pennsylvania System of School Assessment (PSSA). In 2001, the state created a reporting system for PSSA based upon Mathematics Performance Levels that aligns with the goals of No Child Left Behind: Every student is to be at least proficient.

In 2005, 97% of the district’s Grade 5 students demonstrated proficiency on the math portion of the PSSA, compared to 69% statewide. The level of performance above proficiency is particularly noteworthy. Among Montgomery Area students, 73% scored at the Advanced level on the Grade 5 PSSA in math compared to just 38% in the state.
The North Penn School District is a large suburban district about 20 miles north of Philadelphia. The district serves seven municipalities, which creates an economically and socially diverse population of 13,500 students in Grades K–12.

The North Penn School District has a process of regular review for all curriculum materials, and mathematics was up for review in the 1999–2000 school year.

The curriculum review committee began its work by researching the NCTM standards that emphasize problem solving, hands-on activities, and real-world applications in a student-driven curriculum, and more mathematical content in the elementary grades, such as geometry, algebra, and probability.

“Having a good understanding of the goals of the NCTM standards was very helpful when we later adopted Everyday Mathematics,” states Caroline Gibson Crew, the district’s elementary math and science coordinator.

During the 2000–2001 school year, the district piloted Everyday Mathematics in a total of 82 classrooms. In Crew’s opinion, it was important that every elementary building participate in the pilot, because the pilot teachers would be called upon during full implementation, to serve as guides and trainers for their fellow teachers.

After the one-year pilot of standards-based Everyday Mathematics, a comprehensive evaluation of the programs piloted was conducted along with a parent survey. The decision was made to fully implement Everyday Mathematics in Grades K–6 in all 13 elementary buildings, involving 330 regular and special education classrooms.

Crew states, “All of our staff deserve a big hand for working so hard to implement Everyday Mathematics. Students and teachers are working through the program more enthusiastically this year as a result of the efforts of teachers, principals, and math support staff. We only expect more success.”

With the full adoption of Everyday Mathematics during the 2001–2002 school year, students in the North Penn School District continue to achieve high scores on the Pennsylvania System of School Assessment (PSSA). The percent of Grade 5 students scoring proficient in math went from 74% during the 2001–2002 school year to 87% in 2004–2005. In addition, 45% of Grade 5 students scored advanced in 2001–2002 compared to an impressive 64% in 2004–2005. Meanwhile, Grade 3 students who had experienced three years of Everyday Mathematics also showed great achievement with 89% scoring proficient in math on the PSSA.

The district has created a culture that encourages math development. This includes hosting Everyday Mathematics parent nights and game nights to familiarize parents with the program as well as providing teacher workshops and support meetings for teachers.
Located just nine miles north-west of Boston, Winchester has developed from a colonial-era village to a thriving residential community noted for fine public schools. The Winchester Public School District serves 3,850 students in Grades PreK-12. Approximately 15% of students are in special education, and 90% in the high school graduating class of 2006 planned to attend college.

In the past several years, enrollment has grown by 500 students, increasing class sizes in existing buildings. While serving an affluent community, Winchester Public Schools, like other Massachusetts schools, is constrained by limited funding and tight budgets. However, the district continues to be among the top scorers on the Massachusetts Comprehensive Assessment System (MCAS).

The district served as an official field-test site for Grade 3 *Everyday Mathematics* in the early 1990’s before adopting it district-wide in 1992. Administrators and staff have maintained an allegiance to the program for more than 16 years through changes in administration, teaching staff and updated editions of the math program itself.

By maintaining a constant focus on how *Everyday Mathematics* works in the schools, the district has met the high achievement standards expected by the community. During the 2003-2004 school year, Winchester Public Schools organized a Curriculum Area Steering Team (CAST) to assess mathematics education in Grades K-5. CAST members identified communication with parents and the consistent implementation of the program as the focus of their upcoming efforts. After they met with Dr. Marc Kerble, Assistant Superintendent and Director of Curriculum, all educators were required to fully implement the program. When the team reviewed the program again in 2004-2005, Dr. Kerble announced Winchester Public Schools was recommitting to *Everyday Mathematics*.

“We believe in *Everyday Mathematics*, and we are recommitted to implementing it effectively in all classrooms,” he said. “The initiatives of the elementary math CAST received a great response from the administration, staff and the community.”

As part of the recommitment to the program, CAST members strongly recommended every teacher administer mid-year program assessments. Their purpose is to identify student strengths and weaknesses, allowing educators to develop more effective teaching strategies where needed. After the first mid-year assessment, teachers found students were outperforming their expectations.

Winchester continues to enjoy a reputation as a top-scoring district on the MCAS. Approximately 80% of Grade 4 students have score in the Advanced and Proficient ranges since 2002, compared to roughly 40% state-wide. In addition, students in all grades continue to garner top-level MCAS results, surpassing state averages in the Advanced and Proficient categories by 40 percentage points. Notably, the district is very close to eliminating the number of students who fall into the Warning/Failure category on the MCAS, another goal of the No Child Left Behind Act.

“We have done a lot of work in mathematics, and we are going to do more going forward,” concludes Dr. Kerble. “Everyone in the district is committed to kids, as well as to doing their best in a supportive culture.”

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<th>District Profile</th>
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<tr>
<td>Name: Winchester Consolidated School District</td>
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<tr>
<td>Community: Suburban Boston</td>
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<td>Grade Levels: PK–12</td>
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<td>Number of Elementary Schools: 5</td>
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<td>Test: Massachusetts Comprehensive Assessment System (MCAS)</td>
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Improving Scores on the Arkansas Benchmark Exam

Situated at the foothills of the Ozark Mountains, Fayetteville is located in the rapidly growing Northwest Arkansas metroplex. Several major corporations are headquartered here, spurring growth in employment and population; Fayetteville is also home to the University of Arkansas. Because of the presence of the university, Fayetteville has a reputation for progressive and innovative approaches in public education.

The Fayetteville School District was in the forefront of Arkansas school districts in recognizing the need for standards and accountability in mathematics and science instruction. Beginning in the 1996–1997 school year, the district formed a Math and Science Leadership team to develop and implement a long-term curriculum improvement plan.

Teachers and administrators on the improvement team first moved to align the math and science curriculum frameworks in Fayetteville Public Schools to state and national standards. The next step identified curriculum resources that aligned to the standards, and several research-based mathematics curricula were piloted during the 1997–1998 school year. At the end of the pilots, teachers at each grade level determined that *Everyday Mathematics* was most closely aligned with the district’s standards. In addition, pilot teachers reported that they themselves were learning more math using the teacher resources in *Everyday Mathematics*.

In 1999, the Arkansas state legislature called for the implementation of the Arkansas Comprehensive Testing, Assessment and Accountability Program (ACTAAP). The ACTAAP legislation addresses the needs of all students in Grades K–12, and calls for a coordinated program of standards, professional development, assessment and accountability. The goals of the Arkansas legislation were reiterated in the federal No Child Left Behind Act.

When the groundbreaking education reform legislation was announced, Fayetteville Public Schools realized that they were ahead of the pace in mathematics education reform, having already created a standards-based curriculum framework and having adopted the *Everyday Mathematics* curriculum that aligned with the standards.

The Arkansas Benchmark Exams are criterion-referenced exams that measure student performance on the state’s grade-level benchmarks. Elementary-level students are tested in mathematics and literacy at Grade 4.

Arkansas requires district accountability for the performance of all students, and therefore focuses on the achievement levels of combined population students. Combined population students are general population students as well as those classified as special education, limited English proficient or highly mobile.

In the Grade 4 combined population results, mathematics achievement for Fayetteville students has risen steadily since the first administration of the Arkansas Benchmark Exam. In 2004, 78% of Fayetteville Grade 4 students were performing at or above the proficient level, compared to 64% of the state total. In 2005, the state changed the scoring system of the ABE, so scores are not comparable to the year before. However, the district continued to outscore the state average by 13%.

Fayetteville Public Schools 2005 ABE Grade 4 Mathematics – % At or Above Proficient

<table>
<thead>
<tr>
<th>Test: Arkansas Benchmark Exam (ABE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students: 8,000</td>
</tr>
<tr>
<td>Grade Levels: K–12</td>
</tr>
<tr>
<td>Community: Northwest Arkansas</td>
</tr>
<tr>
<td>Name: Fayetteville School District</td>
</tr>
<tr>
<td>Number of Elementary Schools: 9</td>
</tr>
</tbody>
</table>
Meeting the Goals of the No Child Left Behind Act

How well do students perform in a mathematically ambitious, activity-based curriculum like *Everyday Mathematics*? While educators are interested in the progress of all students, they are often especially concerned about at-risk students – those from lower social-economic backgrounds and students with limited English proficiency (LEP). Does a curriculum that has an increased emphasis on problem solving, reasoning, and higher-order thinking skills benefit at-risk students as well as higher-achievers? Or are they left further behind because of the pace and rigor of the curriculum? With the No Child Left Behind Act and similar mandates, schools are under increased pressure to show improvement for all students.

While research has demonstrated that school districts and students of all backgrounds make significant gains when using the *Everyday Mathematics* curriculum, this previous research has generally looked at district-wide scores. This report looks more closely at disaggregated test results in 6 districts, focusing on at-risk populations – minority, LEP and economically disadvantaged students. The report examines disaggregated test results in districts with significant at-risk populations where *Everyday Mathematics* has been adopted. Districts range from smaller cities, like Aurora, Illinois to large cities like Philadelphia and New York City, to rural areas like the Lapwai, Idaho School District.

Scores on state tests are used as the measure of progress. These assessments are generally the tool used to evaluate whether schools are helping all of their students make progress and to evaluate progress relative to the No Child Left Behind Act. Like *Everyday Mathematics*, these tests are aligned with state and national mathematics standards and contain challenging mathematics across a wide range of topics (Figure 1).

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**Figure 1** Sample questions from Grade 5 state mathematics assessments.

1. Which line segment is the hypotenuse of a right triangle?

   - A. CD
   - B. BC
   - C. CE
   - D. BD

2. Which number satisfies all of the following clues? (n is a number)
   
   - n > 6
   - n < 21
   - n is a multiple of 4
   - n is divisible by 3
   
   ○ 8
   ○ 9
   ○ 12
   ○ 14
   ○ 24

3. Which of the following figures is not possible?

   ○ A quadrilateral with four right angles
   ○ A triangle with congruent sides
   ○ A trapezoid with two right angles
   ○ A triangle with two right angles
   ○ A right scalene triangle

**Note:** Item 1 is from the Pennsylvania System of School Assessment (PSSA) and items 2 and 3 are from the Illinois Standards Achievement Test (ISAT).
Aurora is a small city approximately 40 miles west of Chicago with a large minority population. Of the nearly 12,000 students enrolled in the Aurora East School District 131, 80% are Hispanic and 11% African-American, with approximately 60% of the students qualifying for free or reduced lunch. Approximately 35% of the students have limited English proficiency and one-third of the students are enrolled in bilingual classes.

The Illinois Standards Achievement Test (ISAT) is a state mandated Standards-based assessment given to third- and fifth-grade public school students and used to assess the progress of schools. Based on cut-off scores, students who meet or exceed expectations are classified as passing.

After examining available mathematics curricula, Aurora East adopted Everyday Mathematics in Grades K–6 during the 2000–2001 school year. The district also supported teachers with extensive in-service training during the first year of implementation. Despite the high at-risk population, the proportion of Aurora East Hispanic students passing the ISAT has increased significantly at both third and fifth grades since adopting Everyday Mathematics (Figures 2 & 3). The proportions of students at the highest level (Exceeding Expectations) have also risen. In 2002, 2% of Aurora East Hispanic fifth-graders exceeded expectations. By 2005, close to 10% of East Aurora Hispanic students exceeded expectations.

Aurora East’s African-American students made similar gains, with the percent of fifth graders passing rising from 54% in 2002 to 68% in 2005. Similarly, 71% of the economically disadvantaged East Aurora fifth graders passed compared to 57% of the Illinois students classified as economically disadvantaged.
Virginia Beach, VA

Virginia Beach, the most populous city in Virginia, has a significant at-risk population, with 26% qualifying for free or reduced-price lunch and 33% minority (African-American or Hispanic). Following a textbook review, teachers and administrators selected and implemented Everyday Mathematics during the 2000–2001 school year. As with the Illinois test, students are classified as passing the Statewide Standards of Learning Assessment (SOL) if they meet or exceed expectations. Since 2001, the percentage of Virginia Beach students passing has exceeded the state scores for all ethnic groups, with scores accelerating in 2001 when Everyday Mathematics was implemented (Figure 4).

Minority groups have made significant gains in the proportion passing the SOL.

From 2002 to 2005, the proportion of Virginia Beach fifth-grade Hispanic students passing increased from 74% to 87% compared to 61% and 72% for the state (Figure 5). Fifth-grade African-American students showed a similar increase. Among those classified as economically disadvantaged, 76% of Virginia Beach fifth graders passed the mathematics test in 2004 compared to 66% of those in the state. Third-grade results showed similar increases relative to the state.

Source: Virginia Department of Education, Division of Assessment and Reporting
**Lapwai School District, ID**

Lapwai School District serves a community which includes a Native-American reservation in Idaho. Of the approximately 560 students served by the district, 80% are Native American and 95% are economically disadvantaged (free or reduced-price lunch). The district adopted *Everyday Mathematics* in the fall of 2001 to improve the mathematical thinking and achievement of its students.

To assess mathematical progress, all fourth graders in Idaho take a mathematics portion of the Idaho Standard Achievement Test (ISAT) annually. A new form of this test was developed and given in the spring of 2003 as Lapwai was completing its second year of *Everyday Mathematics*. Based on their scores, Idaho students are classified as Below Basic, Basic, Proficient or Advanced. Fourth-grade scores are reported here.

In the first administration on the ISAT, the scores of Lapwai’s Native American fourth graders were similar to the state proportions. As students spent more years learning with *Everyday Mathematics*, Lapwai’s Native American students have outpaced all Idaho students, with major gains in the highest levels of achievement. For example while 89% of all Idaho students and 78% of all Native American fourth graders passed (Proficient or above) the 2005 ISAT, 100% of Lapwai’s students did so (Figure 6) with the proportion of Lapwai students at the highest level skyrocketing in 2005 (Figure 7).

As Figure 8 illustrates, the performance of Native Americans has shifted from the majority Proficient to the majority at the Advanced level since adopting the *Everyday Mathematics* curriculum.
To assess educational progress, all Pennsylvania students take the Pennsylvania System of School Assessment (PSSA), with students being classified as Advanced, Proficient, Basic, or Below Basic. Students at the two highest levels are considered passing. To improve mathematical achievement and to raise test scores, the Philadelphia School District began adopting *Everyday Mathematics* on a staggered basis, with all schools and grades using the curriculum by the 2002–2003 school year.

Like many large, urban school districts, Philadelphia lagged behind the state on the PSSA. For example, in 2001 the majority of Philadelphia fifth graders (59%) were at the lowest level, Below Basic, on the mathematics portion of the PSSA compared to 22% of all fifth graders in Pennsylvania. Similarly, only 19% of Philadelphia's fifth graders passed (Proficient or higher) in 2001 compared to 53% of fifth graders in the state. Since adopting the *Everyday Mathematics* curriculum, Philadelphia's students have narrowed the achievement gap considerably with those attaining passing scores nearly tripling between 2002 and 2005 (Figure 9).

Most importantly, Philadelphia's students have shown a marked increase in students scoring at the highest levels (Figure 10). For example, in 2002, nearly 60% of Philadelphia's fifth graders scored Below Basic and only 6% at Advanced. By 2005, only 28% scored Below Basic, while 20% scored at the Advanced level.

In this time period, the percent at the highest level more than tripled while those at the lowest level were decreased by more than half. While there is still room for improvement, Philadelphia has shown how excellent teaching and an ambitious mathematics curriculum add up to success.
New York City, NY

Progress in large urban districts is often difficult, with high poverty rates and large LEP populations, and other problems endemic to big cities. The achievement gap – between the poor and the privileged, between city and suburban districts and between Caucasian and minority students – is a concern for all seeking equity in education, and who understand that educating all students is important for the nation’s future.

Since the 2003–2004 school year, all New York City public schools have been using the Everyday Mathematics curriculum in Grades K–6, and test results show a sharp increase of the proportion of elementary students passing the New York State Mathematics Assessment in this time period (Figure 11). Although New York City schools lag behind the state, they appear to be closing the achievement gap (Figure 11), with differences narrowing, and with marked increases at the highest levels.

Importantly, the largest gains are have been made by minority students. While all subgroups of New York City fourth graders showed an marked increase on the New York State Math Assessment in 2005, African-American and Hispanic students had record gains in mathematics: 11.5% and 10.2% for African-American and Hispanic fourth graders, compared to gains of 10% and 9% for these groups statewide and a gain of 5.8% passing statewide (Figure 12). Between 2004 and 2005, the difference between African-American and Caucasian fourth graders has shrunk from 25% to 18%, and for Hispanic and Caucasians from 22% to 17%.

Along with increases on the New York State Math Assessment, students showed substantial and significant gains on the 2005 City Math Test. Between 2004 and 2005, the proportion of elementary student passing the test increased by 7.5%, with minority students making the largest gains. These record gains led to a first – 2005 marked the first year that the majority of elementary students passed the City Mathematics Test.

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Meeting the Goals of the No Child Left Behind Act

Hamilton County Schools, TN

The Hamilton County School district is a consolidation of the Chattanooga City (TN) Schools and surrounding county schools, serving over 40,000 students in approximately 80 school settings. One-third of the students are African-American, and 50% are considered economically disadvantaged. The Hamilton County Schools implemented Everyday Mathematics during the 1999–2000 school year with a strong staff development program.

Since implementing Everyday Mathematics, students showed substantial gains in mathematics in all grades each year on the Tennessee Comprehension Assessment Program. In 2003, a new state test, the Tennessee Value Added Assessment System (TVAAS) was administered, using a complex formula that takes into account demographics, socioeconomic information and previous scores when assigning a grade to the district. Test results report the proportion Below Proficient, Proficient, and Advanced, with students attaining the highest levels considered passing. A value added grade is then assigned to each district based on the formula and district progress. For example, a C means the system has shown one year’s worth of academic growth in the subject area while a B means the students gained considerably more than a year in academic progress.

Results on the new test show very promising results, with Hamilton County Schools outperforming all other Tennessee urban school districts on the TVAAS. At-risk students in Hamilton County have made especially strong gains relative to the state mean (Figure 13), moving toward closing the achievement gap between minority students and other students. As a district, 86% of Hamilton County elementary school students received passing scores on the TVAAS in 2005 compared to 88% statewide.

Importantly, the Hamilton County elementary schools have received a B in 2005 on the TVAAS System Report in Student Academic Achievement, and a grade of A on the Growth Standard Portion of the test. While there is still progress to be made, especially among at-risk students, these results show that Hamilton County Schools commitment to excellence in mathematics education is paying off for all of its students.

Summary

How well do at-risk students perform in an ambitious curriculum like Everyday Mathematics? Some claim that lower-achieving students need more direct teaching with increased drill and practice of computation – that a problem-solving based curriculum rich in investigative tasks and mathematical topics may leave these students even further behind academically. These reports show that at-risk students – minority and LEP students of lower social-economic status – are making significant gains. Importantly, these gains were made on state assessments, high-stakes tests that are aligned with state and national standards. In many ways these are not surprising. Everyday Mathematics was developed with the belief that all students develop better understanding when mathematical ideas are linked to students’ experiences, intuitions and prior knowledge and when students are allowed to explore these mathematical topics. Students gain more mathematically when higher-order thinking is included as a basic skill.
Questions? Call 1-800-382-7670 for the answers.