

**Pennsylvania Basic Education/Higher Education
Science and Technology Partnerships:**

**SCIENCE IN MOTION
&
ADVANCING SCIENCE**

2003-2004 PROGRAM REPORT

for Regional Service Providers at:

**Cedar Crest College
Clarion University of
Pennsylvania
Drexel University
Gannon University
Gettysburg College
Juniata College**

**Susquehanna University
University of Pittsburgh
at Bradford
Ursinus College
Westminster College
Wilkes University**

submitted to:

**THE COMMONWEALTH OF PENNSYLVANIA
and the
PENNSYLVANIA DEPARTMENT OF EDUCATION**

September 2004

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Submitted To:

**THE COMMONWEALTH OF PENNSYLVANIA
AND THE
PENNSYLVANIA DEPARTMENT OF EDUCATION**

Prepared by:

**Dr. Lorraine Mulfinger
& Dr. Donald Mitchell
Directors for Science Outreach
Juniata College
1700 Moore Street
Huntingdon, PA 16652
814-641-3566**

September 2004

TABLE OF CONTENTS

Executive Summary	1
School Districts and Schools Served in 2003-2004 (Listed by Higher Education Service Provider)	5
Service Report and Summary	14
Financial Report and Summary.....	17
Third Party Assessment	19
Citations, Awards, and Special Recognition	20
Council of State Governments 2003 Innovation Award Program	20
Pennsylvania House of Representatives' Commission on Rural Education Recommendation.....	20
Conference On K-12 Science Outreach From University Science Departments: 2004	20
TCCP 2004 Technology Educator of the Year	21
Consortium Activities	22
2004 PSTA Conference	22
Sharing Workshop	22
Website	22
Pending Pennsylvania Legislation	22
Appendices	
Appendix A: Assessment Results	23
Appendix B: Copies of Pending Legislation.....	27

EXECUTIVE SUMMARY

The Pennsylvania Basic Education/Higher Education Science and Technology Partnership Program continued to serve schools in the Commonwealth of Pennsylvania during the 2003-2004 fiscal year through a consortium of Science In Motion and Advancing Science outreach programs (SIM/AS). The consortium provided outreach support to 449 teachers in 235 public, private, and parochial schools. Eleven higher education sites serve as the hubs of these programs: Cedar Crest College, Clarion University of Pennsylvania, Drexel University, Gannon University, Gettysburg College, Juniata College, Susquehanna University, University of Pittsburgh at Bradford, Ursinus College, Westminster College, and Wilkes University.

Service Report and Summary

The Service Report and Summary contain activity statistics for the statewide consortium. SIM/AS Mobile Educators visited and taught 3,390 classes during the 2003-2004 fiscal year. Equipment loans and prepared experiments were delivered to an additional 1,517 classrooms. Altogether, 96,235 student experiences were provided through SIM/AS programs.

The overall level of service provided by the SIM/AS consortium during 2003-2004 was limited by the delayed passage of the appropriation for the Pennsylvania Basic Education/Higher Education Science and Technology Partnership Program. Only Clarion University and Gettysburg College were able to offer continuous, full service prior to the passing of an education budget by the commonwealth. The other nine sites were unable to offer full service to their districts until they received notification of the state appropriation in January/February 2004. Individual site service records varied significantly both due to funding considerations and the varying challenges to educational equity met by each location. Further details are provided by the Service Report and Summary on page 15.

Financial Report and Summary

The Financial Report and Summary contain summary expenditure information for the SIM/AS consortium. All awards continued to be based on an 80% funding level of the \$200,000 budget required to support a single subject (chemistry or biology). Eight sites (Clarion University of Pennsylvania, Drexel University, Gannon University, Gettysburg College, University of Pittsburgh at Bradford, Ursinus College, Westminster College, and Wilkes University) received appropriations based on one-subject (\$160,000 awards). Juniata College received funding for two subject areas (an appropriation of \$320,000), and this site also continued to support consortium coordination services and activities with

this funding. Susquehanna University received an appropriation \$320,000 to support two subject areas. Cedar Crest College continued for a third year to be funded at 40% the level of a single subject, receiving only \$80,000.

Service reports showed that most sites served more than one subject area. This is possible because many of the sites that were funded to cover only one subject area have extended their services to a second subject by securing supplemental funding sources, serving smaller student populations (due to low population densities in the more rural areas), or serving larger student populations less frequently in each subject.

Individual site service reports are not provided herein because inadequate data is available to ensure an appropriate interpretation of such data with respect to individual site efficacy. The available budget information reflects only funds appropriated to each site by the Commonwealth and awarded through the Pennsylvania Department of Education; the amount of funding available at each site from other sources varies significantly. In addition, the many issues that contribute to diversity among the schools served by the consortium impact the efficiency with which individual consortium sites are able to implement services. Differences such as distances between schools and individual wealth of schools served can significantly impact both the number of visits that can be made by mobile educators in a given day and the extent of the computer support, equipment, materials and supplies that must be provided to poorer schools.

Contracting issues also continue to affect consortium services. Delays in the receipt of signed contracts and payment checks caused a number of problems for individual institutions, especially those undergoing personnel hirings. These delays again limited the time that programs could be effective in the schools in their areas, even after the passing of the budget.

The uncertainty of funding prior to the establishment of the annual state budget and the layoffs caused by the recent education budget impasse caused several sites to lose members of their highly qualified and dedicated mobile education staff to other teaching positions.

Assessment

The project wide (statewide) assessment project to determine impact on student learning continued during the 2003-2004 academic year. The assessment goal is to compare student understanding of modern principles and applications in chemistry and biology in project schools versus control schools that are not served by the program.

A summary of the 2002-2003 statewide assessment is provided in the appendix of this report. The specific aim of the 2002-2003 assessment was to devise both chemistry and biology assessment instruments so that they closely reflect the

curriculum supported by the SIM/AS program. Assessment instruments were piloted by those sites where funding enabled the higher education partner to provide classroom services to their schools for a majority of the academic year. Despite the need for revision of some questions on the instruments, a significant impact was found in both the chemistry and biology subject areas.

In an effort to develop a broader assessment of more activities, individual laboratory activities were assessed during the 2003-2004 academic year. Each higher ed site coordinated the evaluations of one chemistry and one biology activity. These results are currently being compiled.

Citations and Awards

2003 Council of State Governments Innovation Award

The Pennsylvania Basic Education/Higher Education Partnership Program consortium is proud to have been named as a national winner of the 2003 Innovation Awards from the Council of State Governments (CSG). The program was considered as a semi-finalist from the Northeast region by a national committee that met on September 11, 2003 in New York City. The national award was presented at the CSG national conference in Pittsburgh on October 24, 2003.

Commission on Rural Education Recommendation

Representatives of The Pennsylvania Basic Education/Higher Education Partnership Program testified before the Pennsylvania House of Representatives' Commission on Rural Education in October 2003. The following recommendation was included in the final commission report that was released June, 2004:

“The Commission recommends that the General Assembly enact legislation establishing a basic education-higher education science technology partnership, such as the Science In Motion program, in order to expose rural students to the world of science. (adopted 21-0)”

Website and Internet Resources

The Pennsylvania Basic Education/Higher Education Partnership portal continues to provide links to each of the eleven programs around the state. The portal is in the process of being updated to include a cleaner, more easily navigated homepage. Each higher ed partner in the consortium continues to maintain and update individual websites to support their activities. Teachers are able to use these websites to find out what laboratory equipment and activities are available to them through the consortium and access lesson plans for these activities.

Conclusions and Legislative Recommendations

Overall, basic education, higher education, and Pennsylvania industries highly value the science support provided by the Pennsylvania Basic Education/Higher Education Partnership Program consortium. Each year, the Pennsylvania Department of Education, individual legislators, and the involved higher education institutions receive hundreds of calls and letters requesting continuation of the partnership services.

The General Assembly is encouraged to move forward legislation to embed these partnerships as part of the Pennsylvania School Code. The Pennsylvania Department of Education is encouraged to consider including statewide implementation of the Science In Motion model in the 2004-2005 budget.

The following bills represent pending Pennsylvania legislative initiatives that support the permanent establishment and statewide implementation of the Pennsylvania Basic Education/Higher Education Partnership Program:

- HB1585 – A House appropriation bill providing \$2,000,000 for SIM/AS services in the state
- HB1586 – A House appropriation bill providing \$2,000,000 for SIM/AS services in the state
- HB1618 – A House education bill providing \$400,000 grants for services in the state
- HB1642 – A House education bill providing \$400,000 grants/institution services in the state
- SB83 – A Senate education bill providing \$400,000 grants/institution services in the state

SCHOOL DISTRICTS & SCHOOLS SERVED in 2003-2004

(Listed by HIGHER EDUCATION SERVICE PROVIDER)

1. Cedar Crest College

School Districts Served

Allentown SD
Bangor SD
Bethlehem SD
Catssauqua SD
East Penn SD
Easton SD
Jim Thorpe SD
Lehigh Co. Vo-Tech
Lehighon SD
Northern Lehigh SD
Northwestern Lehigh SD
Palmerton SD
Panther Valley SD
Parkland SD
Salisbury SD
Southern Lehigh SD
Whitehall-Copley SD

Other Schools Served

Carbon County Vo-Tech

2. Clarion University

School Districts Served

Allegheny-Clarion Valley SD
Armstrong Area SD
Brockway SD
Brookville SD
Clarion SD
Clarion-Limestone SD
Cranberry SD
DuBois SD
East Forest SD
Elderton SD
Franklin SD
Keystone SD
North Clarion SD
Oil City SD
Punxsutawney SD
Redbank SD
Rocky Grove SD
Titusville SD
Union SD
West Forest SD

Other Schools Served

Venango Christian HS

3. Drexel University

School Districts Served

Philadelphia City SD

Other Schools Served

Center City Academy
Hope Church School

4. Gannon University

School Districts Served

Corry SD
Erie SD
Fairview SD
Fort LeBoeuf SD
General McLane SD
Girard SD
Harbor Creek SD
Iroquois SD
McDowell SD
Mercyhurst Prep
North East SD
Northwestern SD
Seneca SD
Union City SD

Other Schools Served

Cathedral Prep
Villa Maria Academy

5. Gettysburg College

School Districts Served

Bermudian Springs SD
Big Spring SD
Camp Hill SD
Carlisle Area SD
Central Dauphin SD
Central York SD
Conewago Valley SD
Cumberland Valley SD
East Pennsboro SD
Fairfield Area SD
Gettysburg Area SD
Greenwood SD
Halifax Area SD
Hanover Public SD
Harrisburg City SD
Lower Dauphin Area SD
Millersburg Area SD
Northern York County SD
Shippensburg Area SD
South Middleton SD
Southern York County SD
Southwestern SD
Spring Grove Area SD
Steelton-Highspire SD
Upper Adams SD
Upper Dauphin Area SD
Waynesboro Area SD
West Perry SD
West Shore SD

Other Schools Served

Adams County Christian Academy
Cumberland Valley Christian Academy
Dauphin County Technical School
Diocese of Harrisburg Catholic Schools
Littlestown Christian Academy
Montessori Academy of Chambersburg
Shalom Christian Academy

6. Juniata College

School Districts Served

Altoona Area SD
Bald Eagle Area SD
Bellefonte Area SD
Bellwood-Antis SD
Calvary Christian
Central SD
Claysburg-Kimmel SD
Everett Area SD
Forbes Road SD
Glendale SD
Hollidaysburg Area SD
Huntingdon Area SD
Juniata Valley SD
Mount Union SD
Northern Bedford County SD
Penns Valley SD
Phillipsburg-Osceola SD
Southern Huntingdon SD
Spring Cove SD
State College Area SD
Tussey Mountain SD
Tyrone Area SD
West Branch SD
Williamsburg Community SD

Other Schools Served

Belleville Mennonite
Bishop-Guilfoyle
Grier School
Mifflin County Christian

7. Susquehanna University

School Districts Served

Benton SD
Berwick SD
Central Columbia SD
Danville SD
East Juniata SD
Jersey Shore SD
Juniata SD
Lewisburg SD
Line Mountain SD
Midwest Area SD
Milton Area SD
Montoursville SD
Mt. Carmel Area SD
Muncy SD
Selinsgrove SD
Shamokin SD
Shikellamy SD
South Williamsport SD
Southern Columbia SD
Warrior Run SD
Williamsport Area SD

Other Schools Served

Bishop Newman
Columbia Montour Vo-Tech
Lourdes Catholic
Northwest Academy Juvenile Detention Facility
SUN Alternative

8. University of Pittsburgh at Bradford

School Districts Served

Austin SD
Bradford SD
Cameron County SD
Coudersport SD
Galeton SD
Johnsonburg SD
Kane Area SD
Northern Potter SD
Oswayo Valley SD
Otto-Eldred SD
Port Allegany SD
Ridgway SD
Smethport SD
St. Marys SD
Warren County SD

9. Ursinus College

School Districts Served

Abington SD
Boyertown Area SD
Coatesville Area SD
Downingtown Area SD
Methacton SD
Norristown Area SD
North Penn SD
Perkiomen Valley SD
Phoenixville Area SD
Radnor Township SD
Souderton Area SD
Spring-Ford SD
Tredyffrin-Easttown SD
Unionville-Chadds Ford SD
Upper Merion SD
Upper Moreland SD
William Penn SD
Wissahickon SD

Other Schools Served

Montgomery County Youth Detention Center Schools

10. Westminster College

School Districts Served

Farrell SD
Grove City SD
Hermitage SD
Highlands SD
Jamestown SD
Lakeview SD
Laurel SD
Mercer SD
Mohawk SD
Neshannock SD
New Castle SD
Penn Crest SD
Seneca Valley SD
Sharon SD
Sharpsville SD
Slippery Rock SD
Wilmington SD

Other Schools Served

Kennedy Catholic

11. Wilkes University

School Districts Served

Abington Heights SD
Carbondale SD
Crestwood SD
Dallas SD
Dunmore SD
Greater Nanticoke SD
Hanover SD
Hazleton SD
Lackawanna Trail SD
Lakeland SD
Lake-Lehman SD
Mid Valley SD
North Pocono SD
Northwest Area SD
Old Forge SD
Pittston SD
Pocono Mountain SD
Riverside SD
Scranton SD
Tunkhannock SD
Valley View SD
Wilkes-Barre Area SD
Wyoming Area SD
Wyoming Valley West SD

Other Schools Served

Bishop Hoban High School
Bishop Hannon High School
Bishop O'Reilly
Scranton Prep
Seton Catholic

SERVICE SUMMARY AND REPORT

The following page provides a summary of the services provided by the Pennsylvania Basic Education/Higher Education Science and Technology Partnership Programs. The summary service report shows that SIM/AS Mobile Educators visited and taught 3,396 classes. Equipment loans accompanied by prepared experiments were delivered to an additional 1,517 classrooms. Altogether, there were 96,235 student experiences using the resources provided by the SIM/AS programs. A student experience is defined as one class period, regardless of whether the class is a regular 45-minute period or a block-schedule class period that may be 90 minutes or longer.

Although all sites now have at least three years of experience and should be well-established in their areas, service levels for 2003-2004 were significantly reduced due to funding delays in the 2003-2004 fiscal year. Only Clarion University and Gettysburg College were able to maintain services at full operational levels during the full year. Gettysburg College was able to maintain uninterrupted service due to supplemental support of the program at this site by the Whitaker Foundation; this support will terminate during the 2004-2005 fiscal year. The other nine sites were not in continuous full service until after the education budget was signed in January, 2004. Westminster College and Gannon University provided partial services during the period from July 2003 to January 2004. Programs at Cedar Crest College, Drexel University, and Ursinus College were completely suspended during this period. Juniata College and University of Pittsburgh at Bradford initially operated full-service programs for several months but were forced eventually to totally suspend services as several months passed without a budget to guarantee reimbursement. Susquehanna University and Wilkes University started with partial services and eventually suspended services until the state education budget was passed.

Service records are not provided for individual sites because the differing funding levels, block schedules, and the varied challenges to educational equity at each location make such comparisons inappropriate. For example, rural sites serve areas with lower population densities and must meet the challenges of larger travel distances between schools while other sites meet the challenges of student crowding in large urban districts. All sites address, to varying degrees depending on the cumulative wealth of the area, the challenge of poorly-equipped science classrooms. Large variations in resources are encountered among schools found within each of the individual service areas. In addition, the operating budgets vary at every site. Budget information contained in this report reflects only funds appropriated to each site by the Commonwealth and awarded through the Pennsylvania Department of Education.

Overall, the sites would be able to serve more teachers and students if funding and contracts could be reliably anticipated. Due to historical delays in the receipt of funds, many of the higher education partners are unable to allow programs to begin operation until the annual passage and signing of the budget enables contracts to be renewed. It is becoming increasingly difficult for even the established sites to keep their outstanding and experienced mobile educators from looking for and accepting other sources of employment due to annual funding uncertainties.

**Basic Education/Higher Education Science and Technology Partnership
Service Summary, FY 2003-04
Consortium Summary**

Date program started: Earliest: July 1, 2003 / Latest: January 2004
Date money arrived Earliest: February 2004 / Latest: July 2004

OVERVIEW:

Total # teaching visits made*	<u>3,390</u>	# different schools served	<u>235</u>
Chemistry	<u>1,261</u>	# different teachers served	<u>449</u>
Biology	<u>958</u>	# different labs taught	<u>565</u>
Interdisciplinary/Other	<u>1,171</u>		
Total # equipment loans**	<u>1,517</u>	# students in accelerated or elective classes****	<u>19,083</u>
Total # student contacts***		Chemistry	<u>12,654</u>
Teaching visits	<u>45,855</u>	Biology	<u>2,620</u>
Equipment	<u>50,380</u>	Earth, Physical, Political, General Science	<u>1,143</u>

TEACHER SUPPORT:

Workshop/Seminars: Dates, comments

Other teacher support: Conference support, etc.: Dates, comments

STUDENT SUPPORT: Science Fairs, Special Projects: Dates, comments

OTHER SERVICE: Special Events, Presentations, etc.: Dates, comments

***Teaching visits:**

Count one visit for each separate class/period/new set of kids that you teach.

--Extended/double/block/lengthy classes still count as one class.

--If more than one lab is taught in any class, count the additional lab(s) as a separate/additional visit.

****Equipment loans:**

Count one loan for each separate class that uses the equipment, no matter how many days the teacher keeps it.

--An "item" of equipment is defined as whatever it takes to conduct a lab, whether it's 2 GCs, 6 microscopes, or 1 DNA "kit" containing a stirrer, dishes, etc.

*****Number of students:**

-- For teaching visits, exact number of kids in each separate class you teach.

--For equipment loans, exact number of kids in each class that uses the equipment, no matter many days the teacher keeps/uses it

******Advanced/Elective classes:**

Count any class at the junior or senior level

FINANCIAL SUMMARY AND REPORT

This summary financial report shows how the \$2,000,000 state appropriation for 2003-2004 was expended by the Pennsylvania Basic Education/Higher Education Science and Technology Partnership Programs. These funds were allocated to individual sites as shown in Table 1.

Table 1: Allocation of 2003-2004 Pennsylvania Basic Education/Higher Education Science and Technology Partnership Appropriation.

INSTITUTION	ALLOCATION
Cedar Crest College	\$80,000
Clarion University of Pennsylvania	\$160,000
Drexel University	\$160,000
Gannon University	\$160,000
Gettysburg College	\$160,000
Juniata College	\$320,000
Susquehanna University	\$320,000
University of Pittsburgh at Bradford	\$160,000
Ursinus College	\$160,000
Westminster College	\$160,000
Wilkes University	\$160,000
TOTAL	\$2,000,000

The value of services and resources not charged to these state award budgets and, therefore, not quantified by these reports should not be overlooked. The 10% overhead allowed by the state contracts falls significantly short of the cost of infrastructure provided by these higher education institutions. This infrastructure, which is provided at the cost of the participating higher education institutions, includes:

- office and lab space;
- access to advanced chemistry and biology research equipment not yet purchased by the outreach program;
- electric, gas, and water utilities;
- deionized/distilled water sources;
- chemical safety, storage and disposal services;
- shared prep area equipment including chemical hoods, autoclaves, and dishwashers;
- approved gas tank storage areas;
- van parking; and
- general clerical and accounting support.

It is this infrastructure and the access to higher education science and education faculty expertise that makes the Pennsylvania Basic Education/Higher Education Science and Technology Partnerships effective and cost efficient.

**Basic Education/Higher Education Science and Technology Partnership
Budget Summary, FY 2003-04
Consortium Summary**

Date program started: Earliest: July 1, 2003 / Latest: January 2004
Date money arrived: Earliest: February 2004 / Latest: July 2004

Administrative Salaries

Project Administration	\$ 175,611	
Director(s), academic year and summer		
Office Staff		
Secretarial/Project Management/Budget	\$ 97,712	

Educational Services Salaries

Mobile Educator: 1st subject area		
Classroom and professional development services	\$ 261,125	
Mobile Educator: 2nd subject area		
Classroom and professional development services	\$ 124,802	
Equipment Manager(s)		
Equipment delivery oversight and summer maintenance	\$ 53,354	
College Faculty: Subject Area/Education Advisors		
Content, Continuing Ed, and Assessment	\$ 23,895	
Area Teachers: Content Lead Teachers	\$ 5,000	
Student Assistants		
Assists in lab prep, materials, summer workshops	\$ 41,048	

<u>Total salaries and wages</u>	\$ 782,547
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<u>Fringe Benefits</u>	\$ 193,926
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<u>Consortium Support:</u>	\$ 3,035
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Operating Expenses: to provide Project services

Science vehicles	\$ 81,336	
Van Expense		
Vehicle fuel, upkeep	\$ 44,959	
Instructional Supplies		
Instruments; expendable materials	\$ 620,530	
Science instrument repair and maintenance	\$ 49,473	
Project Office expense		
Telephone, photocopies, postage	\$ 28,622	
Travel support		
Staff travel expense; Lead Teacher mileage	\$ 12,796	
Miscellaneous Expense		
Professional fees, licensing, etc.	\$ 10,483	\$ 848,200

Teacher Support: new technology and content

Teacher conference support	\$ 2,354	
Science Fair support	\$ 10,616	\$ 12,970
Summer Workshop (professional development)		
Planning and module development	\$ 7,592	
Attendee stipends	\$ 54,070	
Housing and meals	\$ 13,903	
Facilities, activities, materials expense	\$ 7,644	\$ 83,209

<u>Administrative Overhead</u>	\$ 80,551
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<u>Total ESTIMATED expenditures, FY 04</u>	\$ 2,004,437
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Paid through other sources, less unspent state award allocation	4,437
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	\$ 2,000,000
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THIRD PARTY ASSESSMENT

A third party, independent assessment of program impact on student learning continues under the direction of Dr. Paul Bell, Professor Emeritus of Science Education, Penn State University. The goal of the assessment is to detect growth in student learning by testing students in schools served by partnership programs at the beginning of science courses and at the end, and by comparing increases in performance in program schools to the increases in performance of students in control schools currently not served by the project.

All partnership faculty, both directors and mobile educators, devoted significant effort during the 2002-2003 academic year to developing assessment instruments, and these were finalized in late spring of 2003. The instruments were piloted by administration to high school students in one chemistry and one biology class in each higher education service area. Release of the final report of these assessments was significantly delayed due to problems encountered in scanning answer sheets and limited funding to support these efforts. The final report is now provided as Appendix A. **Importantly, this preliminary assessment shows a positive significant impact of the Pennsylvania Basic Ed/Higher Ed Partnership on student performance on tests of knowledge of biology and chemistry.**

Funding uncertainties and limitations during the 2003-2004 academic year prevented the continued implementation of the statewide assessment instruments that were piloted 2002-2003. However, the past year was used to refine and develop additional questions that may be used to refine these assessments. As part of this effort, each site began to design and implement assessments for individual laboratory activities. Five-question multiple choice quizzes were developed for individual laboratories and were used as pre-post assessments. These results are currently being compiled.

CITATIONS, AWARDS AND SPECIAL RECONGITION

COUNCIL OF STATE GOVERNMENTS 2003 INNOVATION AWARD

The Pennsylvania Basic Education/Higher Education Science and Technology Partnership consortium received national recognition as one of eight winners of the national 2003 Innovation Awards presented by the Council of State Governments (CSG). These awards are presented to recognize successful, cost-effective programs funded by state government. A presentation was made to the national judging panel in New York City on September 11, 2004. The award was received October 24, 2004 at the CSG national meeting in Pittsburgh, PA. More information on this prestigious award program is available at www.csq.org.

PENNSYLVANIA HOUSE OF REPRESENTATIVES' COMMISSION ON RURAL EDUCATION RECOMMENDATION

The Pennsylvania House of Representatives formed a 25-member bipartisan Pennsylvania Commission on Rural Education (CORE) with the passing of House Resolution 8 on February 11, 2003. The resolution established the CORE to “examine and study the status of rural education in this Commonwealth and make recommendation for enhancing the quality of education in rural communities.”

The final report of the commission was released June, 2004 and contains 32 final recommendations. Recommendation #11 of Section C: Meeting the Challenges of “*No Child Left Behind*” reads:

11. *The Commission recommends that the General Assembly should enact legislation establishing a basic education-higher education science technology partnership, such as the Science In Motion Program, in order to expose rural students to the world of science. (adopted 21-0)*

CONFERENCE ON K-12 SCIENCE OUTREACH FROM UNIVERSITY SCIENCE DEPARTMENTS: 2004

The Pennsylvania Basic Education/Higher Education Science and Technology Partnership Program was highlighted in an invited presentation at the 2004 Conference on K-12 Outreach from University Science Departments sponsored by the Burrows Wellcome Fund at North Carolina State University. The presentation is published in the conference proceedings at www.science-house.org under the title, “What Is Good Science Education, and Whose Job Is It to Support It?”

TCCP 2004 TECHNOLOGY EDUCATOR OF THE YEAR

Dr. Donald Mitchell, founder of Science In Motion, was named the 2004 Technology Educator of the Year for Pennsylvania by the Technology Council of Central Pennsylvania. Dr. Mitchell was selected to recognize the contributions that Science In Motion programs have made to facilitating and improving technology education for Pennsylvania students served by the program. More information on this award is available at www.tccp.org.

CONSORTIUM ACTIVITIES

2003 PSTA CONFERENCE

Members of the Pennsylvania Basic Education/Higher Education Science and Technology Partnership Program once again contributed a number of workshops to the December 2003 annual meeting of the Pennsylvania Science Teachers Association (PSTA) in Hershey, PA. Dr. Bruce Smith chaired a general session featuring an overview of the activities of the consortium. In addition, mobile educators from several sites conducted individual hands-on workshops for teachers who attended the meeting as PSTA members.

SHARING WORKSHOP

Mobile Educators from the eleven higher education sites established the first sharing workshop in June of 2003. The participating mobile educators rated the workshop as highly valuable for sharing laboratory activities among the sites of the statewide consortium. The second annual workshop is now planned for September 8 and 9, 2004.

WEBSITE

The Basic Education/Higher Education Science and Technology Partnership consortium continues to maintain the www.scienceinmotion.org website domain. This homepage provides links to consortium member websites as well as to similar programs and resources around the country. This year, the portal page was updated to provide a more easily navigable format with a state logo.

PENDING PENNSYLVANIA LEGISLATION

Appendix B of this report provides copies of the following bills that represent pending Pennsylvania legislative initiatives supporting the permanent establishment and implementation of the Pennsylvania Basic Education/Higher Education Partnership Program:

- HB1585 – A House appropriation bill providing \$2,000,000 for SIM/AS services in the state
- HB1586 – A House appropriation bill providing \$2,000,000 for SIM/AS services in the state
- HB1618 – A House education bill providing \$400,000 grants for services in the state
- HB1642 – A House education bill providing \$400,000 grants/institution services in the state
- SB83 – A Senate education bill providing \$400,000 grants/institution services in the state

APPENDIX A

PA BASIC ED / HIGHER ED SCIENCE & TECHNOLOGY PARTNERSHIP 2002-2003 Program Assessment

EXECUTIVE SUMMARY

Paul E. Bell
June 2004

ASSESSMENT PLANNING

Site directors and mobile educators from the Pennsylvania Basic Ed / Higher Education Science and Technology Partnerships (*Science In Motion* and *Advancing Science*) met in the spring of 2002 to plan a statewide program assessment under the direction of an independent evaluator, Paul Bell. The group met several times to develop separate biology and chemistry assessment instruments consisting of 40 multiple choice questions. Both assessment instruments were ready for pilot testing during the spring of the 2002-2003 academic year.

Piloting of the chemistry and biology assessments was planned with the following expectations and limitations:

- the first administration of the assessment would be used primarily for item analysis to evaluate the quality and validity of the questions in each instrument,
- variation in the types and frequency of laboratory activity usage among the eleven program sites was expected to underestimate student performance at individual sites and thereby underestimate average student performance among program sites statewide,
- varying lengths of program longevity among the eleven sites in the Commonwealth as well as delayed annual startups due to discontinuous funding was expected to minimize the overall differences in performance between students in schools served by the eleven program sites and students in schools not served, and
- no pre-test data would be available.

RESULTS

Student Performance

Despite the limitations of the test instrument and conditions for program implementation during the 2002 – 2003 academic year, students in program schools (schools served by *Science In Motion* or *Advancing Science*) were able to correctly answer an average of 20% more questions when compared to students in schools not having access to the program. These results are summarized in Figure 1. The differences in performance were significant at the 95% confidence level. In biology, the average numbers of questions answered correctly were 12.8 in control schools and 15.3 in program schools. In chemistry, the average numbers of questions answered correctly were 14.1 in control schools and 17.0 in program schools.

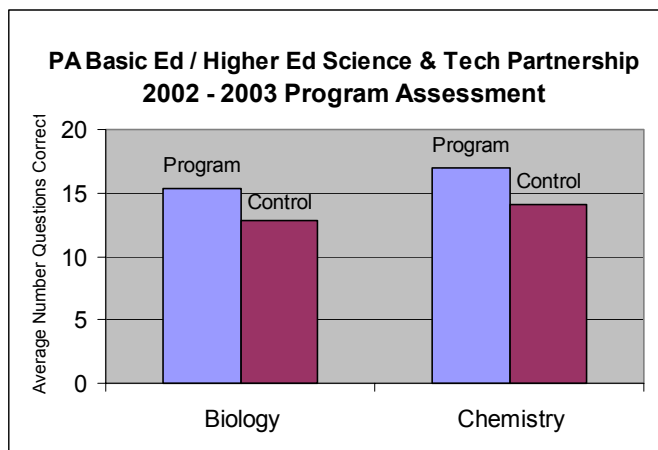


Figure 1: Program Schools (served by either *Science In Motion* or *Advancing Science*) out-performed Control Schools (outside the program service areas) by 20%. These differences are significant at the 95% confidence level.

Instrument Evaluation

The 40 individual questions included in the chemistry and biology assessment instruments were evaluated. In the biology instrument, none of the items were too easy; five were too difficult, and eleven items had some problem in discriminating between high and low scoring students as determined by low correlations with the total test. In the chemistry instrument, none of the items were too easy; four were too difficult, and eleven had some problem in discriminating between high and low scoring students as determined by low correlations with the total test. Some of these problematic items may still be legitimate to use in individual quizzes or future tests, but only after they are examined for agreement with the program's high-tech objectives, correct key choices, confusing stems (such as negative stems), and semantic problems with distracter choices. Changes in laboratory usage across sites may also increase the rating of certain items in the future.

Conclusions

1. These data show that both the biology and chemistry tests were sensitive to *Science In Motion/Advancing Science* instruction and that these program classes performed significantly (at least at the 0.95 level) better than the control classes. This is a remarkable result in that there were so many differences among classes across the eleven sites in availability of equipment, actual class time for use of equipment, the focus of lab objectives and individual teaching styles. Therefore, it may be claimed that *Science In Motion* and *Advancing Science* lab instruction is a powerful approach for teaching lab-based problem solving and inquiry.
2. Because the mean scores failed to come close to the mastery level, the concepts examined by the tests should accommodate considerably more intensive instruction in the areas covered. The test items probably would be sensitive to instruction of students in second year or advance placement courses.
3. Because the classes that were tested represented such a variety of district wealth, student sophistication, and school size, it may be claimed that the *Science In Motion/Advancing Science* approach might be a powerful equalizer for students lacking access to district owned high tech science laboratory equipment.

STATISTICAL ANALYSIS

Biology

The analysis of biology test data that compare the *Science In Motion/Advancing Science* instruction classes with the control classes are shown in Tables 1 and 2. Table 3 shows the internal reliability of the test.

Table 1: Spring 2003 SIM v. Control Biology Means

Group Statistics

Group	N	Mean	Standard Deviation	Standard Error of the Mean
SIM	166	15.2892	5.15935	0.40044
Control	126	12.7937	4.10330	0.36555

Table 2: Independent Samples Test

	Levene's Test for Equality of Variances	
	F	Significance
Equal Variances Assumed	8.232	0.004
Equal Variances Not Assumed		

Table 3: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based On Standardized Items	Number of Items
0.657	0.637	40

Chemistry

The revised analysis of chemistry test data that compare the *Science In Motion/Advancing Science* instruction classes with the control classes are shown in Tables 4 and 5. Table 6 shows the internal reliability of the test.

Table 4: Spring 2003 SIM v. Control Chemistry Means

Group Statistics

Group	N	Mean	Standard Deviation	Standard Error Of the Mean
SIM	223	17.0359	5.17431	0.34650
Control	134	14.0746	4.22066	0.36461

Table 5: Independent Samples Test

	Levene's Test for Equality of Variances	
	F	Significance
Equal Variances Assumed	3.809	0.052
Equal Variances Not Assumed		

Table 6: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based On Standardized Items	Number of Items
0.679	0.661	40

APPENDIX B

PENDING PENNSYLVANIA LEGISLATION

This appendix contains copies of the following bills:

- HB1585 – A House appropriation bill providing \$2,000,000 for SIM/AS services in the state
- HB1586 – A House appropriation bill providing \$2,000,000 for SIM/AS services in the state
- HB1618 – A House education bill providing \$400,000 grants for services in the state
- HB1642 – A House education bill providing \$400,000 grants/institution services in the state
- SB83 – A Senate education bill providing \$400,000 grants/institution services in the state

THE GENERAL ASSEMBLY OF PENNSYLVANIA

HOUSE BILL

No. 1585 Session of
2003

INTRODUCED BY SATHER, PHILLIPS, COY, BLAUM, CURRY, FABRIZIO,
FAIRCHILD, FICHTER, FLEAGLE, GEIST, GODSHALL, HARRIS, HERMAN,
HESS, LEACH, MARKOSEK, PISTELLA, REICHLEY, RUBLEY, SAINATO,
SOLOBAY, STERN, T. STEVENSON, SURRA, TIGUE, WALKO, BELARDI,
SEMMELE, WILT AND GORDNER, JUNE 11, 2003

REFERRED TO COMMITTEE ON APPROPRIATIONS, JUNE 11, 2003

AN ACT

1 Making an appropriation to the Department of Education for the
2 support of basic education-higher education science
3 partnerships for the fiscal year 2003-2004.

4 The General Assembly of the Commonwealth of Pennsylvania
5 hereby enacts as follows:

6 Section 1. Appropriation.

7 The following amount is appropriated to the Department of
8 Education for fiscal year 2003-2004:

9 For support of basic education-higher education science
10 partnerships.

11 State appropriation.....2,000,000

12 Section 2. Construction.

13 This act shall be construed consistent with the act of March
14 20, 2003 (P.L. , No.1A), known as the General Appropriation
15 Act of 2003, and any provision in that act that applies to
16 appropriations to the Department of Education shall apply to
17 this act.

1 Section 3. Effective date.

2 This act shall take effect July 1, 2003, or immediately,

3 whichever is later.

THE GENERAL ASSEMBLY OF PENNSYLVANIA

HOUSE BILL

No. 1586 Session of
2003

INTRODUCED BY SATHER, STERN, FLEAGLE, COY AND PHILLIPS,
JUNE 11, 2003

REFERRED TO COMMITTEE ON APPROPRIATIONS, JUNE 11, 2003

AN ACT

1 Amending the act of March 20, 2003 (P.L., No.1A), entitled "An
2 act to provide from the General Fund for the expenses of the
3 Executive, Legislative and Judicial Departments of the
4 Commonwealth, the public debt and for the public schools for
5 the fiscal year July 1, 2003, to June 30, 2004, for certain
6 institutions and organizations, and for the payment of bills
7 incurred and remaining unpaid at the close of the fiscal year
8 ending June 30, 2003; to provide appropriations from the
9 State Lottery Fund, the Energy Conservation and Assistance
10 Fund, the Hazardous Material Response Fund, The State Stores
11 Fund, the Milk Marketing Fund, the Home Investment Trust
12 Fund, the Emergency Medical Services Operating Fund, the
13 Tuition Payment Fund, the Banking Department Fund, the
14 Firearm Records Check Fund, the Ben Franklin Technology
15 Development Authority Fund and the Tobacco Settlement Fund to
16 the Executive Department; to provide appropriations from the
17 Judicial Computer System Augmentation Account to the Judicial
18 Department for the fiscal year July 1, 2003, to June 30,
19 2004; to provide appropriations from the Motor License Fund
20 for the fiscal year July 1, 2003, to June 30, 2004, for the
21 proper operation of the several departments of the
22 Commonwealth and the Pennsylvania State Police authorized to
23 spend Motor License Fund moneys; to provide for the
24 appropriation of Federal funds to the Executive Department of
25 the Commonwealth and for the establishment of restricted
26 receipt accounts for the fiscal year July 1, 2003, to June
27 30, 2004, and for the payment of bills remaining unpaid at
28 the close of the fiscal year ending June 30, 2003; to provide
29 for the additional appropriation of Federal and State funds
30 from the General Fund, for the Executive Department of the
31 Commonwealth for the fiscal year July 1, 2002, to June 30,
32 2003, and for the payment of bills incurred and remaining
33 unpaid at the close of the fiscal year ending June 30, 2002;

1 and making a repeal," adding a State appropriation for
2 support of basic education-higher education science
3 partnerships in the Department of Education.

4 The General Assembly of the Commonwealth of Pennsylvania
5 hereby enacts as follows:

6 Section 1. Section 212 of the act of March 20, 2003 (P.L.,
7 No.1A), known as the General Appropriation Act of 2003, is
8 amended by adding a State appropriation to read:

9 Section 212. Department of
10 Education.--The following amounts are
11 appropriated to the Department of

12 Education:	Federal	State
13 * * *		
14 For the technology initiative.		
15 State appropriation.....		1,290,000
16 <u>For support of basic education -</u>		
17 <u>higher education science partnerships.</u>		
18 <u>State appropriation.....</u>		<u>2,000,000</u>
19 * * *		

20 Section 2. This act shall take effect July 1, 2003, or
21 immediately, whichever is later.

THE GENERAL ASSEMBLY OF PENNSYLVANIA

HOUSE BILL

No. 1618 Session of
2003

INTRODUCED BY McILHATTAN, CRAHALLA, HARRIS, READSHAW, FICHTER,
CAPPELLI, T. STEVENSON, FAIRCHILD, GORDNER, BAKER, BELFANTI,
HUTCHINSON, WATSON, BELARDI, CURRY, RUBLEY, PICKETT, WILT,
O'NEILL, CAUSER, CREIGHTON, REICHLLEY AND YOUNGBLOOD,
JUNE 16, 2003

REFERRED TO COMMITTEE ON EDUCATION, JUNE 16, 2003

AN ACT

1 Establishing the Science Technology Partnership Program; and
2 providing for State grants.

3 The General Assembly of the Commonwealth of Pennsylvania
4 hereby enacts as follows:

5 Section 1. Short title.

6 This act shall be known and may be cited as the Science
7 Technology Partnership Act.

8 Section 2. Definitions.

9 The following words and phrases when used in this act shall
10 have the meanings given to them in this section unless the
11 context clearly indicates otherwise:

12 "Department." The Department of Education of the
13 Commonwealth.

14 "Higher education institution." Any public or private two-
15 year or four-year or higher postsecondary institution in this
16 Commonwealth that has been accredited at the college level by an

1 accrediting agency recognized by the Federal Secretary of
2 Education.

3 "Partnership." A science technology partnership established
4 under section 4.

5 "Program." The Science Technology Partnership Program
6 established in section 3.

7 "Public school." Any school owned or operated by a public
8 school district established under the act of March 10, 1949
9 (P.L.30, No.14), known as the Public School Code of 1949,
10 including any school established pursuant to Article XVII-A of
11 the Public School Code of 1949.

12 "Scientific or technical equipment." Technical or electronic
13 equipment used in teaching science courses, including laboratory
14 equipment. The equipment may include equipment that is not
15 routinely used in the teaching of science but that is commonly
16 used in the workplace and the fields of health, environment,
17 scientific research, biology, chemistry, geology or other earth
18 sciences, physics or any other scientific field.

19 "Secretary." The Secretary of Education of the Commonwealth.
20 Section 3. Science Technology Partnership Program.

21 (a) Establishment.--The Science Technology Partnership
22 Program is hereby established. The purpose of the program shall
23 be to improve science education in public schools and school
24 districts that are members of science technology partnerships
25 by:

26 (1) Making scientific or technical equipment available
27 to students.

28 (2) Augmenting the science curriculum.

29 (3) Providing additional professional development
30 opportunities to educators in the sciences.

1 (b) Administration.--The department shall administer a grant
2 program that awards grants to qualified higher education
3 institutions that are members of the science technology
4 partnerships.

5 (c) Criteria for funding.--To implement the program, the
6 department shall request proposals from higher education
7 institutions that are members of science technology partnerships
8 and may award grants to such institutions that meet all of the
9 following criteria:

10 (1) Have established a partnership as defined in section
11 4 and provided a copy of the partnership agreement to the
12 department.

13 (2) Demonstrate how the partnership will make science
14 technology equipment available to students enrolled in public
15 schools that are partnership members.

16 (3) Demonstrate how the partnership will augment the
17 science curriculum of public schools that are partnership
18 members.

19 (4) Demonstrate how the partnership will provide
20 additional professional development opportunities to
21 educators employed by public schools that are partnership
22 members.

23 (5) Have adopted a proposed budget describing the
24 scientific and technical equipment that will be purchased or
25 leased with grant funds.

26 (d) Grant awards.--The department shall award grants in
27 amounts not to exceed \$400,000 for each qualified applicant
28 higher education institution. Grants shall be used for the
29 purchase or lease of scientific or technical equipment and for
30 the development of programs of instruction for members of a

1 partnership.

2 Section 4. Science technology partnerships.

3 (a) Establishment.--A higher education institution may form
4 a partnership with three or more public schools or school
5 districts.

6 (b) Partnership agreement.--The higher education institution
7 and the public schools or school districts shall enter into a
8 written agreement defining the responsibilities of the
9 partnership members. The agreement shall include all of the
10 following:

11 (1) The responsibilities of the higher education
12 institution in providing services to each partnership member.

13 (2) The responsibilities of the public schools or school
14 districts in coordinating with the higher education
15 institution.

16 (3) A description of the scientific or technical
17 equipment that shall be provided to each partnership member.

18 (4) A description of the program of instruction that
19 will be provided to each partnership member by the higher
20 education institution.

21 (5) The courses of science instruction and grade levels
22 that will be augmented by scientific or technical equipment
23 through the partnership and how scientific or technical
24 equipment will be used to augment such courses of
25 instruction.

26 (6) The manner in which access to scientific or
27 technical equipment will be provided to students and
28 teachers.

29 (7) The professional development activities that will be
30 provided to science teachers employed by partnership members.

1 (c) Forward to department.--To be eligible to participate in
2 the program, a partnership must forward a certified copy of its
3 partnership agreement to the department.

4 Section 5. Powers and duties of department.

5 The department shall promulgate rules, regulations and
6 procedures necessary to implement the program.

7 Section 6. Annual report.

8 The secretary shall annually submit a report on the program
9 to the Governor, the chairman and minority chairman of the
10 Education Committee of the Senate and the chairman and minority
11 chairman of the Education Committee of the House of
12 Representatives. The report shall include all of the following
13 information:

14 (1) A description of the types of the partnerships
15 created.

16 (2) The number of higher education institutions, public
17 schools and public school districts participating in the
18 program as members of the partnerships.

19 (3) The number of public school students participating
20 in the program.

21 (4) The dollar amount of grants awarded to each higher
22 education institution and a summary of the institution's
23 expenditures on services related to the partnership.

24 (5) An assessment of the impact of the program on the
25 scientific knowledge of students participating in the
26 program.

27 Section 7. Effective date.

28 This act shall take effect immediately.

THE GENERAL ASSEMBLY OF PENNSYLVANIA

HOUSE BILL

No. 1642 Session of
2003

INTRODUCED BY STAIRS, BROWNE, CLYMER, CREIGHTON, FLEAGLE,
HERMAN, R. MILLER, O'NEILL, T. STEVENSON, GRUCELA, KIRKLAND,
SHANER, SURRA, YUDICHAK, BAKER, BARD, BEBKO-JONES, BELARDI,
BELFANTI, CAPPELLI, CAUSER, COSTA, CRAHALLA, FAIRCHILD,
FICHTER, GEIST, GEORGE, GERGELY, GOODMAN, GORDNER, HARHAI,
HESS, HORSEY, HUTCHINSON, JAMES, KELLER, KOTIK, LAUGHLIN,
LEACH, LEDERER, LESCOVITZ, MARKOSEK, McNAUGHTON, MELIO,
S. MILLER, NAILOR, PHILLIPS, READSHAW, REICHLEY, ROSS,
RUBLEY, SAINATO, SATHER, SCHRODER, SEMMEL, B. SMITH, SOLOBAY,
STERN, WILT, WOJNAROSKI AND YOUNGBLOOD, JUNE 17, 2003

REFERRED TO COMMITTEE ON EDUCATION, JUNE 17, 2003

AN ACT

1 Establishing the Science Technology Partnership Program; and
2 providing for State grants.

3 The General Assembly of the Commonwealth of Pennsylvania
4 hereby enacts as follows:

5 Section 1. Short title.

6 This act shall be known and may be cited as the Science
7 Technology Partnership Act.

8 Section 2. Definitions.

9 The following words and phrases when used in this act shall
10 have the meanings given to them in this section unless the
11 context clearly indicates otherwise:

12 "Department." The Department of Education of the
13 Commonwealth.

14 "Higher education institution." Any public or private two-

1 year or four-year or higher postsecondary institution in this
2 Commonwealth that has been accredited at the college level by an
3 accrediting agency recognized by the Federal Secretary of
4 Education.

5 "Partnership." A science technology partnership established
6 under section 4.

7 "Program." The Science Technology Partnership Program
8 established in section 3.

9 "Public school." Any school owned or operated by a public
10 school district established under the act of March 10, 1949
11 (P.L.30, No.14), known as the Public School Code of 1949,
12 including any school established pursuant to Article XVII-A of
13 the Public School Code of 1949.

14 "Scientific or technical equipment." Technical or electronic
15 equipment used in teaching science courses, including laboratory
16 equipment. The equipment may include equipment that is not
17 routinely used in the teaching of science but that is commonly
18 used in the workplace and the fields of health, environment,
19 scientific research, biology, chemistry, geology or other earth
20 sciences, physics or any other scientific field.

21 "Secretary." The Secretary of Education of the Commonwealth.
22 Section 3. Science Technology Partnership Program.

23 (a) Establishment.--The Science Technology Partnership
24 Program is hereby established. The purpose of the program shall
25 be to improve science education in public schools and school
26 districts that are members of science technology partnerships
27 by:

28 (1) Making scientific or technical equipment available
29 to students.

30 (2) Augmenting the science curriculum.

1 (3) Providing additional professional development
2 opportunities to educators in the sciences.

3 (b) Administration.--The department shall administer a grant
4 program that awards grants to qualified higher education
5 institutions that are members of the science technology
6 partnerships.

7 (c) Criteria for funding.--To implement the program, the
8 department shall request proposals from higher education
9 institutions that are members of science technology partnerships
10 and may award grants to such institutions that meet all of the
11 following criteria:

12 (1) Have established a partnership as defined in section
13 4 and provided a copy of the partnership agreement to the
14 department.

15 (2) Demonstrate how the partnership will make science
16 technology equipment available to students enrolled in public
17 schools that are partnership members.

18 (3) Demonstrate how the partnership will augment the
19 science curriculum of public schools that are partnership
20 members.

21 (4) Demonstrate how the partnership will provide
22 additional professional development opportunities to
23 educators employed by public schools that are partnership
24 members.

25 (5) Have adopted a proposed budget describing the
26 scientific and technical equipment that will be purchased or
27 leased with grant funds.

28 (d) Grant awards.--The department shall award grants in
29 amounts not to exceed \$400,000 for each qualified applicant
30 higher education institution. Grants shall be used for the

1 purchase or lease of scientific or technical equipment and for
2 the development of programs of instruction for members of a
3 partnership.

4 Section 4. Science technology partnerships.

5 (a) Establishment.--A higher education institution may form
6 a partnership with three or more public schools or school
7 districts.

8 (b) Partnership agreement.--The higher education institution
9 and the public schools or school districts shall enter into a
10 written agreement defining the responsibilities of the
11 partnership members. The agreement shall include all of the
12 following:

13 (1) The responsibilities of the higher education
14 institution in providing services to each partnership member.

15 (2) The responsibilities of the public schools or school
16 districts in coordinating with the higher education
17 institution.

18 (3) A description of the scientific or technical
19 equipment that shall be provided to each partnership member.

20 (4) A description of the program of instruction that
21 will be provided to each partnership member by the higher
22 education institution.

23 (5) The courses of science instruction and grade levels
24 that will be augmented by scientific or technical equipment
25 through the partnership and how scientific or technical
26 equipment will be used to augment such courses of
27 instruction.

28 (6) The manner in which access to scientific or
29 technical equipment will be provided to students and
30 teachers.

1 (7) The professional development activities that will be
2 provided to science teachers employed by partnership members.

3 (c) Forward to department.--To be eligible to participate in
4 the program, a partnership must forward a certified copy of its
5 partnership agreement to the department.

6 Section 5. Powers and duties of department.

7 The department shall promulgate rules, regulations and
8 procedures necessary to implement the program.

9 Section 6. Annual report.

10 The secretary shall annually submit a report on the program
11 to the Governor, the chairman and minority chairman of the
12 Education Committee of the Senate and the chairman and minority
13 chairman of the Education Committee of the House of
14 Representatives. The report shall include all of the following
15 information:

16 (1) A description of the types of the partnerships
17 created.

18 (2) The number of higher education institutions, public
19 schools and public school districts participating in the
20 program as members of the partnerships.

21 (3) The number of public school students participating
22 in the program.

23 (4) The dollar amount of grants awarded to each higher
24 education institution and a summary of the institution's
25 expenditures on services related to the partnership.

26 (5) An assessment of the impact of the program on the
27 scientific knowledge of students participating in the
28 program.

29 Section 7. Effective date.

30 This act shall take effect immediately.

THE GENERAL ASSEMBLY OF PENNSYLVANIA

SENATE BILL

No. 83

Session of
2003

INTRODUCED BY MOWERY, CORMAN, LOGAN, RAFFERTY, WOZNIAK, ROBBINS,
TARTAGLIONE, COSTA, KITCHEN, LAVALLE, ORIE, PICCOLA,
SCHWARTZ, TOMLINSON, EARLL, C. WILLIAMS AND RHOADES,
JANUARY 28, 2003

REFERRED TO EDUCATION, JANUARY 28, 2003

AN ACT

1 Establishing the Science Technology Partnership Program; and
2 providing for State grants.

3 The General Assembly of the Commonwealth of Pennsylvania
4 hereby enacts as follows:

5 Section 1. Short title.

6 This act shall be known and may be cited as the Science
7 Technology Partnership Act.

8 Section 2. Definitions.

9 The following words and phrases when used in this act shall
10 have the meanings given to them in this section unless the
11 context clearly indicates otherwise:

12 "Department." The Department of Education of the
13 Commonwealth.

14 "Higher education institution." Any public or private two-
15 year or four-year or higher postsecondary institution in this
16 Commonwealth that has been accredited at the college level by an
17 accrediting agency recognized by the Federal Secretary of

1 Education.

2 "Partnership." A science technology partnership established
3 under section 4.

4 "Program." The Science Technology Partnership Program
5 established in section 3.

6 "Public school." Any school owned or operated by a public
7 school district established under the act of March 10, 1949
8 (P.L.30, No.14), known as the Public School Code of 1949,
9 including any school established pursuant to Article XVII-A of
10 the Public School Code of 1949.

11 "Scientific or technical equipment." Technical or electronic
12 equipment used in teaching science courses, including laboratory
13 equipment. The equipment may include equipment that is not
14 routinely used in the teaching of science but that is commonly
15 used in the workplace and the fields of health, environment,
16 scientific research, biology, chemistry, geology or other earth
17 sciences, physics or any other scientific field.

18 "Secretary." The Secretary of Education of the Commonwealth.
19 Section 3. Science Technology Partnership Program.

20 (a) Establishment.--The Science Technology Partnership
21 Program is hereby established. The purpose of the program shall
22 be to improve science education in public schools and school
23 districts that are members of science technology partnerships
24 by:

25 (1) Making scientific or technical equipment available
26 to students.

27 (2) Augmenting the science curriculum.

28 (3) Providing additional professional development
29 opportunities to educators in the sciences.

30 (b) Administration.--The department shall administer a grant

1 program that awards grants to qualified higher education
2 institutions that are members of the science technology
3 partnerships.

4 (c) Criteria for funding.--To implement the program, the
5 department shall request proposals from higher education
6 institutions that are members of science technology partnerships
7 and may award grants to such institutions that meet all of the
8 following criteria:

9 (1) Have established a partnership as defined in section
10 4 and provided a copy of the partnership agreement to the
11 department.

12 (2) Demonstrate how the partnership will make science
13 technology equipment available to students enrolled in public
14 schools that are partnership members.

15 (3) Demonstrate how the partnership will augment the
16 science curriculum of public schools that are partnership
17 members.

18 (4) Demonstrate how the partnership will provide
19 additional professional development opportunities to
20 educators employed by public schools that are partnership
21 members.

22 (5) Have adopted a proposed budget describing the
23 scientific and technical equipment that will be purchased or
24 leased with grant funds.

25 (d) Grant awards.--The department shall award grants in
26 amounts not to exceed \$400,000 for each qualified applicant
27 higher education institution. Grants shall be used for the
28 purchase or lease of scientific or technical equipment and for
29 the development of programs of instruction for members of a
30 partnership.

1 Section 4. Science technology partnerships.

2 (a) Establishment.--A higher education institution may form
3 a partnership with three or more public schools or school
4 districts.

5 (b) Partnership agreement.--The higher education institution
6 and the public schools or school districts shall enter into a
7 written agreement defining the responsibilities of the
8 partnership members. The agreement shall include all of the
9 following:

10 (1) The responsibilities of the higher education
11 institution in providing services to each partnership member.

12 (2) The responsibilities of the public schools or school
13 districts in coordinating with the higher education
14 institution.

15 (3) A description of the scientific or technical
16 equipment that shall be provided to each partnership member.

17 (4) A description of the program of instruction that
18 will be provided to each partnership member by the higher
19 education institution.

20 (5) The courses of science instruction and grade levels
21 that will be augmented by scientific or technical equipment
22 through the partnership and how scientific or technical
23 equipment will be used to augment such courses of
24 instruction.

25 (6) The manner in which access to scientific or
26 technical equipment will be provided to students and
27 teachers.

28 (7) The professional development activities that will be
29 provided to science teachers employed by partnership members.

30 (c) Forward to department.--To be eligible to participate in

1 the program, a partnership must forward a certified copy of its
2 partnership agreement to the department.

3 Section 5. Powers and duties of department.

4 The department shall promulgate rules, regulations and
5 procedures necessary to implement the program.

6 Section 6. Annual report.

7 The secretary shall annually submit a report on the program
8 to the Governor, the chairman and minority chairman of the
9 Education Committee of the Senate and the chairman and minority
10 chairman of the Education Committee of the House of
11 Representatives. The report shall include all of the following
12 information:

13 (1) A description of the types of the partnerships
14 created.

15 (2) The number of higher education institutions, public
16 schools and public school districts participating in the
17 program as members of the partnerships.

18 (3) The number of public school students participating
19 in the program.

20 (4) The dollar amount of grants awarded to each higher
21 education institution and a summary of the institution's
22 expenditures on services related to the partnership.

23 (5) An assessment of the impact of the program on the
24 scientific knowledge of students participating in the
25 program.

26 Section 7. Effective date.

27 This act shall take effect immediately.

**Pennsylvania Basic Education/Higher Education
Science and Technology Partnerships**

2003-2004 Regional Service Providers:

Cedar Crest College
Clarion University of Pennsylvania
Drexel University
Gannon University
Gettysburg College
Juniata College
Susquehanna University
University of Pittsburgh at Bradford
Ursinus College
Westminster College
Wilkes University