



Key Issue:

Recruiting Mathematics and Science Teachers at the High School Level

2006



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Scenario: Desperately Seeking High School Mathematics and Science Teachers

Fox Hollow High School is just one of four high schools in this large suburban school district in need of mathematics and science teachers. The school district covers a large geographical area and includes six high schools with varying levels of student achievement. Fox Hollow High School is located on the southern edge, in a wealthy new area of town. Typically, its students perform well on standardized tests. But scores in mathematics and science have fallen this year, and parents and teachers are concerned that the turnover in mathematics and science staff is taking its toll.

School district officials have tried over the past several years to step up teacher recruitment efforts, especially in high-need areas such as mathematics and science. Two years ago, the district administrators implemented a new recruitment plan. They developed of a new informational brochure for distribution to prospective teachers, touting the advantages of living and working in the community. They also formed a partnership with the nearby state university with three goals: (1) encourage students majoring in mathematics and science to consider a career in teaching, (2) simplify credit requirements for mathematics and science students wanting to pursue teacher education courses, and (3) develop an alternative certification program for mathematics and science professionals in the community wanting to switch careers to become teachers. The school district also began posting positions on a national online clearinghouse.

Although these efforts have increased support for the local school district and have piqued interested in some prospective teachers, they have not produced the necessary number of mathematics and science teachers to fill vacant positions within the district. School leaders and parents all agree that this new effort will likely pay off in the future, but they lament that it is not filling current needs.

Meanwhile, school begins in just one month, and Fox Hollow High School needs to hire three mathematics teachers and one science teacher immediately or be forced to increase class sizes above an acceptable level. Although this situation presents challenges for Fox Hollow, the outlook is even grimmer for two other high schools in an older part of town that are traditionally more difficult to staff. Soon, worried parents will be even more distressed to hear that classes will grow and long-term substitute teachers again must be used to fill the vacancies. Teachers are growing more frustrated too because of traditional low pay, parent dissatisfaction, and few answers to the recruitment challenge. Unfortunately, rumors of more resignations are circulating and the school start date is just one month away.

What new policies should the school district consider to assist with efforts to recruit mathematics and science teachers? Should the school district consider paying signing bonuses or higher base salary in these shortage areas? Should the school district offer scholarships to mathematics and science students who commit to teach in the district? How can state policymakers assist? What policy levers are available to them to support school district efforts?

Benefits

Strong recruitment strategies for mathematics and science high school teachers help schools and districts reach the following goals:

- **Meet requirements for highly qualified teachers under the federal No Child Behind Act.** Under the federal No Child Left Behind Act, high school mathematics and science teachers must have majored in the subject or must otherwise prove their content knowledge through state high objective uniform state standards of evaluation (HOUSSE) programs. Although many school districts have traditionally struggled to recruit quality mathematics and science teachers, the new federal requirements have added another layer of pressure to schools and districts.

There is little doubt that challenges lie ahead. According to the National Science Foundation (2006), between 23 percent and 29 percent of public middle grade and high school mathematics and science teachers did not have a college major or minor in their teaching field in the 1999–2000 academic year. Recruiting New Teachers (Fideler, Foster, & Schwartz, 2000) reports that of the largest urban school districts, nearly 98 percent of responding districts noted an immediate demand for science teachers and 95 percent reported an immediate demand for mathematics teachers. The National Commission on Mathematics and Science Teaching for the 21st Century (2000) reports that America's classrooms need 240,000 mathematics and science teachers over the next decade.

Developing a strong recruitment strategy would assist schools and districts to ensure a pool of qualified candidates for mathematics and science teaching positions at the high school level.

- **Compete for candidates with a major in mathematics and science.** Mathematics and science teaching positions are typically difficult to staff because students majoring in these subjects have other career opportunities offering more opportunities and higher salaries. A report by Milanowski (2003) indicates that students with an interest in mathematics and science would be more likely to pursue teaching if they received a competitive salary and felt that their skills were matched for the position. Milanowski suggests that schools and districts should market the positions in a way that appeals to the interests of mathematics and science majors and should offer salaries high enough to effectively attract these candidates.

Recruitment strategies—such as grow-your-own, financial incentives, and alternative licensure—can assist districts and schools to be competitive in this job market and to lure students who are interested in teaching.

- **Design a systematic recruitment effort that meets the needs of the district or school, and thereby strengthen the candidate pool for mathematics and science teachers.** Schools and districts spend an inordinate amount of time randomly searching for teachers, especially in shortage areas such as mathematics and science. The New Teacher Project (Levin & Quinn, 2003) conducted a study of hiring practices in urban school

districts desperately in need of teachers in shortage areas. The report reveals that many districts and schools are wrapped up in red tape and bureaucracy to the extent that even if good candidates for shortage areas apply for teaching positions, the districts and schools often fail to hire them.

A systematic recruitment effort that is designed to meet the needs of a particular school or district not only attracts the right candidates but also streamlines the process so that the candidates applying for the positions are most likely a good fit for the job.

Tips

When developing strategies to recruit high school teachers in mathematics and science, schools and districts should remember to do the following:

- Implement strategies that provide meaningful incentives for prospective teachers.
- Specifically target those teachers with the experience and education to meet the needs of the school.
- Build a relationship and craft a strategy with input from local institutions of higher education.
- View the strategies as part of a larger effort to recruit and retain high-quality teachers for every subject at every grade level.
- Take advantage of local supply of potential teachers.
- Use the Internet to increase the reach of recruitment efforts.
- Provide high-quality opportunities for people in other professions to transfer into teaching.
- Be selective in accepting candidates from alternative preparation programs.
- Broaden the diversity of prospective teachers.

Strategy 1: Form Partnerships With Institutions of Higher Education

Collaborating with universities is beneficial for schools and districts on many fronts. Districts can work with universities to produce more mathematics and science teachers. Many alternative routes to certification are based at local universities and allow paraprofessionals, military personnel, and other professionals with a background in mathematics and science to transition into teaching. Through strong partnerships, districts can help evaluate the quality of university graduates and have a voice to reform teacher preparation programs.

Resource 1: Mathematics and Science Partnership of Southern New Jersey

Rowan University's Mathematics, Computer, and Science Instructional Improvement Programs Website: <http://www.rowan.edu/open/mcsiip/mspgrant.htm>

"Rowan University has been awarded \$2.5 million to work with four southern New Jersey school districts in reforming mathematics and science instruction. As a partner in a \$12.3 million grant to Rutgers University from the National Science Foundation, Rowan will also collaborate with Kean University and eight other NJ districts. [The project] will be used to unite the activities of higher education institutions, pre-kindergarten through high school systems and other partners to support better teacher development in math and science, and raise student achievement."

Resource 2: Marian College and Greater Indianapolis Chamber of Commerce Partnership

Marian College. (n.d.). *Marian College joins "Education Plus" program* [News brief]. Retrieved May 15, 2006, from http://www.marian.edu/aboutmarian_newsbriefs.asp?ID=186

In May 2006, Marian College and the Greater Indianapolis Chamber of Commerce announced a partnership that would provide annual scholarships for science, science education, mathematics, or mathematics education to students of employees of companies or not-for-profit organizations who are members of the chamber of commerce.

Resource 3: Partnership for Teacher Excellence in New York City

New York City Department of Education. (2006). *Mayor Bloomberg announces new partnership for teacher education* [Press release]. Retrieved May 15, 2006, from http://www.nycenet.edu/News/2005-2006/News_01_27_06.htm

Beginning in 2006, the City University of New York, New York University (including the Steinhardt School of Education and the Faculty of Arts and Sciences) and the New York City Department of Education will begin the Partnership for Teacher Excellence to develop and implement an innovative new model for teacher education to address the city's need for highly qualified, well-trained teachers in high-need areas, such as mathematics and science.

Resource 4: Teacher Quality Enhancement Grants

U.S. Department of Education's Teacher Quality Enhancement Grants

Website: <http://www.ed.gov/programs/heatqp/index.html>

This website provides information about resources and funding available to state and local education agencies and teacher preparation institutions to better prepare and recruit new teachers.

Resource 5: *Ahead of the Class*

Clewell, B., & Villegas, A. (2001). *Ahead of the class: A handbook for preparing new teachers from new sources*. Washington, DC: The Urban Institute. Retrieved May 15, 2006, from http://www.urban.org/UploadedPDF/ahead_of_the_class.pdf

Section 1 of this handbook describes the steps necessary to create a successful institutional partnership.

Resource 6: Benedum Collaborative

Benedum Collaborative

Website: <http://www.hre.wvu.edu/benedum/>

The Benedum Collaborative is an example of a collaborative effort between 28 public schools, five school districts, West Virginia University's College of Human Resources and Education, and the Eberly College of Arts and Science. The collaborative has redesigned West Virginia University's Teacher Education Program and established Professional Development Schools. Public school teachers collaborate continuously with university faculty to provide learning experiences for teacher education students.

Resource 7: Capital Educators Collaborative

Capital Educators Collaborative

Website: <http://gsehd.gwu.edu/special+projects#anchor23>

George Washington University in Washington, D.C., has developed a number of partnership programs with local school systems. This website presents the reasoning behind these partnerships, many of which provide alternative routes to certification. The site also gives an overview and contact information for each district-university partnership.

Strategy 2: Grow Your Own

Schools and districts need to encourage and support members of the community to become mathematics and science teachers at the high school level. These recruitment efforts should begin early, with students in middle school classrooms and through extracurricular activities that encourage students who excel in mathematics and science to pursue a career in teaching. By the time students reach high school, formal recruitment programs should be in place, providing encouragement, mentoring, training, and financial assistance toward certification.

In addition to recruiting students to become future mathematics and science teachers, schools and districts can promote a teaching career to parents, community members, and other mathematics and science professionals. With encouragement, support and high-quality alternative certification routes, members of the community can become effective, certified teachers.

Resource 8: Illinois “Grow Your Own” Teacher Program

Illinois “Grow Your Own” Teacher Education Initiative

Website: <http://www.isbe.state.il.us/rules/archive/pdfs/60ARK.pdf>

In 2004, the Illinois Legislature enacted the “Grow Your Own” program to prepare highly skilled teachers for hard-to-staff subjects, such as mathematics and science, in hard-to-staff schools. The goal is to recruit 1,000 teachers by 2016 and retain them for seven years.

Resource 9: Prezell R. Robinson Scholars Program in North Carolina

Prezell R. Robinson Scholars Program

Website: <http://www.dpi.state.nc.us/scholarships/robinson.html>

“The Prezell R. Robinson Scholars Program (formerly the Challenge Scholars Program) is designed to encourage high school students to pursue careers in teaching. Low-wealth school systems and school systems with documented difficulty in recruiting qualified teachers are eligible to participate. Robinson Scholars participate in system-sponsored activities designed to foster their commitment to teaching and enhance the likelihood they will be accepted to and complete an approved teacher education program. Upon graduation from high school, Robinson Scholars who meet prescribed SAT and grade point average requirements are awarded a Prospective Teacher Scholarship Loan (PTSL) to pursue a program of study leading to teacher licensure in North Carolina.”

Resource 10: *Urban Teacher Academy Project Toolkit*

Berrigan, A., & Schwartz, S. (2000). *Urban teacher academy project toolkit: A guide to developing high school teaching career academies*. Belmont, MA: Recruiting New Teachers.

This toolkit is excellent for promoting teaching and early recruitment. It presents guidelines for establishing and evaluating teacher career academies; identifying prospective teachers; and using

internships, portfolios, and a comprehensive array of supports for recruiting promising students to the profession.

Resource 11: North Carolina Model Teacher Education Consortium

North Carolina Model Teacher Education Consortium

Website: <http://www.ncmtec.com>

“The North Carolina Model Teacher Education Consortium (NCMTEC) is a collaborative effort which provides affordable, accessible, high-quality educational training to aspiring and practicing educators in participating school districts in North Carolina.”

Resource 12: Future Educators Association, Phi Delta Kappa International

Future Educators Association

Website: <http://www.pdkintl.org/fea/feahome.htm>

Future Educators Association is a program for high school students interested in exploring careers in education. Chapters of the organization exist around the country, and Phi Delta Kappa provides support and ideas for getting the program started. An advisors handbook/manual is provided when a school or district joins.

Resource 13: Teacher Cadet Program at South Carolina’s Center for Educator Recruitment, Retention, and Advancement (CERRA)

CERRA Teacher Cadet Program

Website: <http://www.cerra.org/cadets/>

Through the Teacher Cadet Program, CERRA encourages academically able students who possess exemplary interpersonal and leadership skills to consider teaching as a career. CERRA also offers training to individuals who wish to become Teacher Cadet instructors.

Strategy 3: Create High-Quality Alternative Routes to Certification

Once candidates are interested in teaching and schools identify staffing needs, alternative routes to certification provide a path for moving certified teachers into the classroom. Alternative routes often are attractive to mid-career changers and other nontraditional prospective teachers who want to become certified teachers. A program's flexibility can allow teacher candidates to complete coursework and training toward certification while continuing to earn a living as a teacher of record, paraprofessional, or businessperson. Through collaborative efforts, state, districts, universities, and colleges can develop alternative routes that attract and prepare teachers to fill shortages in mathematics and science. No two alternative routes look alike, but researchers have begun to highlight several components of high-quality programs.

Resource 14: *Alternative Certification Evaluation Template*

North Central Regional Educational Laboratory. (2002). *Alternative certification evaluation template*. Naperville, IL. Author. Retrieved May 15, 2006, from <http://www.learningpt.org/page.php?pageID=205>

This online template is based on findings from a literature review of articles and reports presenting the results of evaluations of a variety of alternative certification programs. It presents essential evaluation criteria for characteristics of successful programs. Users rate the extent to which the criteria are used in a program, and averages for typical components of an alternative certification program are computed and graphed.

Resource 15: **ABCTE's Project 5,000: Recruiting New Mathematics and Science Teachers for U.S. Schools**

American Board for Certification of Teacher Excellence. (2006, May 11). *ABCTE to host 17 events to jumpstart mathematics & science teacher recruitment initiative: Project 5,000* [Press release]. Retrieved May 15, 2006, from <http://www.abcte.org/node/989/>

On May 11, 2006, the American Board for Certification of Teacher Excellence (ABCTE) launched a new initiative to recruit and certify 5,000 new mathematics and science teachers by the year 2009. ABCTE is a national nonprofit organization offering its alternative certification program, Passport to Teaching, to states that agree to accept its credentials.

To kick off this initiative, ABCTE is hosting 17 events in Florida, Idaho, Utah, and New Hampshire to spread the word about ABCTE's certification program for mathematics and science career changers. Some of the highest need subject areas are chemistry, physics, mathematics, general science, and biology.

Resource 16: **North Carolina Teachers of Excellence for All Children (NC TEACH)**

NC TEACH

Website: <http://ncteach.ga.unc.edu>

“NC TEACH is a rigorous alternative teacher preparation program designed to recruit, train, support and retain mid-career professionals as they become licensed teachers in North Carolina. The program is administered by the UNC Office of the President, in collaboration with the North Carolina Department of Public Instruction.”

NC TEACH has a new effort to attract mathematics and science professionals who are interested in becoming teachers. The site provides detailed descriptions of the organization, program offerings and helpful resources.

Resource 17: *Alternative Routes to Teacher Certification*

Office of Innovation and Improvement. (2004). *Alternative routes to teacher certification*. Washington, DC: U.S. Department of Education. Retrieved May 15, 2006, from <http://www.ed.gov/admins/tchrqual/recruit/altroutes/report.pdf>

This booklet presents elements of effective alternative routes to certification and then profiles six promising programs.

Resource 18: *Ahead of the Class*

Clewell, B., & Villegas, A. (2001). *Ahead of the class: A handbook for preparing new teachers from new sources*. Washington, DC: The Urban Institute. Retrieved May 15, 2006, from http://www.urban.org/UploadedPDF/ahead_of_the_class.pdf

The handbook analyzes the Pathways to Teaching Careers model program for certifying returning Peace Corps volunteers and paraprofessionals. Using Pathways as a guide, it lays out the steps for developing an effective alternative route to certification, from forming a partnership to supporting teacher candidates.

Resource 19: Boston Teacher Residency

Boston Teacher Residency
Website: <http://www.bpe.org/btr/>

“The Boston Teacher Residency (BTR) is a one-year urban teacher preparation and certification program developed as part of Boston’s aggressive commitment to improving instruction in every classroom. During the 12-month program, Teacher Residents co-teach with a Mentor Teacher in one of Boston’s most effective schools, take coursework facilitated by exceptional teachers and university faculty, and receive \$10,000 during their year of service to a school. Teacher Residents earn a Massachusetts Initial Teacher License and a master’s degree in education from the University of Massachusetts/Boston, and work toward a dual licensure in Special Education.”

The website lays out the structure of the program and answers frequently asked questions.

Strategy 4: Streamline the Hiring Process

Many high-quality applicants for teaching positions are unfortunately discouraged by the bureaucracy of the hiring process. Well-qualified applicants often have grown frustrated and have found other jobs by the time some schools and districts get around to calling them for an interview. At a time of great competition for mathematics and science teachers, those school districts that have taken steps to simplify and streamline its hiring process will have an advantage over school districts bogged down by red tape and slow response.

Resource 20: *Missed Opportunities*

Levin, J., & Quinn, M. (2003). *Missed opportunities: How we keep high-quality teachers out of urban classrooms*. New York: The New Teacher Project. Retrieved May 15, 2006, from <http://www.tntp.org/docs/reportfinal9-29.pdf>

This report reveals the daunting hiring process that has plagued many urban school districts, preventing them from securing badly needed high-quality teachers for their classrooms. The authors suggest policy options for reforming hiring processes in urban schools.

Strategy 5: Offer Financial Incentives

Mathematics and science teachers of high school students must either have majored in the subject in which they teach or demonstrate subject-matter knowledge. Teachers with these skills often leave behind or forego promising careers in their industry and higher salary in order to take on the challenges of teaching mathematics or science to high school students. In an effort to recruit these teachers, state policymakers—in partnership with schools and districts—can consider offering the following financial incentives: signing bonuses; student loan forgiveness and scholarships; housing assistance; and higher base salaries for teachers in hard-to-staff schools and subjects, such as mathematics and science.

Resource 21: *America's Pressing Challenge—Building a Stronger Foundation*

The National Science Board. (2006, January). *America's pressing challenge—Building a stronger foundation: A companion to science and engineering indicators 2006*. Arlington, VA: National Science Foundation. Retrieved May 15, 2006, from <http://www.nsf.gov/statistics/nsb0602/nsb0602.pdf>

This report is a companion to *Science and Engineering Indicators 2006*, also published by the National Science Foundation. The report sounds an alarm regarding the low level of mathematics and science education in the country and calls on policymakers to implement certain policies, including improving the quality of mathematics and science teachers through more competitive compensation.

Resource 22: *Diversifying Teacher Compensation*

Azordegan, J., Byrnett, P., Campbell, K., Greenman, J., & Coulter, T. (2005). *Diversifying teacher compensation* (Issue Paper). Denver: Education Commission of the States. Retrieved May 15, 2006, from <http://www.ecs.org/clearinghouse/65/83/6583.pdf>

This issue paper provides a general overview of the issue of diversifying teacher compensation, reviews policy options, and provides a glance at the actions taken by states and districts to reform compensation.

Resource 23: *Better Pay for Better Teachers*

Hassel, B. C. (2002, May). *Better pay for better teaching: Making teacher compensation pay off in the age of accountability*. Washington, DC: Progressive Policy Institute. Retrieved May 15, 2006, from http://www.ppionline.org/documents/Hassel_May02.pdf

The 21st Century Schools Project at the Progressive Policy Institute advocates the need for differential pay for teachers in hard-to-hire subjects. It also offers policy options and considerations for reforming teacher compensation.

Resource 24: Pay Levels Attracting Students to Become Mathematics and Science Teachers

Milanowski, A. (2003, December 27). An exploration of the pay levels needed to attract students with mathematics, science and technology skills to a career in K–12 teaching, *Education Policy Analysis Archives*, 11(50). Retrieved May 15, 2006, from <http://epaa.asu.edu/epaa/v11n50/>

This study explores the role of salary levels and other factors in motivating students to become mathematics, science, and technology teachers.

Resource 25: Alabama Mathematics and Science Scholarship/Loan Program

Teacher Education and Certification FAQs: Mathematics and Science Scholarship/Loan Program for Alabama Teachers (MSSPAT)

Website:

<http://www.alsde.edu/HTML/sections/teachercertAnswers.asp?section=66&sort=4&id=412&footer=sections>

“The MSSPAT provides up to \$2,000 per semester for up to six semesters for students admitted to a teacher education program in either mathematics or science at a public university in Alabama. One semester of funding will be forgiven for each year that the new teacher teaches mathematics or science full time in a target school system.”

Resource 26: Arkansas Emergency Secondary Education Loan Program

Arkansas Emergency Secondary Education Loan Program

Website: <http://www.arkansashighered.com/emergencyloan.html>

This program is for students pursuing secondary education teacher licensure in an accredited Arkansas public or private college or university in the following shortage areas: math, chemistry, physics, biology, physical science, general science, special education, and/or foreign language. Merit-based scholarships are available for \$2,500 per academic year, or one-half the total cost of tuition/fees, book/supplies, and room/board. Recipients must maintain a 2.5 cumulative grade point average (GPA), and juniors and seniors must maintain a 3.0 GPA in their major area of study.

Resource 27: California Mathematics and Science Teacher Education Program

California Mathematics and Science Teacher Education Program

Website: <http://www.mastep.sjsu.edu/project2.htm>

This program makes available summer and part-time jobs related to science and mathematics to students in need. An additional financial incentive to attract students into science and mathematics teaching is to guarantee future teachers summer employment in industry, government, or university during the first few years of their teaching career. Combined with this employment is a rewarding inservice program of professional development leading toward a master's degree.

Resource 28: Louisiana Critical Teacher Shortage Incentive Program

Louisiana Critical Teacher Shortage Incentive Program

Website: <http://www.legis.state.la.us/lss/lss.asp?doc=81075>

Through this program, newly certified Louisiana elementary and secondary teachers in the areas of mathematics, biology, chemistry, physics, or special education receive \$3,000 per year for their first four consecutive years in the classroom.

Resource 29: Rhode Island Teacher Reward Program

Rhode Island Teacher Reward Program

Website: <http://www.risla.com/programs/reward.aspx>

For the first four years of teaching in Rhode Island, there will be zero interest on Stafford loans (subsidized or unsubsidized). The program provides 250 awards to full-time teachers in the predicted shortage areas of mathematics or science. In order to qualify, one must be employed full time and certified by the state of Rhode Island. Minority applicants have high priority along with those teaching in an urban or high-need school district.

Strategy 6: Support New Teachers in the Classroom

Research shows that one third of teachers leave within the first three years of teaching, and half leave after five years. Support for beginning teachers is critical to their success. Many schools and districts already struggle to recruit mathematics and science high school teachers, so it makes good sense to support them in the classroom. This support can be offered through induction, mentoring, and professional development. Quality programs have shown success in retaining new teachers.

Resource 30: *America's Pressing Challenge—Building a Stronger Foundation*

The National Science Board. (2006, January). *America's pressing challenge—Building a stronger foundation: A companion to science and engineering indicators 2006*. Arlington, VA: National Science Foundation. Retrieved May 15, 2006, from <http://www.nsf.gov/statistics/nsb0602/nsb0602.pdf>

This report is a companion to *Science and Engineering Indicators 2006*, also published by the National Science Foundation. The report sounds an alarm regarding the low level of mathematics and science education in the country and calls on policymakers to implement certain policies, including better support for mathematics and science teachers through high-quality induction, mentoring, and professional development.

Resource 31: New Teacher Center at the University of California–Santa Cruz

New Teacher Center

Website: <http://www.newteachercenter.org>

The New Teacher Center has developed a mentoring and formative assessment system that has been successfully operating for 15 years.

Resource 32: *Measuring the Benefits and Costs of Mentoring-Based Induction*

Villar, A. (2004). *Measuring the benefits and costs of mentoring-based induction: A value-added assessment of new teacher effectiveness linked to student achievement*. Santa Cruz, CA: New Teacher Center.

This report from the New Teacher Center documents positive effects on student achievement when new teachers receive comprehensive professional support.

Resource 33: Connecticut Beginning Educator Support and Training (BEST) Program

Connecticut Beginning Educator Support and Training (BEST) Program

Website: <http://www.state.ct.us/sde/dtl/t-a/>

BEST is a two-year program of mentoring that uses portfolio review process for assessment of a new teacher's readiness for professional certification beyond initial certification. The program is mandatory for all new Connecticut teachers, regardless of certification status.

Resource 34: California Beginning Teacher Support and Assessment (BTSA) Program

California Beginning Teacher Support and Assessment (BTSA) Program

Website: http://www.btsa.ca.gov/BTSA_basics.html

BSTA is a state-funded program designed to support the professional development of new teachers.

Resource 35: Louisiana Framework for Inducting, Retaining, and Supporting Teachers (FIRST)

Louisiana Framework for Inducting, Retaining, and Supporting Teachers (FIRST)

Website: <http://www.doe.state.la.us/lde/pd/625.html>

The website links to a document titled *The Induction Component*, which is a manual for districts that want to create induction programs—from agendas for orientation sessions to worksheets to fliers.

Resource 36: *Learning for the 21st Century*

Partnership for 21st Century Skills. (2002). *Learning for the 21st century: A report and MILE guide for 21st century skills*. Washington, DC: Author. Retrieved May 15, 2006, from http://www.21stcenturyskills.org/images/stories/otherdocs/P21_Report.pdf

Using three domains of work (learning and teaching, leading and managing, and partnering) and a continuum of benchmarks (early stage, transitional state, 21st century), the *Milestones for Improving Learning and Education (MILE) Guide* presents a framework for self-assessment and planning professional development.

Resource 37: *Cultivating High-Quality Professional Development*

Exstrom, M., & Hirsh, S. (2002). *Cultivating high-quality professional development*. Denver, CO: National Conference of State Legislatures.

This comprehensive guide to teacher professional development is geared to policymakers. It includes four sections: frequently asked questions, a policy roadmap, snapshot of state actions, and resources for stakeholders in their work with state policymakers.

Resource 38: *Keeping America Competitive*

Coble, C., & Allen, M. (2005). *Keeping American competitive: Five strategies to improve mathematics and science education*. Denver, CO: Education Commission of the States. Retrieved May 15, 2006, from <http://www.ecs.org/clearinghouse/62/19/6219.pdf>

This report is the result of a gathering of top thinkers for a conference at the Wingspread Conference Center. It outlines five strategies to improve mathematics and science education, including support for teacher professional development and learning.

Real-Life Example: Partnerships Between IBM and Schools to Meet the Demand for Mathematics and Science Teachers

In September 2005, IBM announced a partnership with local communities to help address the critical shortage of mathematics and science teachers in high school classrooms. The new IBM Transition to Teaching Program encourages some of IBM's best and brightest to become fully accredited teachers in their local communities upon electing to leave the company. Employees will be able to participate in both online coursework and traditional courses, participate in online mentoring while remaining at the company, and student-teach for up to three months in order to meet state certification requirements.

IBM will reimburse participants up to \$15,000 for tuition and stipends while they student-teach as well as provide online mentoring and other support services in conjunction with partner colleges, universities, and school districts.

The program began its partnership in January 2006 with schools in New York City and North Carolina.

A news release from IBM (n.d.) indicated the following: “ ‘The public-private partnership being announced today will help us recruit talented, dedicated individuals who know that teaching is the key to our students’ success,’ said Joel Klein, Chancellor of the New York City Public Schools. ‘I thank and commend IBM for setting such a great example and urge other corporations and organizations to sponsor similar programs.’ ”

In addition, IBM developed the *Reinventing Education Change Toolkit* (available online at <http://www.reinventingeducation.org/RE3Web/>) to provide educators with tools for change management and leadership development.

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