

U.S. Department of Education

Washington, D.C. 20202-5335



**APPLICATION FOR GRANTS
UNDER THE**

**WOMEN'S EDUCATIONAL EQUITY ACT PROGRAM
CFDA # 84.083A
00831070086**

Closing Date: FEB 23, 2009

#86

SUPPLEMENTAL INFORMATION
REQUIRED FOR
DEPARTMENT OF EDUCATION GRANTS

1. Project Director:

Prefix:	* First Name:	Middle Name:	* Last Name:	Suffix:
Dr.	Julia		Stewart	

Address:

* Street1:	1501 Bedford Avenue
Street2:	
* City:	Pittsburgh
County:	Allegheny
* State:	PA: Pennsylvania
* Zip Code:	15218
* Country:	USA: UNITED STATES

* Phone Number (give area code) Fax Number (give area code)

4126228090	
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Email Address:

jstewart3@pghbne.net

2. Applicant Experience:

Novice Applicant Yes No Not applicable to this program

3. Human Subjects Research

Are any research activities involving human subjects planned at any time during the proposed project Period?

Yes No

Are ALL the research activities proposed designated to be exempt from the regulations?

Yes Provide Exemption(s) #:

No Provide Assurance #, if available:

Please attach an explanation Narrative:

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Add Attachment

Delete Attachment

View Attachment

**U.S. DEPARTMENT OF EDUCATION
BUDGET INFORMATION
NON-CONSTRUCTION PROGRAMS**

OMB Control Number: 1890-0018

Expiration Date: 02/28/2011

* Name of Institution/Organization

School District of Pittsburgh

Applicants requesting funding for only one year should complete the column under "Project Year 1." Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.

**SECTION A - BUDGET SUMMARY
U.S. DEPARTMENT OF EDUCATION FUNDS**

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Project Year 5 (e)	Total (f)
1. Personnel	4,198.00	7,296.00	4,558.00	4,558.00		20,610.00
2. Fringe Benefits	463.00	805.00	503.00	503.00		2,274.00
3. Travel	3,100.00	13,375.00	18,975.00	29,625.00		65,075.00
4. Equipment	0.00	0.00	0.00	0.00		0.00
5. Supplies	930.00	2,830.00	2,830.00	2,030.00		8,620.00
6. Contractual	150,310.00	145,276.00	150,690.00	167,833.00		614,109.00
7. Construction	0.00	0.00	0.00	0.00		0.00
8. Other	7,300.00	9,300.00	11,600.00	14,100.00		42,300.00
9. Total Direct Costs (lines 1-8)	166,301.00	178,882.00	189,156.00	218,649.00		752,988.00
10. Indirect Costs*	4,324.00	4,651.00	4,918.00	5,685.00		19,578.00
11. Training Stipends	0.00	0.00	0.00	0.00		0.00
12. Total Costs (lines 9-11)	170,625.00	183,533.00	194,074.00	224,334.00		772,566.00

***Indirect Cost Information (To Be Completed by Your Business Office):**

If you are requesting reimbursement for indirect costs on line 10, please answer the following questions:

(1) Do you have an Indirect Cost Rate Agreement approved by the Federal government? Yes No

(2) If yes, please provide the following information:

* Period Covered by the Indirect Cost Rate Agreement: From: 07/01/2008 To: 06/30/2009 (mm/dd/yyyy)

* Approving Federal agency: ED Other (please specify):

(3) For Restricted Rate Programs (check one) -- Are you using a restricted indirect cost rate that:

Is included in your approved Indirect Cost Rate Agreement? or, Complies with 34 CFR 76.564(c)(2)?

* Name of Institution/Organization School District of Pittsburgh	Applicants requesting funding for only one year should complete the column under "Project Year 1." Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.
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**SECTION B - BUDGET SUMMARY
NON-FEDERAL FUNDS**

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Project Year 5 (e)	Total (f)
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(b)(4)						
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SECTION C - BUDGET NARRATIVE (see instructions)

Gaining Equity through Mathematics (GEM) Achievement

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ABSTRACT

Project Title: Gaining Equity through Mathematics (GEM) Achievement

Project Contact: Dr. Julia Stewart, (412)338-8090, jstewart3@pghboe.net

Address: School District of Pittsburgh, 341 S. Bellefield Avenue, Pittsburgh, PA 15213

Population Served: 348 Career and Technical Education students over a 4-year period

The School District of Pittsburgh, in partnership with Smart Futures and the Carnegie Science Center's Girls, Math & Science Partnership (GMSP), will develop and implement a four-year intensive program entitled Gaining Equity through Mathematics (GEM) Achievement that follows participating female students from grades 9-12 as they complete one of seven math-rich CTE programs. With the overarching goal of affording female students equal opportunities for success in high-priority occupations (jobs in demand by employers at the state and regional levels) that will be among the highest-paying career pathways of the future, our specific GEM goals are: **Goal 1:** To attract greater numbers of female students to targeted mathematics-rich CTE programs that prepare them to enter non-traditional occupations. **Goal 2:** To retain a higher proportion of female students in mathematics-rich CTE programs that prepare them to enter non-traditional occupations. **Goal 3:** To increase the mathematics achievement of female students in the targeted mathematics-rich CTE programs. **Below are the corresponding objectives to our goals:**

Obj. 1: Develop a marketing plan that is designed to recruit female students to enter one of seven targeted mathematics-rich CTE programs. (Goal 1)

Obj. 2: Launch a marketing campaign to recruit female students to enter one of seven targeted math-rich CTE programs. (Goal 1)

Obj. 3: Provide students enrolled in the GEM Achievement program with a mentor for each of the four years of their high school careers. (Goals 2 and 3)

Obj. 4: Provide GEM students with an opportunity to participate in the Girls, Math & Science Partnership's (GMSP) programs that engage them in math and science immersion activities utilizing high-end technology, group-work and hands-on exploration. (Goals 2 and 3)

Obj. 5: Provide each GEM student with her own e-portfolio to use as a tool to measure and demonstrate her growth in application of PA's Academic Standards for Career Education and Work. (Goals 2 & 3)

Obj. 6: Provide teachers for targeted CTE programs with professional development on integrating the GMSP's nine techniques (for engaging girls in math, science and engineering) into instruction. (Goals 2 and 3)

Obj. 7: Provide teachers in targeted CTE programs with ongoing, job-embedded professional development on integrating PA's Academic Standards for Mathematics with instruction. (Goal 3)

Obj. 8: Increase by 5% the percentage of GEM participating students scoring in the "proficient" or "advanced" categories on the 11th grade PA System of School Assessment (PSSA) in mathematics in comparison to their scores on the 8th grade PSSA in math. (Goal 3)

GEM will include the following components: (1) a comprehensive marketing campaign (2) eMentoring; (3) GMSP math and science immersion experiences; (4) teacher professional development on GMSP's nine research-based techniques that can be used to engage and sustain girls' interest in math, science and engineering; (5) e-portfolios; and (6) monthly Afterschool GEM Power Sessions that will include talks given by successful female STEM professionals.

(1) Project as a component of a comprehensive plan (15 points).

In April 2007, Pittsburgh Public Schools (PPS) Superintendent Mark Roosevelt launched *Excel.9-12*, a five-year plan for a comprehensive transformation of our secondary school system. A significant component of the district's reform agenda *Excellence for All* (which outlines the district's strategies to improve achievement and provide equitable services to *all* students), *Excel.9-12* is driven by our understanding that students do better in school when they can see how education is connected to a successful future. Thus, our plan is a systemic approach that includes an increase not only in the rigor of our programming but also its relevance.

A cornerstone of *Excel.9-12* is a long overdue revamp of our Career and Technical Education (CTE) Programs of Study (POS). Defined by the PA Department of Education as a three-year systematic series of CTE courses (offered for three periods/day beginning in grade 10), a POS must focus on a specific career area and align with both industry-based competencies and high-priority occupations (jobs in demand by employers) identified at the state and regional levels. A comprehensive evaluation of PPS's CTE POS conducted by the Chartwell Education Group LLC in 2007 found "little program coherence" in our CTE POS, "no required course sequence with many programs," and courses taken as "one-period electives for some of the students in the class although other students take the same class as a two-period CTE course." The Chartwell report went on to say that our POS must be better aligned with "21st century skills," which require student exposure to "much higher technical standards than past CTE expectations."¹

During school year 2008-09, PPS developed a CTE strategic plan guided by the Chartwell report, state and regional workforce investment projections, and the PA Academic Standards (Chapter 4) and Vocational Education Standards (Chapter 339). As a result, 2009-10 will see the birth of a suite of POS characterized by the rigorous, technical training needed to succeed in high

paying, high-priority occupations. With approximately 3,400 of PPS's 8,034 high school students currently enrolled in at least one CTE course, our new, high quality POS will serve as a viable and vital option for what we estimate will be a significant portion of Pittsburgh's youth.

Yet, to address *Excellence for All's* mandate of providing equitable services to all students, PPS must go beyond restructuring and increasing the rigor of our CTE. We must also increase access to CTE POS for groups of students who, if trends persist, will be excluded or will exclude themselves from the excellent career opportunities that await them through completion of certain POS. This is definitely the case for PPS female students, whose numbers are sparse in many of our math-rich, technology-based POS, particularly those traditionally dominated by males. We have therefore developed a model program to combat both real and perceived gender barriers to female students' entry into and completion of such programs.

Entitled **Gaining Equity through Mathematics (GEM) Achievement**, our project not only addresses a key goal of *Excellence for All*, but also meets a core principle of *Excel.9-12*: create relevance by connecting students to the real world. In addition, GEM will help us meet annual requirements of the Carl D. Perkins Career and Technical Education Act of 2006, which provides funding for the nation's CTE programs. Perkins requires its grantees to establish annual targets for "student participation in and completion of career and technical education programs that lead to non-traditional fields of work, including careers in computer science, technology, and other current and emerging high skill occupations, for which individuals from one gender comprise less than 25 percent of the individuals employed in each such occupation or field of work."²

(2) Implementing an institutional change strategy (15 points).

PPS is Pennsylvania's second-largest school district, serving 28,410 students in its 66 schools in the 2008-09 school year. Of these schools, 20 are elementary, 19 are K-8, 10 are middle, 11

are secondary, 2 are alternative programs, and 4 are special schools. Together, they serve a student population that is 57.2% African-American, 34.8% White, 4.9% Multi-racial, 1.8% Asian, 1.2% Hispanic, and 0.14% Native American.

While 49% of our students are female, this figure by no means represents the ratio of females to males in our CTE POS with the strongest math concentrations (see Table 1 for % in three such POS). With our Board due to approve our CTE strategic plan in March 2009, PPS is poised to correct this imbalance. Our plan to do so will be implemented within a comprehensive strategy to establish a premiere CTE system that will be one of our region’s great educational assets.

Table 1: Current Enrollment in Three Math-Rich POS

Program of Study	# of Female Students	# of Male Students	% Female
Automotive Technology	5	28	15.2%
HVAC	1	14	6.6%
Pre-Engineering	105	183	36.5%

(Source: PPS Department of Career and Technical Education, 2008-09 Enrollment)

GEM will focus on the above CTE POS plus four POS that will be included in the district’s new Science and Technology Academy (to open Fall 2009): Engineering Technology, Environmental Technology, Biotechnology and Computer Technology. (See Appendix 1 for a full description of this innovative new secondary school option.)

With the overarching goal of affording female students equal opportunities for success in high-priority occupations that will be among the highest-paying career pathways of the future, our specific GEM goals are: **Goal 1:** To attract greater numbers of female students to targeted mathematics-rich CTE programs that prepare them to enter non-traditional occupations. **Goal 2:** To retain a higher proportion of female students in mathematics-rich CTE programs that prepare

them to enter non-traditional occupations. **Goal 3:** To increase the mathematics achievement of female students in the targeted mathematics-rich CTE programs.

Below are the corresponding objectives to our goals:

Obj. 1: Develop a marketing plan that is designed to recruit female students to enter one of seven targeted mathematics-rich CTE programs, as measured by completion of a marketing document that includes a mission statement, a message that targets female students, a branding image, and a plan for distribution of marketing materials. (Goal 1)

Obj. 2: Launch a marketing campaign to recruit female students to enter one of seven targeted math-rich CTE programs, as measured by evidence of our marketing message/image having been distributed via multiple media sources; and sign-in sheets documenting student and/or parent attendance at one of our project's information sessions. (Goal 1)

Obj. 3: Provide students enrolled in the GEM Achievement program with a mentor for each of the four years of their high school careers, as measured by teacher documentation of the time each girl dedicates to communication with her mentor. (Goals 2 and 3)

Obj. 4: Provide GEM students with an opportunity to participate in the Girls, Math & Science Partnership's (GMSP) programs that engage them in math and science immersion activities utilizing high-end technology, group-work and hands-on exploration, as measured by electronic, written and video documentation. (Goals 2 and 3)

Obj. 5: Provide each GEM student with her own e-portfolio to use as a tool to measure and demonstrate her growth in application of PA's Academic Standards for Career Education and Work, as measured by fulfillment of criteria for portfolio content: a resume, completed job applications, an essay on her chosen career pathway, journal entries related to job-shadowing or

internship experiences, a research-paper on a career-related topic, documentation of exploration of post-secondary institutions, and a completed graduation project. (Goals 2 & 3)

Obj. 6: Provide teachers for targeted CTE programs with professional development on integrating the GMSP's nine techniques (for engaging girls in math, science and engineering) into instruction, as measured by sign-in sheets and completed post-evaluations documenting teacher attendance at these sessions. (Goals 2 and 3)

Obj. 7: Provide teachers in targeted CTE programs with ongoing, job-embedded professional development on integrating PA's Academic Standards for Mathematics with instruction, as measured by teachers' observation and feedback notes on their peers' instruction. (Goal 3)

Obj. 8: Increase by 5% the percentage of GEM participating students scoring in the "proficient" or "advanced" categories on the 11th grade PA System of School Assessment (PSSA) in mathematics in comparison to their scores on the 8th grade PSSA in math. (Goal 3)

To meet these goals and objectives, PPS will develop and implement a four-year intensive program that follows participating female students from grades 9-12 as they complete one of seven math-rich CTE programs. Table 2 indicates the number of students who will be served through GEM each program year, and also shows that the total number of female students currently enrolled in existing POS will have increased significantly by Year 4. Each project year, GEM will also serve an increasing number of students at the Science and Technology Academy (SciTech) so that by Year 4, equal numbers of girls and boys will be enrolled in SciTech programs. (Note: SciTech will open its doors in 2009-10 with a 9th grade class of 100 students and will accept 100 students each subsequent year until 2012-13.)

Table 2: GEM Enrollment in Years 1 Through 4

Program of Study	Current 2008-09	Year 1 2009-10	Year 2 2010-11	Year 3 2011-12	Year 4 2012-13
Auto Technology (Brashear H. S.)	5	5	10	15	20
HVAC (Connelley Learning Center)	1	2	4	6	8
Pre-Engineering (Allderdice H. S.)	105	30	60	90	120
Engineering Technology (SciTech)	NA	10	22	35	50
Environmental Technology (SciTech)	NA	10	22	35	50
Biotechnology (SciTech)	NA	10	22	35	50
Computer Technology (SciTech)	NA	10	22	35	50
TOTAL # of GEM Students		77	162	251	348

GEM will include the following components:

- **A Comprehensive Marketing Campaign:** Our program will target girls as early as 8th grade to enroll in GEM starting with their freshman year of high school [Note: while students can't officially enter a POS until their sophomore year, each POS has at least one preliminary, non-mandatory course (except HVAC, which will launch its preliminary course in 2010-11), GEM programming, described below, will be provided throughout their 9th grade year.] If our proposal is successful, we will, upon award notification, take the following steps:
 - (1) contract with a marketing firm to conduct focus groups (one for each set of stakeholders: e.g., parents, students, teachers) to inform development of the "message" for our materials;
 - (2) contract with a graphic design firm to develop imaging (e.g., logos) that corresponds with our "message"; develop advertising materials (e.g., brochures, posters);
 - (3) identify a spokesperson (e.g., an undergraduate/graduate female majoring in a STEM field or

a young female STEM professional) and a group of female students currently enrolled in targeted CTE programs to assist in recruitment efforts (e.g., accompanying CTE staff to school recruitment and parent awareness sessions);

(4) Provide an overview of the seven targeted CTE POS to 8th grade students, by visiting all district schools that have an 8th grade; and

(5) Provide a series of parent workshops (one per quadrant of the city and one at A+ Schools: Pittsburgh's Community Alliance for Public Education) on the benefits of the target POS.

- **E-Mentoring:** Beginning in 9th grade, each GEM student will be paired with a mentor who is a professional in the student's field of interest. PPS will partner with **Smart Futures**, a Pittsburgh-based non-profit, whose PA eMentoring program recruits working professionals to serve as career mentors. The program is an innovative and affordable career education resource that simplifies the mentoring process by taking the relationship online. By using electronic communication, the program allows working professionals to be involved in mentoring in a time-efficient, cost effective, flexible manner. The ease with which mentoring can be set up and maintained encourages mentors to take on multiple mentees, which suits our volume of students.

The PA eMentoring program is teacher-driven, so mentor/mentee communication will take place in CTE classrooms or during SciTech's "support or enrichment periods," where teachers will monitor the activity. All participants' safety will be ensured, because all communication between mentor and mentee will occur through a PA eMentoring portal (on the Smart Futures website) which uses filtering software that disguises the email addresses of both parties and archives all communications. Before a mentoring relationship begins, Smart Futures will ensure that three important steps take place: (1) teachers, students and mentors receive training (on and offline) that acquaints them with program expectations; (2) mentors obtain child abuse history

and criminal record clearances; and (3) mentors are appropriately matched with students based on the student's career interest.

The mentoring relationship will then start with a 10-week curriculum in which mentor and mentee independently work through one online career education activity per week. They are then provided with structured opportunities to reflect on and share what they have learned via the activity. At completion of this curriculum, the mentor and mentee will have come to know one another, each having had an opportunity to tell her story. After this initial 10-week period in which mentor and mentee are introduced to one another, formal communication between the two will occur at least once per month. (Note: PA eMentoring is classroom-based, so each student in the classroom, regardless of gender, will participate in the program.) Each mentor will be asked to commit to a mentee relationship for at least one school year. The PA eMentoring portal will remain open to communication between mentor and mentee for as long as both are agreeable.

- **Math and Science Immersion Experiences:** PPS will partner with **GMSP** to provide GEM students with ongoing activities that use an inquiry-based approach to stimulate their imaginations. GMSP was born out of a 1998 study by The Heinz Endowments and developed in academia before moving to Pittsburgh's Carnegie Science Center (recipient of the 2003 National Award for Museum Service) in 2005. Today, GMSP is vital to the Center's efforts to improve the science literacy of our region and significantly increase the number of youth entering the STEM pipeline. With the vision of "of a society where women are represented equitably in the science and technology workforce," GMSP works with girls age 11-17, endeavoring to ensure their success in math and science (see Appendix 2 for GMSP's 2008 Progress Report).³ GMSP will host year-round programs for GEM students and will in each year provide:

(1) a kickoff event at Carnegie Science Center that will act as an orientation to the program for

girls entering GEM, parents and teachers. The event will include a keynote speaker [e.g., Constanza Ceruti (high altitude archeologist), Mae Jemison (astronaut)] a parent engagement workshop, hands-on activities, and giveaways.

- (2) a 1½ -day summer camp experience based on *Click!: The Spy School for Girls* (www.braincake.org/click.aspx), including an overnight at Carnegie Science Center.
- (3) a series of workshops & tours around the city to occur during the academic year (e.g., tour of Google offices; workshops on virtual world building; robotics workshops; a day with Habitat for Humanity building a home; workshop retrofitting an engine to accommodate biofuels; field data collection at local non-profits such as Phipps Conservancy & National Aviary).
- (4) a culminating event at Carnegie Science Center where girls host an event day for the public and are in charge of running activities such as design, engineering and robotics challenges.

- **Professional Development for CTE Teachers:** Our GMSP partnership will also include provision of professional development to CTE educators (teachers assigned to our 7 target POS, counselors, and central administrators) and key administrators at the schools that house targeted POS, based on *The Girl Solution: A Gender Equity Toolkit* (www.BrainCake.org/toolkit), a methodology based on nine research-based techniques that can be used to engage and sustain girls' interest in math, science and engineering. The *Toolkit*, created through support from the U.S. Dept. of Education and launched in May 2007, is now used worldwide in classrooms, afterschool programs and clubs.

Trainings will include one six-hour workshop early in Project Years 1, 3 and 4; and nine 90-minute afterschool "courses" in Year 2, when Cohort 1 students officially enter their POS and GEM activities are fully implemented. Workshops and homework assignments (lesson planning & integration of methodology) will enable participants to (1) evaluate classrooms and teaching

techniques, making changes to provide equal access to girls, and (2) understand approaches specific to encouraging and engaging girls that also enhance the performance of the entire class.

In Year 1, each workshop participant will receive a Gender Equity Toolkit, which has two key components: (1) The Girl Solution CD, which contains over 100 pages of research, evaluation for the classroom, techniques for engaging girls, curriculum about women scientists, and a list of tips and resources about gender equity; and (2) tools for the educator (e.g., posters and buttons for the classroom, trading cards and a timeline of “Great Female Difference Makers,” and parent handouts to help begin the conversation around gender equity).

GMSP trainings will complement the professional development that all of the district’s CTE teachers will receive on integrating PA academic standards with instruction. As noted previously, a comprehensive revision of all CTE POS is needed to ensure their rigor and address specific deficiencies. This work, which will be completed prior to 2010-11, will include thorough integration of core academic standards (math, science, English language arts, and social studies) with new and revised curricula. Subsequent professional development (funded via local private funds) to be provided in 2010-11 by CTE curriculum supervisors to all CTE teachers will significantly increase their capacity to provide instruction that enables students to achieve proficiency or advanced proficiency in math and science.

Via GEM, we will even further increase the ability of CTE teachers for targeted POS to integrate the standards with instruction. Each teacher will conduct three classroom observations of colleagues to evaluate how well they have integrated what they’ve learned with instruction and provide supportive, constructive feedback. This will permit job-embedded learning via critical reflection by both the observing and observed teacher.

- **E-Portfolios:** In 2006, the PA State Board of Education approved Career Education and Work (CEW) Standards, which require all students to have a career portfolio beginning in grade 8 and continuing until graduation. Over the course of 2009-10, CTE staff will work with PPS's Office of Information and Technology to design an infrastructure for housing these portfolios in electronic format. The resulting e-portfolios will be piloted among GEM students beginning in Year 2, giving students a structured medium through which to "plan, document, assess, and improve upon their learning" as they monitor and reflect upon their progress over time.⁴

- **Monthly Afterschool GEM Power Sessions:** GMSP will again partner with PPS to develop a curriculum for afterschool sessions that bring GEM participants together in one location (e.g., Carnegie Science Center). Each session will run from 2-2 ½ hours and include (1) small group activities that allow students to collaborate on solving a specific contextualized math and/or science problem, and (2) talks given by successful female STEM professionals.

- **Tutoring Assistance:** Due to the district's Title I status (70.53% eligible for free/reduced price lunch) and NCLB status (Corrective Action 2), PPS is eligible to participate in two tutoring programs: the state's Educational Assistance Program ("a targeted program to accelerate learning to help close the achievement gap in struggling school districts and career and technical centers by funding evidence-based tutoring") and the federal Supplemental Education Services (SES) program. Each PPS student who scores below proficient on 4Sight quarterly assessments or the PSSA is targeted for inclusion in the program; however, district-wide, only 38% of those targeted participated this year. The same is true for student participation in SES, which provides students at eligible schools (in 2008-09, 8 of our 11 high schools are eligible) with the option to receive after-school tutoring or remediation from a state-approved provider of such services.

CTE staff will review all incoming GEM students' 8th grade PPSA scores as well as quarterly 4Sight data for all students and will counsel those whose scores are below proficient to take part in both EAP and SES (if it is available in her school).

One of SciTech's many innovations is its built in mechanism for math intervention. Each math course is offered in semester and yearlong versions in an 80-minute block schedule. Thus, students requiring additional time or support may take a yearlong math course with time built in for support and individualized intervention. In addition, Period 3 at SciTech is a school-wide support, enrichment, and activity period. Students with IEPs or who need additional support will have the opportunity for individualized support during this period.

Long Term Impact and Sustainability. As noted, this project will be part of an institutional change strategy that includes comprehensive revision of our district's entire CTE system. Over the next four years, PPS will invest significant dollars, both grant funds (Perkins & private foundation) and general operating funds, for educational and capital improvements (e.g., construction of a new CTE building that will house our Building Construction Technology Academy). If we are awarded Women's Educational Equity Act (WEEA) funds, we will not only be able to sustain GEM but also expand the program to include more of our math-rich POS. Our partnership with GMSP will also include consultation with its Executive Director, Jennifer Stancil, who will work with the district to produce a white paper recommendation about the program's expansion. Ms. Stancil will also connect PPS to other girl-serving agencies that can offer resources toward a sustainable model for the entire district.

(3) Quality of project services (20 points).

PPS has adopted explicit practices to ensure equal access and treatment for all constituents who are members of groups that have been traditionally underrepresented based on race, color,

national origin, gender, age and disability. First, the district has affirmed, as a matter of Board Policy, that "The Pittsburgh Public School District is an equal opportunity education institution and does not discriminate on the basis of race, color, national origin, gender, sexual orientation, age or disability in its activities, programs or employment practices as required by Title II of ADA, Title VI, Title IX and Section 504." PPS will also fulfill the requirements of GEPA, Section 427, as they relate to the Arts Educators Program initiative (see GEPA attachment).

(3)(a) The extent to which services ... are appropriate to the needs of recipients.

From its marketing campaign through its series of academic interventions, GEM was designed to directly respond to the needs of its recipients. When female students who are enrolled in the district's Auto Technology POS were recently asked what challenges they face in being one of the few girls enrolled in the classroom, they indicated that their peers belittled them at first and were actually successful in discouraging some girls from signing up for the program. The students went on to recommend that we promote the program as "girl-friendly" and stress that "girls are welcome!"

Our marketing campaign will do this and more. The teacher for our HVAC POS expressed the need for "better marketing, including the potential salary." Teachers for both Auto Technology and HVAC stated the need for more opportunities for interested girls to visit the labs prior to enrollment so that they can get past the "dirt and grease." Thus, one of our recruitment strategies will be to provide such tours for girls and enable them to participate in hands-on mini projects that give them a real sense of the training's expectations.

The interventions we've included in GEM's design are particularly suited to meet the needs of its recipients, which specifically focus on overcoming the deterrents to girls' completion of math-rich POS that require the development of technical skills.

GEM will address its participants need for:

(1) increased confidence in math. Research points to a strong link between “confidence” and “interest,” as well as evidence that confidence in performing math-related tasks is lower for girls than it is for boys.⁵ A September 2007 report released by the U.S. Department of Education states that “Students who are more confident about their abilities in math and science courses in high school are more likely to choose elective math and science courses in high school and more likely to select math and science-related college majors and careers.”⁶

How GEM will address this need: Our partnership with GMSP will go a long way to reverse any perceptions that to be good at math, a person has to be born with certain innate abilities. GMSP math immersion experiences which challenge their beliefs about their natural abilities and help them understand that cognitive ability is “expandable,” that the mind strengthens with use and that “over time and with continued effort, understanding the material will get easier.”⁷

(2) teacher support and high expectations: More powerful than a girl’s initial interest to math and science is the self-confidence that can be instilled by the adults in their lives. However, science and math teachers’ bias towards boys is a reality. Researchers have observed that while a teacher will help a boy conduct an experiment by explaining how it’s done, “when a girl asks for assistance, the teacher will often simply do the experiment, leaving the girl to watch rather than do.” Good math and science teachers implement instructional strategies that deliberately involve girls and also benefit the entire class.⁸

How GEM will address this need: Our partnership with GMSP will include a series of intensive workshops that will help teachers entrench research-based techniques for engaging and sustaining girls interest in math. This training and the resources that will be provided will re-orient those teachers who believe (albeit subconsciously) girls are more mathematically

challenged than their male counterparts and will embolden teachers who are already using effective methods for reaching girls with new methods associated with gender equity. Training topics will include (1) The Relationship Science Method; (2) Gender Equity Research and Assessing YOUR classroom; (3) Group Work; (4) Brain Structure, Multitasking, and Hands-On experimentation; (5) Encouraging Risk Taking (6) Nurturing Idealism, Open-ended Questioning; and (7) The Role of Peers, Parents, and Mentors in Leveling the Playing Field For Girls.

(3) exposure to female role models: As early as elementary school, girls become aware of the stereotypes that boys are better at math and that girls are not designed to enter certain fields of work. Deliberately exposing girls to female role models can nullify this stereotype.

How GEM will address this need: In addition to PA eMentoring, which will provide each participant with a mentor who is a working professional in the student's field of choice, GMSP math and science workshops as well as GEM Afterschool Power Sessions will expose girls to women who are succeeding in math and science-related fields.

(4) be a part of a supportive peer network: Recent research has found that “social factors meant more to girls than to boys in decisions about math coursework,”⁹ and that “Girls steer away from careers in math, science and engineering because they view science as a solitary rather than a social occupation.”¹⁰

How GEM will address this need: Monthly Afterschool GEM Power Sessions as well as participation in GMSP workshops will bring participants together over a period of four years and thus create a social network for GEM students and at the same time increase their ability to collaborate and nurture relationships with prospective future colleagues.

(3)(b) The likelihood that services ... will lead to improvements in student achievement.

The interventions outlined in this proposal have a scientific research base that supports the likelihood that they will lead to improvements in student achievement. CTE in and of itself has been found to provide the contextual learning that is often effective in moving at-risk students towards mastery of academic standards. Says Betsy Brand of The American Youth Policy Forum, "CTE supplements, enhances, and reinforces the teaching of academic content, especially science and mathematics, provides the context for learning academic skills, and demonstrates how theoretical and conceptual knowledge can be applied in real-world settings."¹¹ Thus, students who participate in GEM and successfully complete our targeted CTE programs are highly likely to improve their performance on the 11th grade PSSA in comparison to their scores on the 8th grade PSSA.

(4) Quality of the management plan (25 points).

(4)(a) The adequacy of the management plan to achieve project objectives.

Table 3 outlines the project's management plan and demonstrates how objectives and activities of the proposed project will be achieved in a timely manner. Additionally, the chart clearly defines the staff responsibilities, timelines, benchmarks (i.e., goals and objectives) and milestones for accomplishing each task.

(4)(b) The extent to which time commitments ... are appropriate and adequate.

The Project Director (.10 FTE) Julia A. Stewart, Ed.D., will be responsible for coordinating the entire GEM effort, interacting with partners, monitoring program implementation, and ensuring continuation of services past the life of the grant. As the Executive Director of CTE for PPS for the past year, Dr. Stewart oversaw the development of the CTE strategic plan which outlines the comprehensive revision of the district's CTE system. She has

30 years experience working in a variety of roles in the oversight of CTE programming at both the secondary and postsecondary levels and has worked both public and private schools and in urban and suburban districts with students from diverse socioeconomic and ethnic backgrounds. Dr. Stewart also has extensive experience in writing for and managing state, private foundation and federal grants and has presented at local, state and national conferences regarding grant acquisition, CTE and partnership development.

Cherri Banks, EdD, Curriculum Coordinator for CTE, will serve as **Project Advisor (.10 FTE in Year 1)** to GEM to assist the Project Director and the GEM Project Manager (see job description below) in managing the successful start-up of the program. Dr. Banks has 33 years of experience working for PPS as both a middle and high school teacher (6 years) and a high school assistant principal (5 years). As a central office administrator, Dr. Banks has an extensive background in curriculum and professional development having worked in this area over 15 years. In her current position, Dr. Banks brings her curriculum expertise to CTE's effort to integrate reading, and math academic standards with technical instruction. In 2005, she was selected to serve as a Distinguished Educator for the State of Pennsylvania, through which she provides technical assistance to districts needing support in reaching Adequate Yearly Progress. (See Appendix 3 for Curriculum Vitae)

GEM Project Manager Position Description (1 FTE). The **GEM Project Manager** (position to be filled upon grant award notification) will report directly to the Program Director (PD) and will be responsible for overseeing GEM's day-to-day activities to ensure that all program goals and objectives are fully met on time and within budget. In close collaboration with the PD, he/she will monitor the overall success of the project, identify implementation challenges and opportunities for enhancement, and make certain that all activities comply with

WEEA specifications and requirements. In addition, he/she will coordinate recruitment events and all GEM activities, including those that involve interaction or collaboration with GEM partners and external evaluators. (See Appendix 4 for full description of this position.)

(c) How the applicant will ensure that a diversity of perspectives are brought to bear.

A **GEM Advisory Board**, to be chaired by the GEM Project Director and coordinated by the PM, will be formed to provide oversight to this project and ensure that a diversity of perspectives inform the operation of GEM. The advisory board will meet once each semester and will include the GEM Project Advisor, CTE Curriculum Coordinator and Supervisors, the district's Executive Director of High Schools, at least two CTE teachers from targeted POS, each principal from targeted high schools; at least two parent representatives and a student representative from each of our seven POS. In addition, GEM will benefit from a team of professionals from Pittsburgh's business, non-profit and higher education community whose combined roles and areas of expertise represent the leadership capability to ensure the ongoing refinement of our model.

Community Board Members	Area of Expertise
Heather Arnet, Executive Director, Women and Girls Foundation; member of the Pittsburgh Board of Education	gender equity, women's advocacy
Romy Banks, Director of Outreach, Smart Futures	career development, marketing
Mary Besterfield-Sacre, PhD, Associate Professor of Industrial Engineering, University of Pittsburgh	engineering technology; K-12 Systems Modeling
Lenore Blum, PhD, Professor of Computer Science, Carnegie Mellon University (CMU)	math; increasing participation of girls & women in math and science
James Coyle, Owner, Coyle Auto Service	automobile technology

Joseph J. Grabowski, PhD, Associate Professor of Chemistry, University of Pittsburgh	bio tech; curriculum development
Kevin Kehren, Owner, Generations Heating and Cooling	HVAC
Richard Krapp, Estimating Engineer, Turner Construction Company	engineering
Indira Nair, PhD, Vice Provost for Education and Professor, Engineering & Public Policy; CMU	environmental technology
Ronald Painter, CEO, Three Rivers Workforce Investment Board	workforce policy and development; regional and state workforce needs
Jennifer Stancil; Executive Director, Girls, Math & Science Partnership, Carnegie Science Center	research-based techniques for teaching girls math and science
Cheryl Telmer, PhD, PPS Parent	bio tech; curriculum development

(5) Quality of the project evaluation (25 points).

(5)(a) The extent to which methods of evaluation ... are clearly related outcomes.

(5)(b) The extent to which the evaluation will provide guidance about.

Evaluation. Using a mixed methods approach, Westat will examine the implementation of PPS's CTE marketing campaign and GEM Achievement program, as well as the impact on outcomes targeted by the district: female student enrollment in CTE; female student retention in CTE, and female students' mathematics achievement.

Data Collection. Westat will collect data from teachers, administrators, and students pertaining to program activities and impacts through administrative and achievement data, student surveys, and scheduled site visits. The table in Appendix 5 displays the goals, approach, and benchmarks established by PPS, the data sources needed to track progress towards meeting

those goals, and the timeframe for data collection.

Administrative and Achievement Data. Westat will be provided baseline and annual administrative data on student demographics of the first two cohorts of female students enrolled in CTE (e.g., race/ethnicity, free/reduced-price lunch status, disability status, and limited English proficiency status), student attendance in CTE and GEM, and teacher professional development attendance. Westat will also be provided with baseline and annual data for GPAs in mathematics and PSSA scores for each cohort 1 and cohort 2 student enrolled in CTE. •

Student Surveys. Three types of student surveys will be used: an in-depth annual survey and two one-time surveys. The type of survey a student receives will depend on their circumstances and program participation status. Survey administration will begin in Year 1, after the first cohort of GEM students has been enrolled. Westat will work closely with project staff to finalize survey content and coordinate survey administration. Surveys will only be administered with participants in cohorts 1 and 2.

- **Baseline Participation Survey.** All students (i.e., male and female) in each of the 7 CTE programs will complete a short one-time participation survey, conducted by PPS. Information collected by this survey will contribute to the understanding of why students choose to participate in a CTE Program of Study, and why some female students are interested in the GEM program and others are not.
- **Annual GEM Participation Survey.** Annually, all cohort 1 and 2 students will complete a survey about their experiences in GEM (e.g., GEM activity involvement, perceived program strengths/weaknesses, and influences on academic and career aspirations).
- **Exit Survey.** Finally, students in cohorts 1 and 2 who decided to leave either the GEM program or the CTE program will be asked by PPS to provide feedback and reasons for their

decision, in a short exit survey.

Site Visits. Site visits will take place in the spring of Years 2 and 4 of GEM program implementation. By Year 2, a subset of CTE female students will be enrolled in GEM, and teacher professional development activities will be under way. These staggered site visits will capture information about program implementation and benefits over time. During site visits, an experienced Westat researcher will conduct student focus groups with a sample of cohort 1 and 2 GEM participants, as well as interviews with CTE teachers and key school administrators.

- ***Student focus groups.*** Westat researchers will conduct focus groups of cohort 1 and 2 GEM students in Year 2 and again in Year 4. Focus groups will be small in size, with approximately eight to ten students, to facilitate discussion and ensure that each voice is heard. The focus group protocol will be developed based on the goals, intent, and activities specified by the GEM initiative.
- ***Teacher and administrator interviews.*** In Year 2, site visitors will conduct semi-structured in-person interviews to gauge perceived impact of teacher professional development activities on teaching practices and student achievement. Preliminary data collection efforts in Year 1 with a sample of teachers and administrators will be used to gain an understanding of start-up activities within GEM.

In addition, Westat will work closely with PPS to incorporate data collected by PPS (e.g., teacher surveys administered after each professional development session) into our analysis.

Data Analysis. A critical component of this study will be to establish a longitudinal database that permits tracking of teacher and student data over time. Westat will develop a database that contains background data and professional development attendance for teachers, and CTE enrollment, GPAs, PSSA scores, and attendance for female students entering a CTE POS in

2009-10. The database will include historical data from female students who enrolled in CTE before 2009-10.

Westat will evaluate the progress of PPS on the following goals:

- ***Goal 1: To attract greater numbers of female students to targeted mathematics- and science-rich Career and Technical Education (CTE) programs that have been traditionally dominated by male students.*** Westat will compare both male and female enrollment in CTE POS before & after inception of PPS's marketing campaign to recruit more students to CTE.
- ***Goal 2: To retain a higher proportion of female students in mathematics-rich CTE programs that have been traditionally dominated by male students.*** Westat will use enrollment data to compare retention of CTE students participating in GEM to that of non-participating CTE female students, as well as the overall retention of CTE students (GEM participants and non-participants) before and after the inception of PPS's targeted reforms. The baseline participation survey will be used to gauge differences in student motivation related to GEM. Westat will also analyze data from student surveys, site visits, and exit interviews to provide a deeper understanding of program implementation. Qualitative techniques will be employed to analyze interview and observation data. Content analysis will be used to code data according to themes, using interview protocols as a framework. Themes that emerged during the site visit will be reported, as will illustrative examples and quotes.
- ***Goal 3: To increase the mathematics achievement of female students in the targeted mathematics-rich CTE programs.*** Westat will compare the GPAs and PSSA scores of female CTE students in cohorts 1 and 2 who are enrolled in GEM to female CTE students who are not. If possible, Westat will disaggregate the data based on demographics to examine whether CTE reforms benefit sub-groups of the female student population in different ways.

Westat will submit annual reports to PPS that will contribute guidance about effective strategies suitable for replication or testing in other settings. The Year 1 report will serve as a baseline report, and provide initial findings related to start up and implementation of the program. Westat plans to interview key administrators in the first year, and will include findings from the Year 1 student survey. In subsequent years, Westat will begin examining outcome data on enrollment, retention, and student achievement. (Please see Appendix 6 for brief bios of the Westat staff who will implement this evaluation.)

Absolute Priorities:

The GEM project supports activities to enable its participants to achieve proficiency or advanced proficiency in math and thus addresses **Absolute Priority 1**. Recognizing that the jobs of tomorrow require technical skills and that the foundation of many of those skills is proficiency in math (and, for many jobs, adeptness in complex mathematical problem-solving), the purpose of GEM is to reverse the trend of female students shying away from the pursuit of such skills. Thus, our project includes activities for GEM students and training for their teachers all designed to boost our participant's math achievement.

To address **Absolute Priority 3**, our evaluators will review pre (8th grade PSSA math scores) and post-intervention test data (11th grade PSSA math scores) for GEM cohorts 1 and 2 and compare that data to the PSSA scores for CTE students who are not in GEM [i.e., female students who enter our targeted POS but do not participate in GEM activities (eMentoring, math and science immersion experiences, e-portfolio, and Afterschool Power Sessions)].

Competitive Preference Priority:

According to a 2006 RAND Corporation study, only 64% of PPS students graduate high school within five years (compared to 74% for Pennsylvania as a whole) and an estimated 35%

drop out without graduating. That rate is even higher for African American students (40%) and particularly for African American males (45%). In addition, too many of our students fail to achieve at levels that will prepare them for success in post-secondary education and the workforce. Barely over half of our students scored proficient on the 2007-08 11th grade PSSA in mathematics (52%) and in reading (51%).

With **70.53% of our students eligible for free and reduced-price lunch** this school year (2008-09) and a host of other factors that commonly place urban students at-risk for academic failure and not completing high school, PPS must implement sound, evidence-based strategies to counter them if we are to keep our students in school.

Research, overwhelmingly, points to the benefits of CTE for at-risk students, finding that it is more successful than traditional secondary education in not only keeping disadvantaged youth in school but also in giving them an avenue for success of which they often take advantage. This is, of course, why, like *Excellence for All*, the nation's school reform efforts are motivated to create a secondary educational system that does what high quality CTE has been doing all along: connecting academics to success in the real-world. GEM is a product of the body of knowledge that touts the value of CTE's contextualized learning. As the majority of the students in our targeted POS will qualify as "at-risk," we have developed a model that will open the door to students who might otherwise fall into two categories (at-risk and female) of those perceived as least likely to enter the technically-skilled workforce of tomorrow.

Table 3: GEM Implementation Timeline

Activity	Responsibility	Timeline	Milestone(s) Achieved
Post Project Manager position (PM)	Proj. Director (PD)	10/2009	Staff in place to begin project
Work with marketing/graphics firms	PD, Proj. Advis. (PA)	10-11/2009	Program branding developed
Meet with Smart Futures staff	PD, PA	10/2009	eMentor identification initiated
Meet with Girls Math and Science Partnership (GMSP)	PD, PA, PM, GMSP	11-12/2009	Aftersch. Power Sessions' (APS) curric. designed; kickoff planned; prof. d. sched.
GMSP Professional Development	PM, GMSP	11/2009	CTE teachers from targeted POS learn <i>The Girl Solution 9 (GS9)</i> techniques
Convene Advisory Board	PD, PM	12/2009	Branding/recruitment/APS curric feedback
Schedule bus transportation for APS	PM	12/2009	Bus transportation scheduled
Recruit GEM participants	PM	1-5/2010; & yearly thereafter	Year 1 (Y1) & prospective Y2 incoming participants identified
Conduct parent information sessions	PM	1-2/2010; & yrly	Parents fully informed of opportunity
Assign stus. to remediation as needed	CTE program tchrs.	9/2010 & ongoing	Increased math achievement
Conduct eMentoring training sessions	PM, Smart Futures	2/2010	Effective facilitation of eMentoring prog.
Meet with GSMP	PM, GMSP	3/2010	Student workshops and summer

Activity	Responsibility	Timeline	Milestone(s) Achieved
GEM Kickoff held	PM, GMSP	3/2010	experience designed and scheduled
Obtain parental consent for stu. particip. in activities, surveys, focus groups	PM	3/2010	Incoming stus/parents/tchrs eager to begin
eMentoring program initiated	PM, CTE teachers, Smart Futures	3/2010	Students permitted to participate in GMSP activities & GEM evaluation
Monthly APS initiated	PM, GMSP	4 & 5/2010; 9/10-5/11; 9/11-5/12; 9/12-5/13	Students provided with real world insight re: their chosen career path
First GMSP workshop for students occurs	PM, GMSP	5/2010; Y2- Y4 dates TBD	Girls gain confidence; join social network; learn of successful women in STEM
Convene Advisory Board to give Y1 overview	PD, PM	5/2010	Students have participated in hands-on, motivating math/science learning activity
Meet with GMSP to plan nine 90-min. after-school prof. devel. sessions for Y2	PD, PA, PM, GMSP	6-8/2010	Recomm. made for prog. modifications & model refine.; viable partnerships nurtured
Students participate in GMSP summer	PM, GMSP	7/2010; & yrly	Rigorous afterschool training sessions scheduled Students have participated in hands-on,

Activity	Responsibility	Timeline	Milestone(s) Achieved
experience			motivating math/science learning activity
Meet with GSMP	PM, GMSP	7/2010; & yrly	Student workshops designed & scheduled
Schedule bus transportation for APS	PM	7/2010; & yrly	Bus transportation scheduled for next year
Nine 90-minute after-sch. training wkshps. on GS9 techniques	PM, GMSP	9/2010 & mnthly through 5/2011	Teachers have knowledge of research-based strategies to enhance math achieve.
Obtain parental consent for stu. particip. in activities, surveys, focus groups	PM	9/2010; & yrly	Students permitted to participate in GMSP & GEM evaluation activities
GEM Kickoff held	PM, GMSP	10/2010; & yrly	Incoming stus/parents/tchrs eager to begin
6 1-hr. after-sch. trainings to support integr. of PA acad. standards w/ instruct.	CTE Curriculum Supervisors	10/2010 & mnthly thru 6/2011	Increased capacity to improve academic performance
Peer-observations of instruction	CTE tchrs, PM, PA	3 times in 2010-11	Peer obs & feedback support strat. implem.
Convene Advisory Board	PD, PM	10/2010; 5/11; & yrly	Progress reported; feedback obtained
Meet with GMSP	PM, GMSP	3/2011; & yrly	Summer experience designed & scheduled
GMSP Professional Development	PM, GMSP	8/2011 & 8/2012	Tchrs refresh knowledge of GS9 techniq.

Geographic Location and Type of Educational Institution

The School District of Pittsburgh or Pittsburgh Public Schools is a local educational agency or urban public school district that serves students in grades PreK-12. The project for which the district is submitting a proposal, entitled Gaining Equity through Mathematics (GEM) Achievement, will be located in Pittsburgh, Pennsylvania.

Budget Narrative

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

Year 1

<u>CATEGORY:</u>	<u>FEDERAL</u>	<u>PPS</u>
1. PERSONNEL		
A. Funds are allocated to reimburse 15 PPS teachers for their participation in two workshops to be held throughout the year and attendance at the GMSP kick-off celebration. Teachers will be compensated at an estimated rate of \$23.32/hour for 12 hours. Training for our 15 CTE teachers will include a 6-hour overview workshop in November on gender equity using the Gender Equity Toolkit; and a 3-hour workshop in November on e-mentoring; and attendance at the March, 2010 Gaining Equity through Math GEM-PPS kick off celebration at the Carnegie Science Center.	\$ 4,198	
B. Dr. Julia Stewart, Executive Director of Career and Technical Education will serve as Project Director and will dedicate 10% of her time to coordinating the entire GEM effort, interacting with partners, monitoring program implementation, and ensuring continuation of services past the life of the grant. .		\$ 12,282
C. Dr. Cherri M. Banks, Curriculum Coordinator for Career and Technical Education will serve as Project Advisor to the GEM initiative and work with the Project Manager to coordinate professional development; co-plan project initiatives with GMSP and co-design classroom implementation processes to ensure that research strategies are implemented. She will dedicate 10% of her time to the grant project.		\$ 10,997
SUBTOTAL PERSONNEL	<u>\$ 4,198</u>	<u>\$ 23,279</u>
2. BENEFITS		
A. Part-time @ 11.03%	\$ 463	
B. Full-time @ 23.245%		\$ 2,855
C. Full-time @ 17.859%		\$ 1,964
SUBTOTAL BENEFITS	<u>\$ 463</u>	<u>\$ 4,819</u>

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

CATEGORY:

FEDERAL

PPS

3. TRAVEL

A. Funds are budgeted to cover mileage costs associated with the Project Manager's local travel throughout PPS to school sites, meetings, etc. Mileage is estimated to average 2,000 miles per year @ \$.55 per mile

\$ 1,100

B. Funds have been budgeted to cover the cost of bus transportation to several events:
10 @ \$200/bus:

- (1) 4 buses to transport students and parents to opening March GMSP-PPS kick-off celebration
- (2) 2 buses to transport students to April and May-Gem afterschool power sessions
- (3) 2 buses to transport students to first GMSP workshop to be held in May
- (4) 2 buses to transport students to GMSP overnight summer experience in July

\$ 2,000

SUBTOTAL TRAVEL

\$ 3,100

4. SUPPLIES

A. Funds have been budgeted to cover the cost of general office supplies for development and dissemination of promotional materials and curriculum and instruction materials to include color printer cartridges for an already existing color printer. The annual cost of color printer cartridges is \$530. The estimated cost of other general office supplies is \$400.

\$ 930

SUBTOTAL SUPPLIES

\$ 930

5. CONTRACTUAL

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

CATEGORY:

FEDERAL

PPS

A. GEM Project Manager

Funds have been budgeted for payment of a PPS Project Manager who will oversee all components of the WEEA program's day-to-day operations to ensure that all program goals and objectives are met.

\$ 50,000

B. Girls, Math & Science Partnership

1. Funds have been budgeted to cover the cost of one 6 hour workshop for 34 PPS teachers and administrators from four sites focusing on nine research-based techniques that can be used to engage and sustain girls' interest in math, science and engineering.

\$ 2,000

2. Funds have been budgeted to cover the cost of the Gender Equity Toolkit for 34 PPS teachers and administrators to use in engaging and sustaining students interest in math. Cost of kit is \$60/34 participants.

\$ 2,040

3. Funds have been budgeted to cover the cost of Jennifer Stancil's (Director of the Girls, Math & Science Partnership) management, development and oversight of educational activities at Carnegie Science Center, as well as networking opportunities with scientists/laboratories and business and industry representatives. In that connection, Jennifer will allocate 60 hours per year to the accomplishing these tasks.

\$ 15,000

4. Funds have been budgeted to cover the cost of a GMSP Workshop experience to provides a hands-on activity for 77 student participants to include a three-hour floating laboratory experience with RiverQuest and to include water sampling microinvertebrates at a cost of \$45per student participant.

\$ 3,465

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

<u>CATEGORY:</u>	<u>FEDERAL</u>	<u>PPS</u>
<p>5. Funds have been budgeted to cover the cost of a GMSP summer camp experience at Carnegie Mellon University's Robotics Institute, and an overnight stay at Carnegie Science Center, in the nation's largest exhibition on robotics (food included). In subsequent years, experiences will be designed to advance girls' understanding of biofuels, carbon footprinting and ways car engines can be reworked to accommodate vegetable oil based fuel. Summer camp experience is \$75 for each of the 77 student participants.</p>	\$	5,775
<p>6. Funds have been budgeted to cover the cost of the GMSP kickoff celebration for GEM students, parents and PPS staff. Event will be held at the Carnegie Science Center and will serve as an orientation and a welcome to the larger business/industry/educational community. 77 students, one parent per student, and 34 district staff will be invited to this opening celebration. Total of 188 participants @ \$28 each.</p>	\$	5,264
<p>7. Funds have been developed to pay for GMSP staff support in the planning and coordination of activities to accommodate a large number of GEM participants per year.</p>	\$	5,000
<p>C. Smart Futures</p>		
<p>1. Funds have been budgeted to pay for the PA eMentoring site licenses for four school sites to provide an on-line mentoring relationship between students and adult mentors who represent students' chosen career paths. Site license @ \$1,500 per site for four sites.</p>	\$	6,000
<p>2. Funds have been budgeted to pay for the PA eMentoring professional development to include procedures for accessing and communicating with mentors and review of accompanying curriculum. Cost for training is \$150 per site for four sites</p>	\$	600
<p>D. Marketing and Graphic Design -Dennis Moran Designs</p>		

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

<u>CATEGORY:</u>	<u>FEDERAL</u>	<u>PPS</u>
<i>1. Funds have been budgeted to cover the cost of targeted marketing efforts to attract girls into CTE programs including development of conceptual design approaches for girls as a targeted market and design of final graphics for all specialized print materials to include brochures, posters and specific audiences inserts.</i>	\$ 25,000	
<i>2.. Funds have been budgeted to cover the cost of general office supplies for documentation, development of promotional materials and dissemination of curriculum/instructional materials.</i>	\$ 1,500	
E. Evaluation - Westat		
<i>1. Funds have been developed to cover the cost of evaluation services to assess attainment of grant goals and objectives. Costs vary per year based on total students enrollment in GEM.</i>	\$ 28,666	
SUBTOTAL CONTRACTUAL	\$ 150,310	
6. OTHER		
A. Funds have been budgeted to cover the total cost of printing (e.g., curriculum guides, reports) throughout the school year.	\$ 2,000	
B. Funds have been budgeted to cover the cost of refreshments for students at GEM afterschool power sessions, for parents at community meetings and for business and industry partners at twice annual advisory meetings.	\$ 4,000	
C. Rental fee for use of A+ Schools facility to conduct parent/community meeting	\$ 300	
D. Postage for mailings related to communications sent to parents, students, business and community sectors	\$ 1,000	
SUBTOTAL OTHER	\$ 7,300	

Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative

<u>CATEGORY:</u>	<u>FEDERAL</u>	<u>PPS</u>
9. TOTAL DIRECT COSTS	166,301	28,098
10. INDIRECT COSTS (2.60%)	\$ 4,324	
11. TRAINING STIPENDS		
12. TOTAL COSTS	\$ 170,625	\$ 28,098

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

Year 2

CATEGORY:

FEDERAL **PPS**

1. PERSONNEL

A. Funds are allocated to reimburse 15 PPS teachers for their participation in eleven workshops to be held throughout the school year plus attendance at the GMSP annual kick-off celebration. Teachers will be compensated at an estimated rate of \$24.32/hour for a total of 20 hours of professional development. Training for our 15 CTE teachers will include 9 - ninety minute workshops Sept - May (14 hrs), one 3 hour e-Mentoring training session; and attendance at the 3 hour October, 2010 Gaining Equity through Math GEM-PPS kick off celebration at the Carnegie Science Center.

B. Dr. Julia Stewart, Executive Director of Career and Technical Education will serve as Project Director and will dedicate 10% of her time to coordinating the entire GEM effort, interacting with partners, monitoring program implementation, and ensuring continuation of services past the life of the grant.

\$ 7,296

	\$	12,282
	\$	<u>12,282</u>
	\$	<u>7,296</u>
	\$	<u>12,282</u>

2. BENEFITS

A. Part-time @ 11.03%
B. Full-time @ 23.245%

	\$	805
	\$	2,855
	\$	<u>805</u>
	\$	<u>2,855</u>

3. TRAVEL

A. Funds are budgeted to cover mileage costs associated with the Project Manager's local travel throughout PPS to school sites, meetings, etc. Mileage is estimated to average 2,500 miles per year @ \$.55 per mile

\$ 1,375

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

B. Funds have been budgeted to cover the cost of bus transportation to several events total - 60 buses @ \$200/bus:

- (1) 8 buses to transport students and parents to annual opening GMSP-PPS kick-off celebration
- (2) 36 buses to transport 162 students to afterschool power sessions Sept - May (4 buses x 9 mths)
- (3) 12 buses to transport students to second series of GMSP workshops (3 total) to be held throughout the school year
- (4) 4 buses to transport students to GMSP overnight summer experience to be held in July

SUBTOTAL TRAVEL

\$	12,000
\$	13,375

4. SUPPLIES

A. Funds have been budgeted to cover the cost of general office supplies for development and dissemination of promotional materials and curriculum and instruction materials to include color printer cartridges for an already existing color printer. The annual cost of color printer cartridges is \$530. The estimated cost of other general office supplies increases to \$2,300.

SUBTOTAL SUPPLIES

\$	2,830
\$	2,830

5. CONTRACTUAL

A. WEEA Grant Project Manager

Funds have been budgeted for payment of a PPS Project Manager who will oversee all components of the WEEA program's day-to-day operations to ensure that all program goals and objectives are met.

B. Girls, Math & Science Partnership

\$	50,000
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**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

- | | |
|--|------------------|
| <p><i>1. Funds have been budgeted to cover the cost of a year-long professional development course (9 ninety minute monthly workshops) for 34 PPS staff(includes 15 teachers and 19 administrators to focus on nine research-based techniques that can be used to engage and sustain girls' interest in math, science and engineering.</i></p> | <p>\$ 5,000</p> |
| <p><i>2. Funds have been budgeted to cover the cost of replenishing the Gender Equity Toolkit as needed for new PPS teachers and administrators to use during professional development sessions year one and beyond. Cost of kit is \$60 for 7 participants.</i></p> | <p>\$ 420</p> |
| <p><i>3. Funds have been budgeted to cover the cost of Jennifer Stancil's (Director of the Girls, Math & Science Partnership) management, development and oversight of educational activities at Carnegie Science Center, as well as networking opportunities with scientists/laboratories and business and industry representatives. In that connection, Jennifer will allocate a minimum of 60 hours per year to the accomplishment of these tasks. Increased funding supports the additional 85 GEM girls</i></p> | <p>\$ 20,000</p> |
| <p><i>4. Funds have been budgeted to cover the cost of three GMSP Workshop experiences which will provide hands-on activities for 162 student participants at an average cost of \$25 per experience.</i></p> | <p>\$ 12,150</p> |
| <p><i>5. Funds have been budgeted to cover the cost of a GMSP summer camp experience at Carnegie Mellon University's Robotics Institute, and an overnight stay at Carnegie Science Center designed to advance girls' understanding of biofuels, carbon footprinting and ways car engines can be reworked to accommodate vegetable oil based fuel. Summer camp experience is \$75 for each of the 162 student participants .</i></p> | <p>\$ 12,150</p> |
| <p><i>6. Funds have been budgeted to cover the cost of the GMSP kickoff celebration for GEM students, parents and PPS staff. Event will be held at the Carnegie Science Center and will serve as an orientation and a welcome to the larger business/industry/education community. New GEM students (85) and one parent per student, plus 34 district staff will be invited to this opening celebration Total of 204 participants @ \$28 each.</i></p> | <p>\$ 5,712</p> |

Gaining Equity Through Mathematics (GEM) Achievement

Budget Narrative

<p>7. Funds have been developed to pay for GMSP staff support in the planning and coordination of activities to accommodate an increasing number of GEM participants per year.</p>	\$	10,000
<p>C. Smart Futures</p>		
<p>1. Funds have been budgeted to pay for the PA eMentoring site licenses for four school sites to provide an on-line mentoring relationship between students and adult mentors who represent students' chosen career paths. Site license @ \$1,500 per site for four sites.</p>	\$	6,000
<p>2. Funds have been budgeted to pay for the PA eMentoring professional development to include procedures for accessing and communicating with mentors and review of accompanying curriculum. Cost for training is \$150 per site for four sites</p>	\$	600
<p>D. Evaluation - Westat</p>		
<p>1. Funds have been developed to cover the cost of evaluation services to assess attainment of grant goals and objectives. Costs vary per year based on specific evaluation tasks and GEM students enrollment.</p>	\$	23,244
<p>SUBTOTAL CONTRACTUAL</p>	\$	145,276
<p>6. OTHER</p>		
<p>A. Funds have been budgeted to cover the total cost of printing (e.g., curriculum guides, reports) throughout the school year.</p>	\$	2,000
<p>B. Funds have been budgeted to cover the cost of refreshments for students at GEM afterschool power sessions, for parents at community meetings and for business and industry partners at twice annual advisory meetings.</p>	\$	6,000
<p>C. Rental fee for use of A+ Schools facility to conduct parent/community meeting</p>	\$	300
<p>D. Postage for mailings related to communications sent to parents, students, business and community sectors</p>	\$	1,000
<p>SUBTOTAL OTHER</p>	\$	9,300

Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative

9. TOTAL DIRECT COSTS

\$ 178,882 \$ 15,137

10. INDIRECT COSTS (2.60%)

\$ 4,651

11. TRAINING STIPENDS

12. TOTAL COSTS

\$ 183,533 \$ 15,137

e

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

Year 3

CATEGORY:

FEDERAL **PPS**

1. PERSONNEL

A. Funds are allocated to reimburse 15 PPS teachers for their participation in two workshops to be held throughout the year plus attendance at the GMSP kick-off celebration. Teachers will be compensated at an estimated rate of \$25.32/hour for 12 hours. Training for our 15 CTE teachers will include a 6-hour overview workshop on gender equity using the Gender Equity Toolkit; and a 3-hour workshop on e-mentoring; and attendance at the October, 2011 3 hour Gaining Equity through Math GEM-PPS kick off celebration at the Carnegie Science Center.

\$ 4,558

B. Dr. Julia Stewart, Executive Director of Career and Technical Education will serve as Project Director and will dedicate 10% of her time to coordinating the entire GEM effort, interacting with partners, monitoring program implementation, and ensuring continuation of services past the life of the grant.

	\$	12,282
SUBTOTAL PERSONNEL	\$	12,282

2. BENEFITS

A. Part-time @ 11.03%

B. Full-time @ 23.245%

SUBTOTAL BENEFITS

\$	503	\$	2,855
\$	503	\$	2,855

3. TRAVEL

17600

A. Funds are budgeted to cover mileage costs associated with the Project Manager's local travel throughout PPS to school sites, meetings, etc. Mileage is estimated to average 2,500 miles per year @ \$.55 per mile

\$ 1,375

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

B. Funds have been budgeted to cover the cost of bus transportation to several events total - 88 buses @ \$200/bus:

- (1) 4 buses to transport new students and parents to annual opening GMSP-PPS kick-off celebration
- (2) 63 buses to transport 251 students to afterschool power sessions Sept - May (7 buses x 9 mths)
- (3) 14 buses to transport 251 students to second series of GMSP workshops (2 total) to be held throughout the school year
- (4) 7 buses to transport students 251 to GMSP overnight summer experience to be held in July

SUBTOTAL TRAVEL

\$ 17,600
\$ 18,975

4. SUPPLIES

A. Funds have been budgeted to cover the cost of general office supplies for development and dissemination of promotional materials and curriculum and instruction materials to include color printer cartridges for an already existing color printer. The annual cost of color printer cartridges is \$530. The estimated cost of other general office supplies increases to \$2,300.

SUBTOTAL SUPPLIES

\$ 2,830
\$ 2,830

5. CONTRACTUAL

A. WEEA Grant Project Manager

1. Funds have been budgeted for payment of a PPS Project Manager who will oversee all components of the WEEA program's day-to-day operations to ensure that all program goals and objectives are met.

B. Girls, Math & Science Partnership

\$ 50,000

Gaining Equity Through Mathematics (GEM) Achievement Budget Narrative

- 1. Funds have been budgeted to cover the cost of one 6 hour overview workshop by GMSP for 34 PPS teachers and administrators focusing on nine research-based techniques that can be used to engage and sustain girls' interest in math, science and engineering.*
 - 2. Funds have been budgeted to cover the cost of replenishing the Gender Equity Toolkit as needed for new PPS teachers and administrators to use during professional development sessions year one and beyond. Cost of kit is \$60 for 7 participants.*
 - 3. Funds have been budgeted to cover the cost of Jennifer Stancil's (Director of the Girls, Math & Science Partnership) management, development and oversight of educational activities at Carnegie Science Center, as well as networking opportunities with scientists/laboratories and business and industry representatives. In that connection, Jennifer will allocate a minimum of 60 hours per year to the accomplishment of these tasks. Increased funding supports additional GEM students.*
 - 4. Funds have been budgeted to cover the cost of two GMSP Workshop experiences which will provide hands-on activities for 251 student participants at an average cost of \$25 per experience.*
 - 5. Funds have been budgeted to cover the cost of a GMSP summer camp experience at Carnegie Mellon University's Robotics Institute, and an overnight stay at Carnegie Science Center designed to advance girls' understanding of biofuels, carbon footprinting and ways car engines can be reworked to accommodate vegetable oil based fuel. Summer camp experience is \$75 for each of the 162 student participants.*
 - 6. Funds have been budgeted to cover the cost of the GMSP kickoff celebration for GEM students, parents and PPS staff. Event will be held at the Carnegie Science Center and will serve as an orientation and a welcome to the larger business/industry/education community. New GEM students (89) and one parent per student, plus 34 district staff will be invited to this opening celebration Total of 212 participants @ \$28 each.*
- | | |
|----|--------|
| \$ | 2,000 |
| \$ | 420 |
| \$ | 25,000 |
| \$ | 12,550 |
| \$ | 12,150 |
| \$ | 5,936 |

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

7. Funds have been budgeted to pay for GMSP staff support in the planning and coordination of activities to accommodate an increasing number of GEM participants per year.	\$ 15,000
C. Smart Futures	
1. Funds have been budgeted to pay for the PA eMentoring site licenses for four school sites to provide an on-line mentoring relationship between students and adult mentors who represent students' chosen career paths. Site license @ \$1,500 per site for four sites.	\$ 6,000
2. Funds have been budgeted to pay for the PA eMentoring professional development to include procedures for accessing and communicating with mentors and review of accompanying curriculum. Cost for training is \$150 per site for four sites	\$ 600
D. Evaluation - Westat	
1. Funds have been budgeted to cover the cost of evaluation services to assess attainment of grant goals and objectives. Costs vary per year based on specific evaluation tasks and GEM students enrollment.	\$ 21,034
SUBTOTAL CONTRACTUAL	\$ 150,690
6. OTHER	
A. Funds have been budgeted to cover the total cost of printing (e.g., curriculum guides, reports) throughout the school year.	\$ 2,000
B. Funds have been budgeted to cover the cost of refreshments for students at GEM afterschool power sessions, for parents at community meetings and for business and industry partners at twice annual advisory meetings.	\$ 8,000
C. Rental fee for use of A+ Schools facility to conduct parent/community meetings	\$ 600
D. Postage for mailings related to communications sent to parents, students, business and community sectors	\$ 1,000
SUBTOTAL OTHER	\$ 11,600

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

9. TOTAL DIRECT COSTS

189,156 15,137

10. INDIRECT COSTS (2.60%)

\$ 4,918

11. TRAINING STIPENDS

12. TOTAL COSTS

\$ 194,074 \$ 15,137

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

Year 4

CATEGORY:

FEDERAL PPS

1. PERSONNEL

A. Funds are allocated to reimburse 15 PPS teachers for their participation in two workshops to be held throughout the year plus attendance at the GMSP kick-off celebration. Teachers will be compensated at an estimated rate of \$25.32/hour for 12 hours. Training for our 15 CTE teachers will include a 6-hour refresher workshop on gender equity using the Gender Equity Toolkit; and a 3-hour workshop on e-mentoring; and attendance at the October, 2012 3 hour Gaining Equity through Math GEM-PPS kick off celebration at the Carnegie Science Center.

\$ 4,558

B. Dr. Julia Stewart, Executive Director of Career and Technical Education will serve as Project Director and will dedicate 10% of her time to coordinating the entire GEM effort, interacting with partners, monitoring program implementation, and ensuring continuation of services past the life of the grant.

\$ 12,282

SUBTOTAL PERSONNEL

\$ 4,558 \$ 12,282

2. BENEFITS

A. Part-time @ 11.03%

\$ 503

B. Full-time @ 23.245%

\$ 2,855

SUBTOTAL BENEFITS

\$ 503 \$ 2,855

3. TRAVEL

A. Funds are budgeted to cover mileage costs associated with the Project Manager's local travel throughout PPS to school sites, meetings, etc. Mileage is estimated to average 2,500 miles per year @ \$.55 per mile

\$ 1,375

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

B. Funds have been budgeted to cover the cost of bus transportation to several events total - 113 buses @ \$250/bus:

(1) 5 buses to transport new students and parents to annual opening GMSP-PPS kick-off celebration

(2) 81 buses to transport 348 students to afterschool power sessions Sept - May (9 buses x 9 mths)

(3) 18 buses to transport 348 students to second series of GMSP workshops (2 total) to be held throughout the school year

(4) 9 buses to transport students 348 to GMSP overnight summer experience to be held in July

	<u>\$</u>	<u>28,250</u>
SUBTOTAL TRAVEL	\$	<u>29,625</u>

4. SUPPLIES

A. Funds have been budgeted to cover the cost of general office supplies for development and dissemination of promotional materials and curriculum and instruction materials to include color printer cartridges for an already existing color printer. The annual cost of color printer cartridges is \$ 530. The estimated cost of other general office supplies increases to \$1,500.

	<u>\$</u>	<u>2,030</u>
SUBTOTAL SUPPLIES	\$	<u>2,030</u>

5. CONTRACTUAL

A. WEEA Grant Project Manager

Funds have been budgeted for payment of a PPS Project Manager who will oversee all components of the WEEA program's day-to-day operations to ensure that all program goals and objectives are met.

\$ 50,000

B. Girls, Math & Science Partnership

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

- | | |
|---|-----------|
| 1. Funds have been budgeted to cover the cost of one 6 hour overview workshop by GMSP for 34 PPS teachers and administrators focusing on nine research-based techniques that can be used to engage and sustain girls' interest in math, science and engineering. | \$ 2,000 |
| 2. Funds have been budgeted to cover the cost of replenishing the Gender Equity Toolkit as needed for new PPS teachers and administrators to use during professional development sessions year one and beyond. Cost of kit is \$60 for 7 participants. | \$ 420 |
| 3. Funds have been budgeted to cover the cost of Jennifer Stancil's (Director of the Girls, Math & Science Partnership) management, development and oversight of educational activities at Carnegie Science Center, as well as networking opportunities with scientists/laboratories and business and industry representatives. In that connection, Jennifer will allocate a minimum of 60 hours per year to the accomplishment of these tasks. Increased funding supports additional GEM students. | \$ 25,000 |
| 4. Funds have been budgeted to cover the cost of two GMSP Workshop experiences which will provide hands-on activities for 348 student participants at an average cost of \$25 per experience. | \$ 17,400 |
| 5. Funds have been budgeted to cover the cost of a GMSP summer camp experience at Carnegie Mellon University's Robotics Institute, and an overnight stay at Carnegie Science Center designed to advance girls' understanding of biofuels, carbon footprinting and ways car engines can be reworked to accommodate vegetable oil based fuel. Summer camp experience is \$75 for each of the 348 student participants. | \$ 26,100 |
| 6. Funds have been budgeted to cover the cost of the GMSP kickoff celebration for GEM students, parents and PPS staff. Event will be held at the Carnegie Science Center and will serve as an orientation and a welcome to the larger business/industry/education community. New GEM students (97) and one parent per student, plus 34 district staff will be invited to this opening celebration Total of 228 participants @ \$28 each. | \$ 6,384 |

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

<p>7. Funds have been developed to pay for GMSP staff support in the planning and coordination of activities to accommodate an increasing number of GEM participants per year.</p>	\$	10,000
<p>C. Smart Futures</p>		
<p>1. Funds have been budgeted to pay for the PA eMentoring site licenses for four school sites to provide an on-line mentoring relationship between students and adult mentors who represent students' chosen career paths. Site license @ \$1,500 per site for four sites.</p>	\$	6,000
<p>2. Funds have been budgeted to pay for the PA eMentoring professional development to include procedures for accessing and communicating with mentors and review of accompanying curriculum. Cost for training is \$150 per site for four sites</p>	\$	600
<p>D. Evaluation - Westat</p>		
<p>1. Funds have been budgeted to cover the cost of evaluation services to assess attainment of grant goals and objectives. Costs vary per year based on specific evaluation tasks and GEM students enrollment.</p>	\$	23,929
<p>SUBTOTAL CONTRACTUAL</p>		
<p>6. OTHER</p>		
<p>A. Funds have been budgeted to cover the total cost of printing (e.g., curriculum guides, reports) throughout the school year.</p>	\$	10,000
<p>B. Funds have been budgeted to cover the cost of refreshments for students at GEM afterschool power sessions, for parents at community meetings and for business and industry partners at twice annual advisory meetings.</p>	\$	2,000
<p>C. Rental fee for use of A+ Schools facility to conduct parent/community meetings</p>	\$	600

**Gaining Equity Through Mathematics (GEM) Achievement
Budget Narrative**

D. Postage for mailings related to communications sent to parents, students, business and community sectors

\$ 1,500
\$ 14,100

9. TOTAL DIRECT COSTS

218,649 15,137

10. INDIRECT COSTS (2.60%)

\$ 5,685

11. TRAINING STIPENDS

12. TOTAL COSTS

\$ 224,334 \$ 15,137

4

GEPA Statement

Fulfillment of the General Education Provisions Act (GEPA), Section 427

Pittsburgh Public Schools (PPS) will fulfill the requirements of GEPA, Section 427, as they relate to *Gaining Equity through Mathematics (GEM) Achievement* in the following manner:

1. PPS has adopted explicit practices to ensure equal access and treatment for all constituents who are members of groups that have been traditionally underrepresented based on race, color, national origin, gender, age and disability. First, we have affirmed, as a matter of Board Policy, that “The Pittsburgh Public School District is an equal opportunity education institution and does not discriminate on the basis of race, color, national origin, gender, sexual orientation, age or disability in its activities, programs or employment practices as required by Title II of ADA, Title VI, Title IX and Section 504.”
2. All stakeholders, i.e. students, parents, and school staff will have equitable access to, and opportunities to participate in, this initiative. This will be accomplished by broad exposure of this initiative in our schools and throughout our communities. There are no foreseeable barriers which would prevent any stakeholders from participating in and reaping the benefits of this initiative.
3. PPS has expertise through its Office of Human Resources and its Business Opportunities Program (which oversees issues concerning equity and compliance), and can draw upon resources which may be needed to insure that all stakeholders are treated in a way that promotes sensitivity towards traditionally underrepresented groups.
4. All programs and activities which are part of this initiative will participate in such a way, and deliver services which convey practices that encourage inclusion, and that heighten respect for individual and cultural differences.
5. Accommodations and adaptations for participation in activities will be made for any stakeholder who has special needs. Some of the adaptations we have made in the past include: converting books to Braille, providing someone to use American Sign Language. These are in addition to the physical barriers that have been overcome by providing access for physically impaired students and staff.

6. Stakeholders will be surveyed to determine, prior to any scheduled events, meetings or activities, whether special accommodations are needed and if so, make every provision possible to include rather than exclude anyone who chooses to participate in the activities related to this initiative.

APPENDICES

- Appendix 1: *Introducing the Pittsburgh Science & Technology Academy*
- Appendix 2: *Girls, Math & Science Partnership 2008 Progress Report*
- Appendix 3: Curriculum Vitae
- Appendix 4: Project Manager Job Description
- Appendix 5: Matrix of Program Goals, Program Approach, Benchmarks, Data Sources, and Timeframe for Data Collection
- Appendix 6: Westat Brief Bios
- Appendix 7: Endnotes

Appendix 1:
Introducing the Pittsburgh Science & Technology Academy

Dream. Discover. Design.



Introducing the Pittsburgh Science & Technology Academy

Welcome to the Pittsburgh Science & Technology Academy: where any student with an interest in science, technology, engineering or math can develop skills for a career in life sciences, environmental sciences, computing, or engineering.

The Academy isn't just a new school. It's a new way to think about school.

Our curriculum is tailored to students who have a passion for science, technology, engineering or math.

Our environment is one of extraordinary support for students, parents, and faculty.

And we exist to provide opportunities, every day, for students to Dream. Discover. Design. Every day our students will set goals and generate ideas, research and discover answers, and design real solutions for the kinds of real-world problems that they'll face after graduation. We promise to do our part to prepare them for their future, whether they go on to higher education or immediate employment.

Sixth-Ninth Grades: Guided Exploration

In grades six through nine challenging experiences get students excited about science, technology, engineering, and math while teaching the skills needed for advanced courses later in the program. Students set goals, learn to structure and solve problems, and explore connections between science, math, and engineering careers and their communities.

Unique courses include Great Problems in Biology, Chemistry and Physics, Specialized Mathematics, Career Prep, Research Methods, Web Design, and more.

Tenth and Eleventh Grades: Focused Discovery

In grades ten and eleven students get to focus their studies in an area of interest. They can choose from the Life Sciences, Environmental Sciences, Computer Science or Engineering. Each of these exciting focus areas is a series of deep experiences in courses like Electrical Design, Organism Interactions, or Chemical Analysis.

The Twelfth Grade: Authentic Design

The whole program prepares students for four special twelfth grade courses. These courses simulate professional experience in science, technology, engineering, and math. The highlight is The Executive Experience, an advanced research and design project completed on a team, in partnership with a real university or industry partner.

Providing Personalized Support

Our environment is one of extraordinary support for students, parents, and faculty.

For students, there is plenty of support for those who need it and plenty of advancement opportunities for those who are ready to move ahead. An innovative schedule provides each student the time and resources they need, and a caring faculty advisor guides each student through the program.

Dream. Discover. Design.

For families, a Parent and Family Center welcomes them into the school community while a faculty advisor provides a consistent point of contact.

For teachers, professional development is relevant and personalized. They are skilled professionals, and they are treated that way.

Focusing on the Future

College and career preparation starts early. Students take specific career preparation courses. They participate in a Science Forum with professional scientists and engineers. And the entire college and job application process is built into the school day. The result is that every student selects the college or career opportunity that is right for them well before graduation.

Rethinking the School Day

Each morning includes two eighty-minute academic periods. For example, a student might have Geometry then Biotechnology, or Regeneration Science then Physical Education.

In the middle of the day students have a lunch and activity period. This period is flexible, with options including personalized academic support, advanced individual research, or a club or activity that is typically offered after school.

The afternoon includes two more eighty-minute academic periods. For example, a student might have World History then Web Design, or Prototyping then African American Literature.

Demonstrating Collaborative Innovation

In all, more than 250 individuals and dozens of organizations contributed to the development of the Academy, and to Dream. Discover. Design.

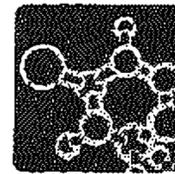
For three years experts from local universities, community organizations, foundations, companies, and volunteers gave hours of their time and talent, collaborating with Pittsburgh Public Schools staff to help create a school that would become a model for science, technology, engineering, and math education.

Applying is easy!

In 2009 the Academy will open with 250 students in grades 6-9. It will grow to serve 550 students in grades 6-12. Due to the limited number of openings, students are admitted to the school through a weighted lottery.

For more information, or to apply to the program:

- Visit www.pghscitech.net
- Call 412.622.7920
- Or visit the Pittsburgh Public Schools magnet office:
341 S. Bellefield Ave. Pittsburgh, PA 15213



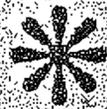
Appendix 2:
Girls, Math & Science Partnership 2008 Progress Report

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girls math science

2008
PROGRESS
REPORT

girls, math & science partnership
a program of Carnegie Science Center



OUR MISSION:

educate & embrace

OUR VISION:



Our vision is of a society where women are represented equitably in the science and technology workforce. Women's contributions in science and technology will improve the immediate community and the world we live in.





girls as architects of change



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girls, math & science partnership
a program of Carnegie Science Center



In a room of 100 engineers, only 9 would be women. U.S. Bureau of Labor Statistics



Out of more than 3.25 million Americans employed in mathematics and computer science occupations, only 27% are women.

U.S. Census Bureau: Statistical Abstract of the United States 2007; Table 0923

Imagine the possibilities....

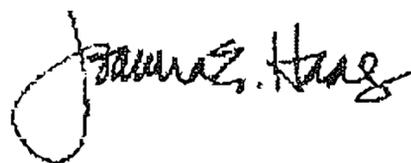
At Carnegie Science Center, we have a long history of cultivating curiosity in young minds and inspiring kids to explore and discover the world around them. We've catapulted kids into space through our planetarium, helped them build bridges, create thriving ecosystems, and understand how rainstorms start. We've watched the spark of discovery and delight in children of all ages, children from all different backgrounds.

The types of experiences we provide play a crucial role in motivating kids to think about careers in science and technology and in moving our region and our nation toward improved science literacy. In a very real way, we serve as a "gateway to science." And that gateway, that pipeline, that future workforce for our region needs to be inclusive of girls, who have typically been underrepresented in science and technology careers.

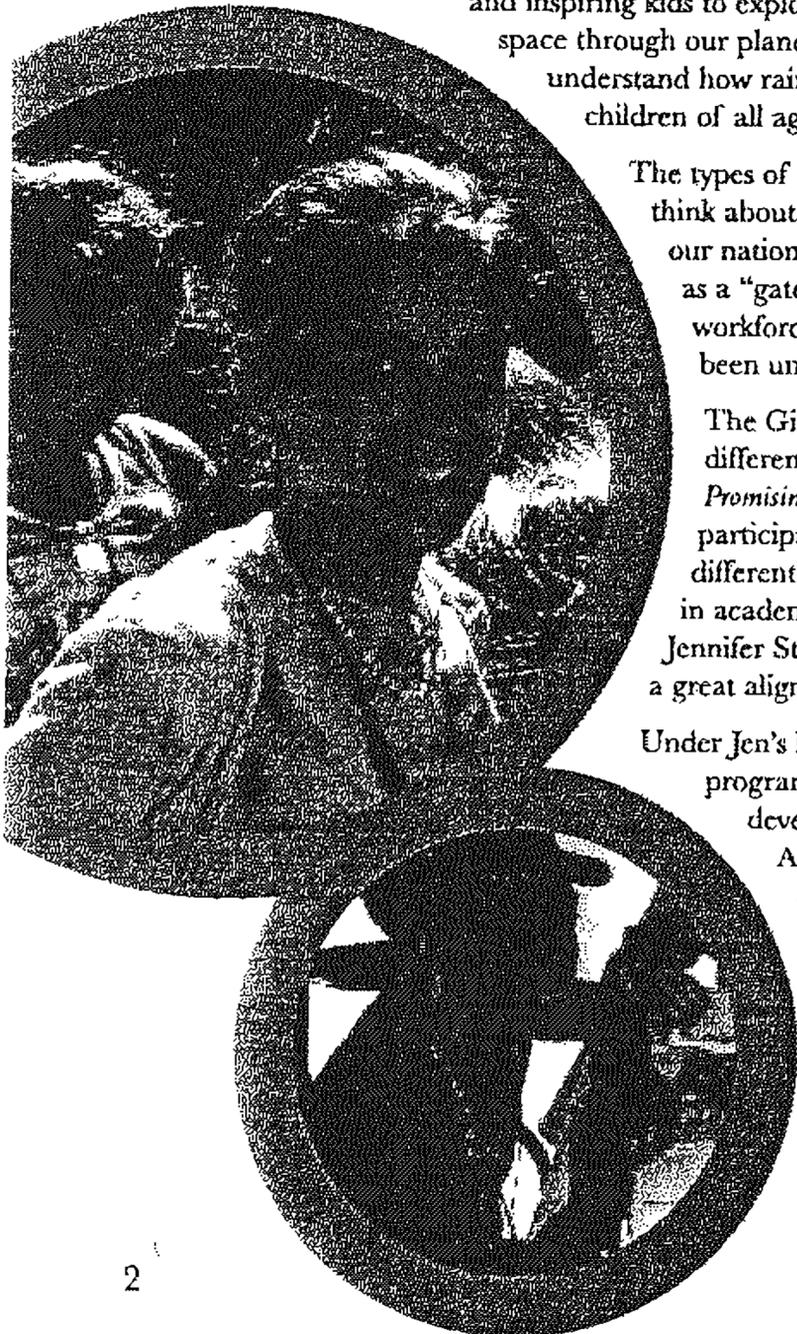
The Girls, Math & Science Partnership (GMSP) certainly is making a difference in that arena. Born out of The Heinz Endowments 1998 study, *Promising Futures*, GMSP was created to address issues regarding girls, their participation in science, and their influence on the workforce — to think differently about what science is and who can do it. After being incubated in academia, GMSP moved to Carnegie Science Center in late 2005, and Jennifer Stancil joined us as Executive Director of the Partnership. It's been a great alignment of mission, vision, and energy.

Under Jen's leadership, tens of thousands of girls have benefited from GMSP programs. We've given girls new ways to express their interests and develop their talents as mathematicians, scientists, and engineers.

And it's particularly exciting that we're taking the program beyond our region and creating a national model of engagement for girls. As you review this report, I know you'll agree that we've made incredible progress.



Joanna E. Haas
Henry J. Buhl, Jr., Director
Carnegie Science Center



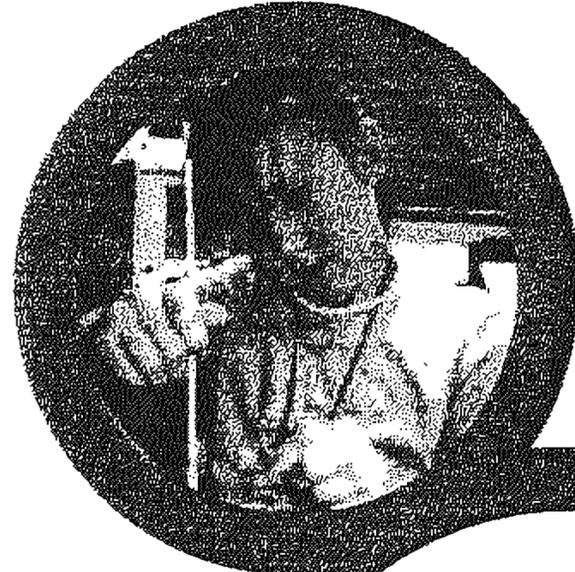


Between 2004 and 2014, jobs requiring science, engineering or technical training will increase **24%**.

(U.S. Bureau of Labor Statistics)



Men earn **3x** as many doctorates in math and science as women. (U.S. Bureau of Labor Statistics)



Welcome to the Girls, Math & Science Partnership!

The Girls, Math & Science Partnership's mission is to engage, educate, and embrace girls as architects of change. Working with girls age 11-17 and their parents, teachers, and mentors, we draw organizations, stakeholders, and communities together in an effort to ensure that girls succeed in math and science.

We're here to help girls be confident, solve problems, and think independently. We engage girls in current science, helping them understand its relevance to their life today. We educate girls with programs that prepare them to understand and use science in their everyday lives. And we embrace girls as architects of change --- envisioning, planning, organizing, shaping, and building a better world --- with math and science as their tools.

The Girls, Math & Science Partnership is an innovative, compelling, high-quality resource for education, information, research and advocacy on gender equality in the sciences.

Inside our inaugural progress report, you'll find four key sections:

CORE PROGRAMS: We're proud of the progress we've made with BrainCake.org and Click! over the past two years. Find out more about the new additions: The Girl Solution and GirlTalk Radio.

SERVICE + ADVOCACY: Two signature programs, 'We're Getting our Nails Done' and 'NOLA Goes Back to School,' allow us to practice what we preach --- science through service. Read how our advocacy campaign for 2007 was about reaching for the stars.

OUR REACH + GOALS: Get a glimpse of our goals through 2012 as well as how we strategically partner with others to maximize our impact.

PROGRAM SUMMARY + SPONSORS: A status report of the girls we reach, the investments we've made in our programs and the generous support we receive.

We know girls can change the world. We're a great resource to help. We invite you to join us in ensuring their success, one girl at a time.

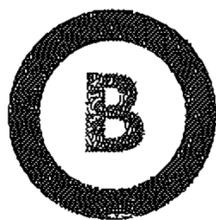
Jennifer Stancil
Executive Director
Girls, Math & Science Partnership

CORE PROGRAM // BrainCake.org

[RELAUNCH]

February 14, 2007

BrainCake.org



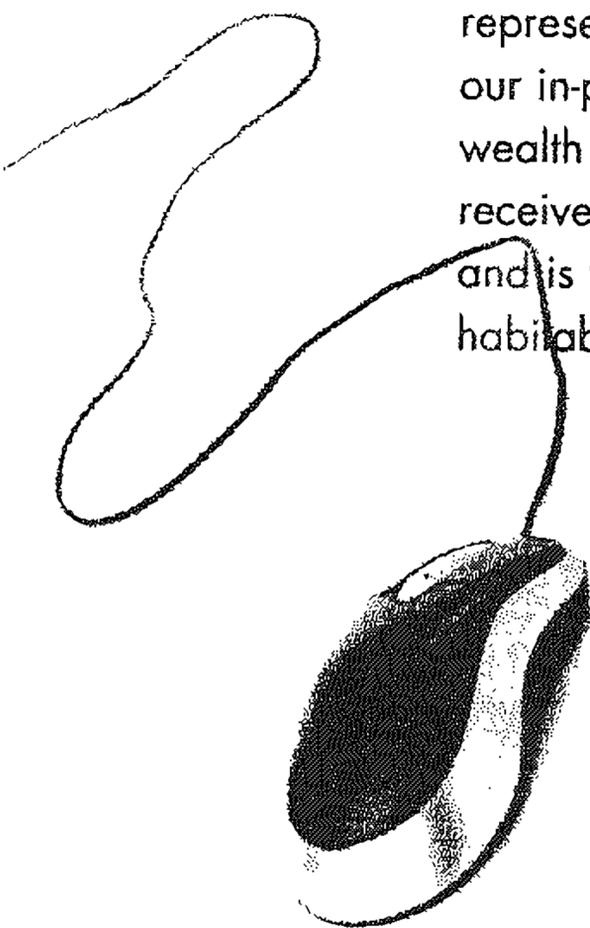
BrainCake.org is a unique online sisterhood of girls ages 11–17, designed to let them “dream in math and science.” The site features programs, scholarships, virtual mentoring, girl blogs, homework help, research and resources in a framework that integrates pop culture, science, and learning. BrainCake.org represents the portal into GMSP: it highlights our in-person programming and offers a huge wealth of additional resources. BrainCake.org receives more than 2.1 million hits per year and is viewed by audiences on every habitable continent.

After significant redesign and expansion, GMSP re-launched BrainCake.org in February 2007 -- on Valentine's Day.

New key components of the site include:

A new interior look

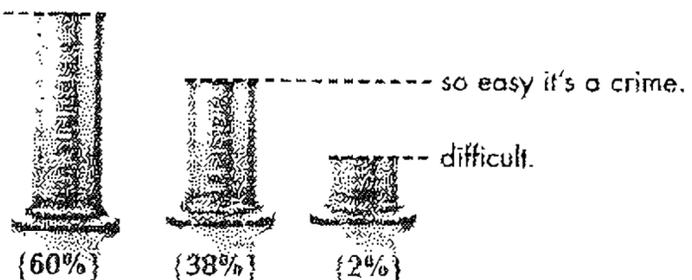
Can you dream in math and science? GMSP research, conducted by MARC USA, suggests that the key to unlocking girls' potential in math and science is giving them a personal connection to those subjects, through which they feel free to explore their interests in a safe, nonjudgmental environment. BrainCake.org became a “virtual notebook” for realizing those dreams.



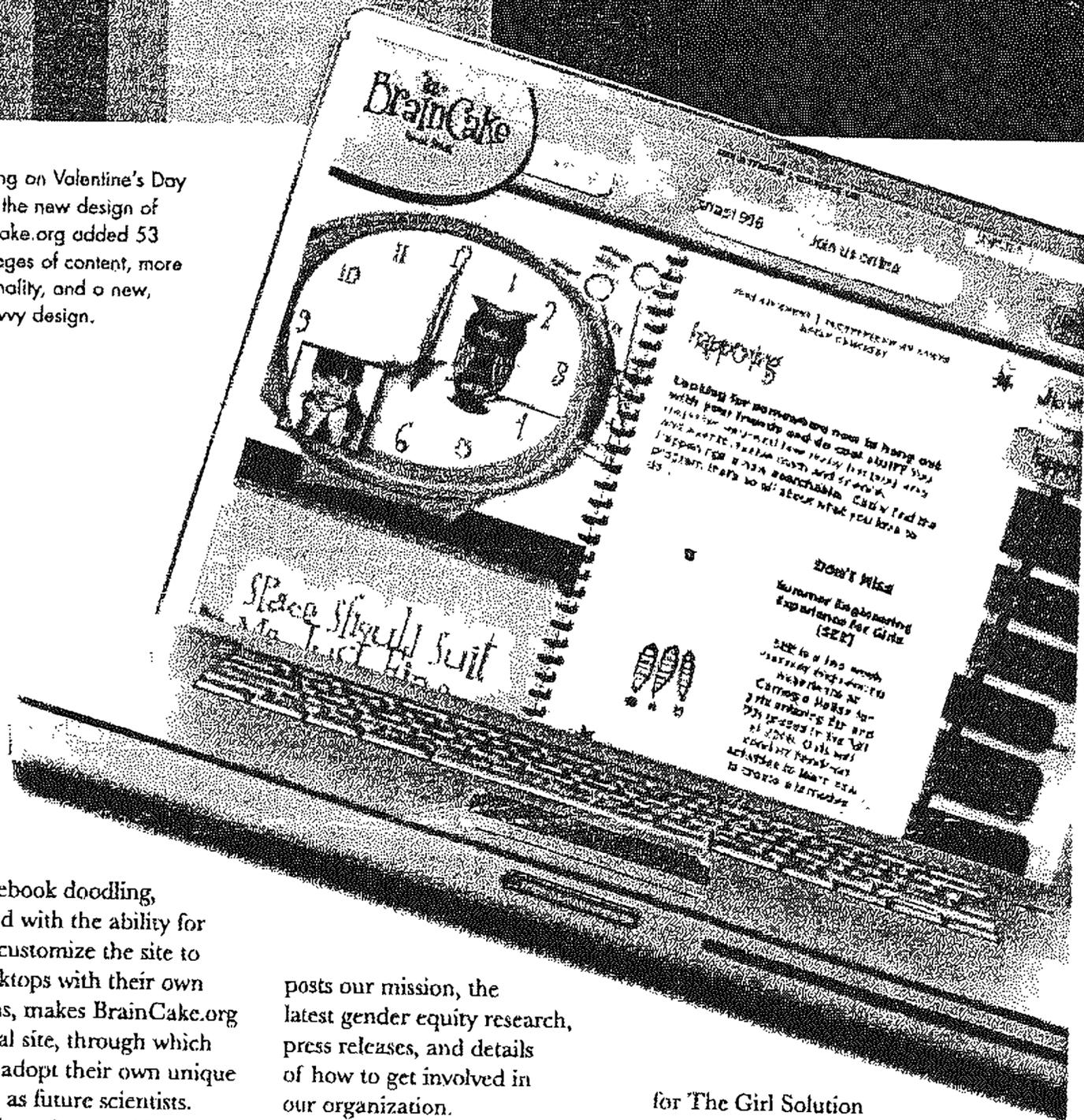
Girls in GMSP programs say:

Science is...

a good challenge.



Debuting on Valentine's Day 2007, the new design of BrainCake.org added 53 new pages of content, more functionality, and a new, teen-savvy design.



The notebook doodling, combined with the ability for users to customize the site to their desktops with their own user icons, makes BrainCake.org a personal site, through which girls can adopt their own unique identities as future scientists. The cutting edge graphics and flash animation complement the scientific content on the site, making it relevant to today's girls.

A space for "us"

We needed a space to tell our corporate story on BrainCake.org. "Who We Are"

posts our mission, the latest gender equity research, press releases, and details of how to get involved in our organization.

A new audience base

BrainCake grew from 70 to 123 pages when we launched the updated site. Traffic skyrocketed to four times the previous volume. Since the re-launch, we've added another 32 pages of material on BrainCake.org and on two new ancillary websites

for The Girl Solution and GirlTalk Radio.

BrainCake.org averages more than 11,000 individual visitors each month. BrainCake.org's audience base has also expanded to reach older people — that is, people over the age of 17. Giving parents, teachers, and mentors increased access and their own pages has helped us promote systemic change. >>>

58% of girls see themselves as the most computer-savvy members of their households.

The Net Effect, Girls and the New Media February, 2002

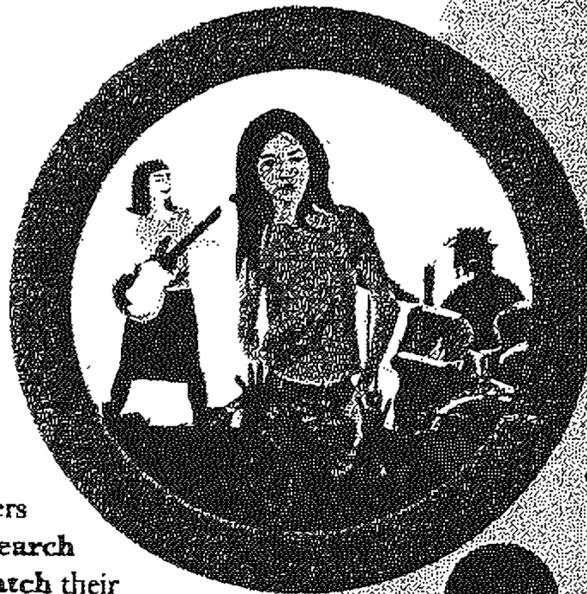
CORE PROGRAM / BrainCake.org



engaging girls 101:

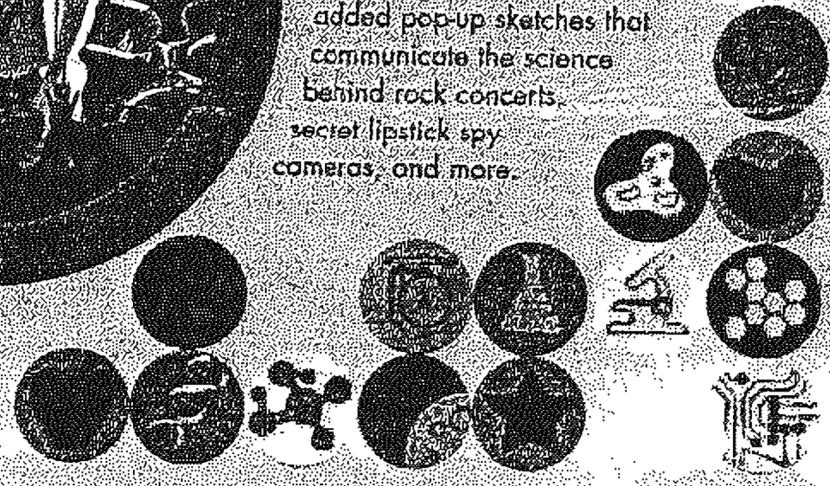
THE BLISS NOTE

Don't miss the pop-up Bliss Notes, emphasizing the **science of everyday life**. Designer Bliss Alexander took drawings of each page and added pop-up sketches that communicate the science behind rock concerts, secret lipstick spy cameras, and more.



A perfect match

After adding a Google-based search engine, users are now able to **search** programs and **match** their needs. Now girls can specify an area of interest — engineering, architecture, biology — and be matched with a mentor. Girls can read about, listen to (via podcast), and write to mentors who can answer their questions about the science profession.



In addition, the "Happening" section is searchable for parents and teens. Simple parameters such as age, subject matter (math, chemistry, etc.), and geographic location make it easy to choose the science and technology program tailored to individual girls.

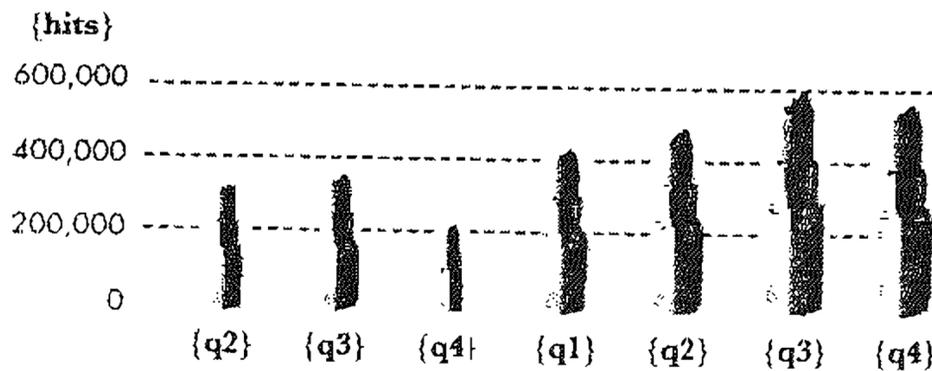
Authentic voices

As BrainCake.org's capacity expands, we want girls' thoughts, interests, priorities, and voices to inform that change as much as possible. The girls' blogs on the "Science of Snowflakes" or the green energy movement give the site authenticity and credibility.

During the site redesign, girls reviewed drawings of the proposed changes and gave us focused comments on what direction it needed to take — from visuals to content to functionality. ♀

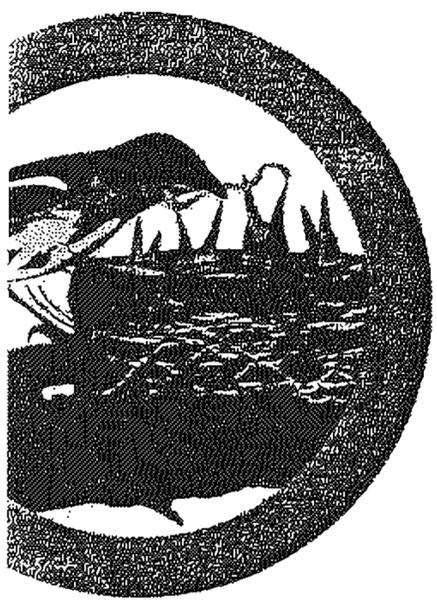
Online impact

Number of internet "hits" at BrainCake.org, by quarter:



06

07





[BY THE NUMBERS]

The site received **2.1** million hits in 2007

The average number of individual visitors per month is **11,000**

There are **155** pages of content — and growing

The site has been viewed on **6** continents — that's every habitable one

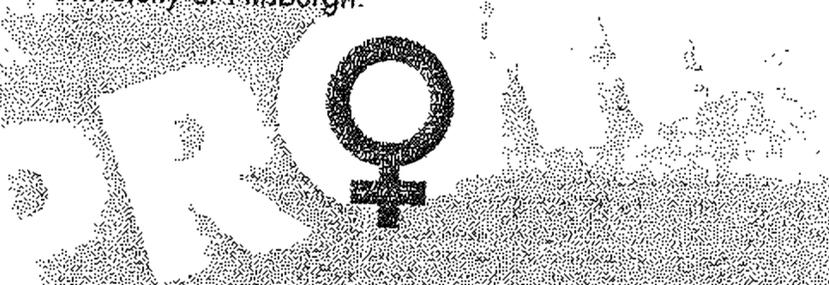
More than **5,000** users are currently registered at BrainCake.org

CORE PROGRAM // BrainCake.org



Who is Emily Sturman?

The newest member of the GMSP team is Emily, holding down the fort as the brains behind BrainCake.org. Designing, writing, and operating a virtual community of thousands, Emily knows all kinds of current science — from why transparent skin on frogs eliminates the need for dissection, to how to make an iPod charger from an Allbirds™ fin. A philosophy major in college and a graduate of the Heinz School of Public Policy and Management at Carnegie Mellon University, she leads our advocacy campaigns and outreach programs, finding ways to connect girls, parents, and teachers to the ideals we hold so dear: **getting more girls involved in science**. She was an editor for CMU professor Dr. Linda Babcock's new book on negotiation skills for women, served as editor-in-chief of the *Heinz School Review* while in grad school, and belts out cantatas in her spare time with the Bach Choir of Pittsburgh. Her husband, David, is an M.D./Ph.D. student at the University of Pittsburgh.



girls math 7

CORE PROGRAM // Click!

[SUMMER PROGRAM]

Summer 2006 & 2007

Click!

Secret Clues. Covert Missions. Science Mysteries. Awesome Technology.



Click! is a six day immersive experience built to engage girls for three consecutive summers from sixth to eighth grade: the time they are most at risk for losing interest in science. It is an urban adventure program that combines science content, advanced technology and reality TV-style immersion. In collaboration with practicing scientists, Click! uses specialized tablet computer interfaces, location-aware mobile devices, and written and digital documentation to engage girls. Click! Level 1

(a biomedical mystery for sixth graders) and Click! Level 2

(an environmental mystery for seventh graders) have both been exclusively funded by Alcoa Foundation.



Pairing academic content and experts with a compelling story line, girls solve a mystery hinging on teamwork, interviewing, and their ability to problem-solve on their feet. The backdrop? Pittsburgh's downtown urban setting as the Click! Agents' own "spy school." Click!'s innovative and unique program has been sought out by girls around the nation and the world — part *Charlie's Angels*, part real-world science, and totally cool.

Each Click! program has three key components:

- 1 The storyline: the backdrop toward which our clues, videos, and cases throughout the week lead.
- 2 The computer interface: the customized \$50,000 laptop operating system that is time- and location-aware throughout the week, sending messages and

"Every day at Click! was great. It keeps getting better. . . I am so excited! Today we learned about DNA. We saw a show about DNA and did some activities like extracting some of our own DNA. Pretty cool. Can't wait for tomorrow!"

Anonymous journaler Click! Season 1 2007



Click! Agents-in-Training use Carnegie Science Center as HQ during their Urban Adventure.

information from Senior Agents and informants, and between Agents-in-Training.

③ The casebook: the active workbook that holds all the cases and information that the girls are working on throughout the week. The girls work through five to eight cases in addition to the main mystery. The cases focus on helping the girls to see themselves as scientists, improving their content knowledge, and allowing them to function as a team. >>>

engaging girls 101:

GLICK! SENIOR AGENTS

Why are the Senior Agents so important? We can't tell you because it's a secret! As each Click! Agent-in-Training plays the role of Cardinal, Starling, Myna, Flamingo, Canary, or Phoenix, they are taught to better understand how they, as student scientists, rely on the interdependent knowledge

and skills of a group. The actual Senior Agents, whose detailed profiles can be found on our website, serve as the high school version of *Charlie's Angels* — **real girls with real missions in science**. Girls can begin to see how an "older version" of themselves might act or be, a vision that often is lacking with today's girls.



CORE PROGRAM // Click!



Click! Agents-in-Training use GPS systems to navigate Pittsburgh's North Shore, finding clues and treats for their hard work.

Click!, the spy school for girls, begins

Click! Level 1 (the sixth grade version) has a biomedical mystery at its core. One of our favorite Pittsburgh Steelers, Troy Polamalu, falls ill at a pre-season celebration. Doctors share patient profiles that previously could not be diagnosed. The girls are presented with one specific similarity: all of the patients ate peaches within 48 hours of their illness. **The Case of the Perplexing Peach**

Predicament shapes the remainder of their time. The camp culminates in an

adventure day of interviews and fact-finding across the North Shore. Finally, the girls present their solutions, reality TV-style, to the camera.

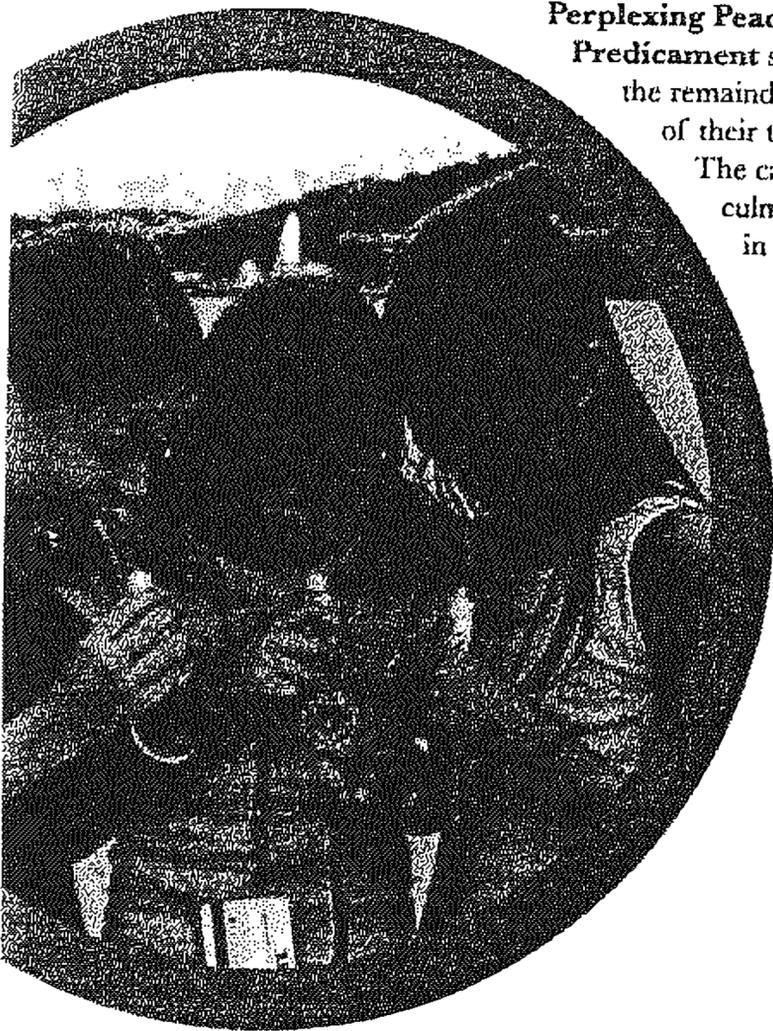
Click! goes green

Click! Level 2 (the seventh grade version) was new in 2007 and focuses on the environment. After hearing a speech from the head of the Department of the Environment and looking at the current Fish Kill Hotline reports, **The Case of the Not-so-Feisty Fish** begins in earnest. Looking at water quality on the confluence of Pittsburgh's three rivers, girls chemically study samples laid over GPS maps and create graphs, PowerPoint presentations, and spreadsheets to tell a story of the environmental issues facing our region. Whether reporting their data and solutions to real experts in the community or contemplating their own carbon

footprints, girls gain deep respect and enhanced scientific literacy about complex environmental issues.

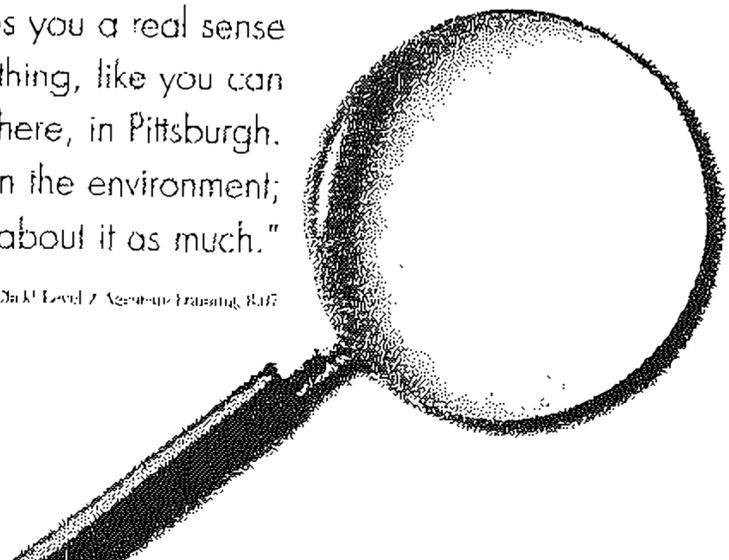
Click! across the nation

The Alcoa Foundation has been a primary and generous supporter of Click! at every level. Our hope is to share our best practices with other museums and girl-serving agencies so they can adopt the program for themselves, customizing it to their specific community. By mid-2008, we will complete the Click! Level 1 How-To Manual and will be ready to share it with other educational institutions that want to purchase it for their use. By 2009, Click! Level 3, focused on technology, will be piloted. By 2010, **all three programs** will be available to other museums thanks to Alcoa Foundation's investment. ♀



"Click!... gives you a real sense that you can change something, like you can make a difference right here, in Pittsburgh. Now I'm really interested in the environment; before I didn't think about it as much."

Kondall, 13, Coraopolis Click! Level 2 Agents-in-Training, 2007



Click!

[BY THE NUMBERS]

Who are **Click!** girls?

Here's what the 86 girls we polled had to say...



Compared to everyone else in science, I am...

- a rock star {61%}
- keeping up {36%}
- hanging by a thread {3%}



I have used GPS...

- never {57%}
- few times {25%}
- once {15%}
- a zillion times {3%}



I have a mentor in science...

- no {54.5%}
- yes {33%}
- I wish I did {12.5%}

CORE PROGRAM // Click!



Who is **Caitlin LeBlond**?

Otherwise known as Click! Agent #001, Caitlin spends her summers **making Click! one of the top programs for middle schoolers in the nation.** With degrees in Women's Studies and Environmental Science, she effortlessly launches into teaching mode whenever outdoors. In 2007, she was the primary author of the Click! Level 2 curriculum, focused on one of her passions—working to protect and sustain the environment. At home, Caitlin uses science in her kitchen; you might see her worm composting and teaching others how. In addition to her work with GMSP, she was one of the lead organizers of the Alternative Transportation Festival, spends her weekends with kids doing outdoor education with the Student Conservation Association in nearby state parks, and continues to work with local arts events to make them more environmentally conscious. Caitlin also was a member of the inaugural class of the Coro Center for Civic Leadership's "Leaders in Learning" in 2007 and continues mentoring new classes of Coro Leadership Fellows, of which she is a 2006 graduate. And, you might recognize her from *Pittsburgh Magazine*, where she held us captive in the Dream Job column in the July 2007 issue.



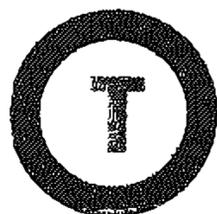
CORE PROGRAM // The Girl Solution: A Gender Equity Toolkit

[LAUNCH]

May 9, 2007

The Girl Solution

Engaging and Sustaining Girls' Interest in Math and Science



The **Girl Solution** is a gender equity toolkit created through support from the U.S.

Department of Education and launched in May 2007 to critical acclaim. It emboldens educators with new methods around gender equity in the classroom. The toolkit provides innovative resources that engage and sustain the interests of girls (4th – 9th grades) in science and math, for educators, after-school programs, homes and girl-serving agencies.

The Need

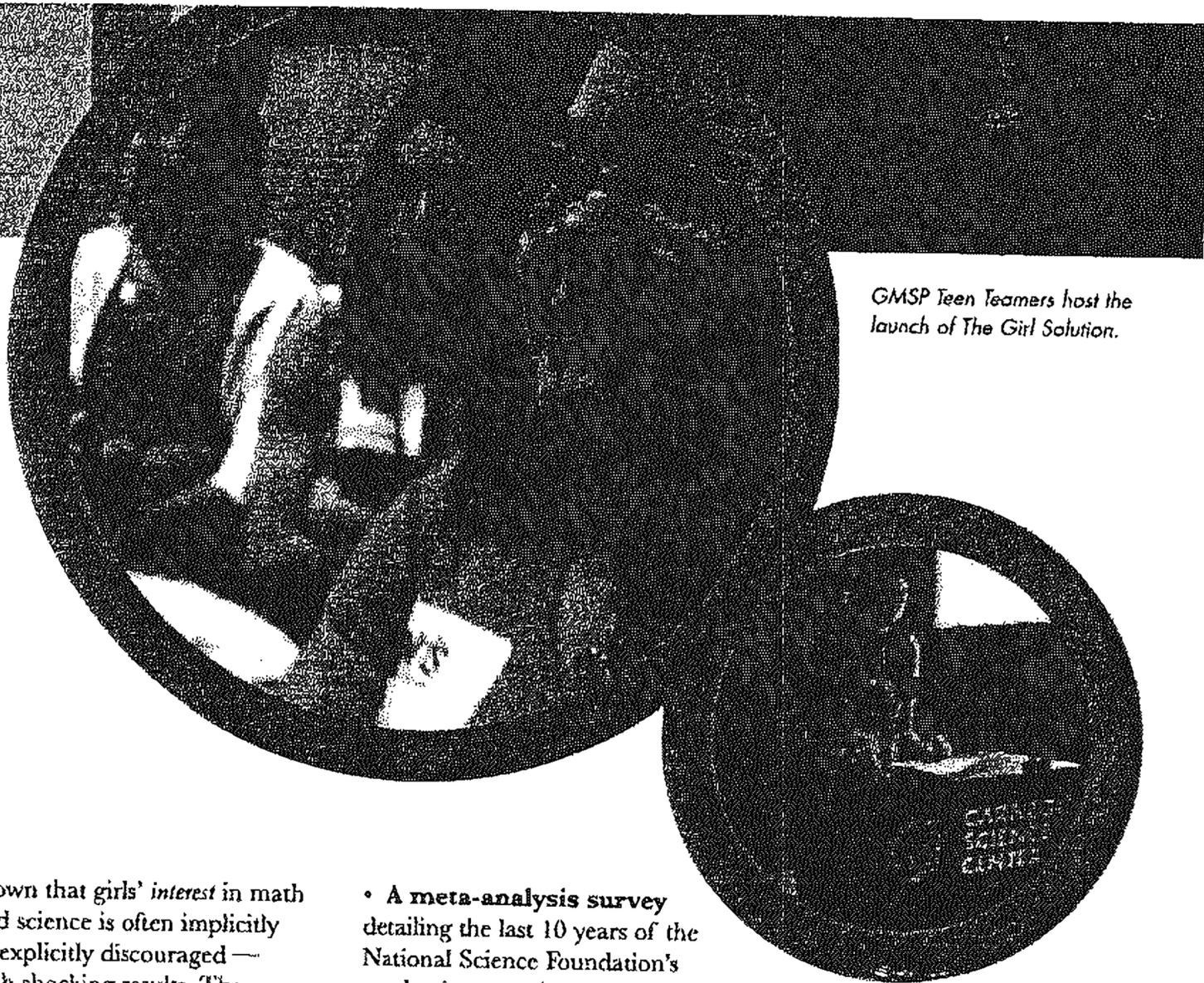
We know that girls can, and must, play a vital role in the fields of math, science, and technology. We strive to provide educators, mentors and parents the tools they need to help. Our toolkit, themed around the “chemistry” between a girl and science, provides unique approaches for the classroom and beyond.

While girls consistently demonstrate a high aptitude for both math and science, more than 10 years of research has

www.BrainCake.org/toolkit

The *Girl Solution* Toolkit and Training is available from GMSP. To purchase the kit or for more information, visit us online.





GMSP Teen Teamers host the launch of *The Girl Solution*.

shown that girls' interest in math and science is often implicitly or explicitly discouraged — with shocking results. The percentage of girls who say they like science from fourth to twelfth grade drops from 66% to 48%. There are very few female role models in the sciences for girls, especially in the mass media; this reinforces the belief that girls can't succeed in math and science.

Creating the Toolkit

The Girl Solution: A Gender Equity Toolkit is a project that utilized three key sets of data:

- \$250,000 worth of market research about beliefs, perceptions and key communication strategies about girls in math and science.

- A meta-analysis survey detailing the last 10 years of the National Science Foundation's academic research outcomes about girls in math and science.

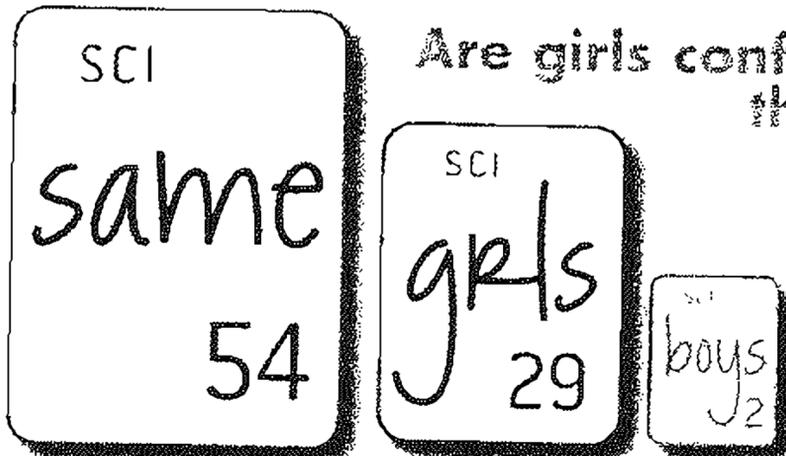
- Day-to-day, girl-tested experience with our own middle school audience — both online and in person.

Our conclusion? Girls relate to science differently than boys. Girls tend to want to use science as a tool to change the world. Keeping that point front and center helps girls see the value in scientific knowledge.

The Toolkit Audience

While the toolkit was built with educators in mind, we've found a broad audience for *The Girl Solution*. Trainings at the

Allegheny Intermediate Units have been met with wonderful reviews. In addition, GMSP has conducted a national training for all Girl Scouts USA STEM personnel for use with their councils and their leaders. The Heinz Endowments has generously given us a grant to launch *The Girl Solution* in after-school programs that cross socioeconomic boundaries, while building a business plan and evaluating the value of the kit's content for this specific after-school time frame. We hold parent workshops and are partnering with the Jewish Women's Foundation to train an entire school in Pittsburgh. >>>



54 girls in GMSP programs felt that boys and girls were about the same in their science skills. Only two respondents thought boys were better at science.

CORE PROGRAM // The Girl Solution

"Connecting math and science knowledge to real world problems is a great way to engage girls in learning. The Girls, Math & Science Partnership's toolkit takes this idea and puts a new, effective spin on it. The innovative methodology of *The Girl Solution* encourages girls to become global problem solvers and leaders of tomorrow."

Heather Arnot Executive Director, Women and Girls Foundation of Southwestern Pennsylvania



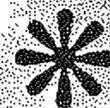
More than 200 attendees left the May launch event with toolkits for their organizations.



The Girl Solution: A Gender Equity Toolkit has two key components:

① **The Girl Solution CD:** By following the 'Periodic Table of Contents,' you'll find more than 100 pages of research, evaluation for the classroom, techniques for engaging girls, curriculum about women scientists, and a list of tips and resources about gender equity.

② **Tools for the educator:** Posters and buttons for the classroom. BrainCake composition books. Trading cards and a timeline of "Great Female Difference Makers." The kit is full of incentives, parent handouts to help begin the conversation around gender equity, and much, much more. ♀



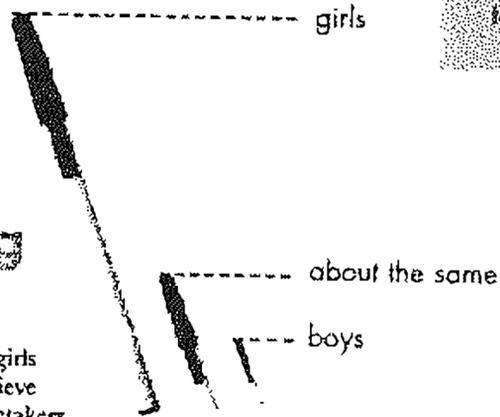
engaging girls 101:

NEW STRATEGIES FOR NOTETAKING

Girls are confident notetakers. However, according to a study conducted by the National Coalition of Girls Schools, notetaking can be debilitating to a girl in science class. Research shows that girls focus so intently on notetaking that they fail to participate in the discussion, preferring perfection on paper rather than listening, processing and responding to what is being said. The Rx for notetaking? Balance the classroom strategies. One day, forget about notetaking entirely and post notes online, rotate notetaking responsibilities between boys and girls, and actively encourage girls' with processing time and discussion during lectures.

Who is better at taking notes?

Our surveys show that girls in GMSP programs believe that they are better notetakers than boys, 67 to 1.



{67} {16} {1}

★ the GIRL Solution

[BY THE NUMBERS]

\$250,000

of marketing research

Biographies of **28** Great
Female Difference Makers

A checklist of **14** key
indicators of gender equity in
the classroom

9 techniques for engaging
and sustaining girls' interest
in math and science

1 unique teaching method:
"Relationship Science"

CORE PROGRAM // The Girl Solution



Who is Jennifer Stancal?

As Executive Director, Jen's job is serious fun. Her career started in Alabama and then North Carolina, where she worked to engineer programming for two new museums — McWane Science Center and Marbles Children's Museum (previously Exploris). Her work helps **build and solidify the reputation of institutions and educational program excellence**. Jen's consulting work has taken her across the country to speak, train, and motivate those in the museum, educational, and corporate worlds, as well as to help design and build the capacity of nonprofits. As the primary steward of the GMSP brand and the relationships that ultimately make it successful, Jen spends much time keeping pace with today's tween and teen girls. In January 2006, Jen moved to Pittsburgh to take the helm of the Girls, Math & Science Partnership, mobilizing her training as a biologist and her passion for and experience with working with teen girls. She was named an Emerging Leader in Pittsburgh in 2007 by the Junior League for building better communities for women and girls. Her husband, John, works part-time and cares for their one-year-old daughter, Avery Grace.

CORE PROGRAM // GirlTalk Radio

[LAUNCH]

June 14, 2007

GirlTalk Radio

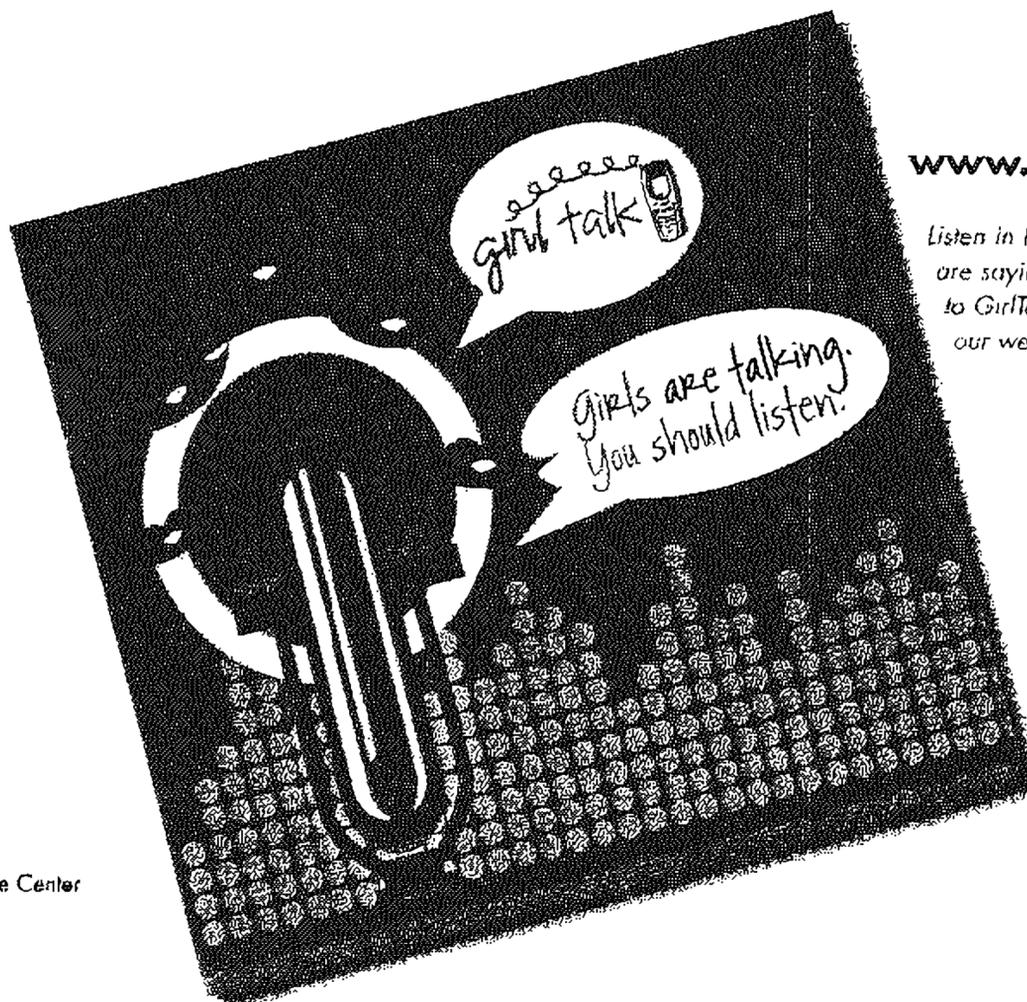
Girls are talking. You should listen.



MSP teamed with The Saturday Light Brigade to offer *GirlTalk Radio*, an exploration of female science mentors through personal stories and interviews. The program allows girls to get up close and personal with women in edgy science careers while learning multimedia production, audio engineering and recording technology first-hand at The Saturday Light Brigade's \$250,000 state-of-the-art digital studios.

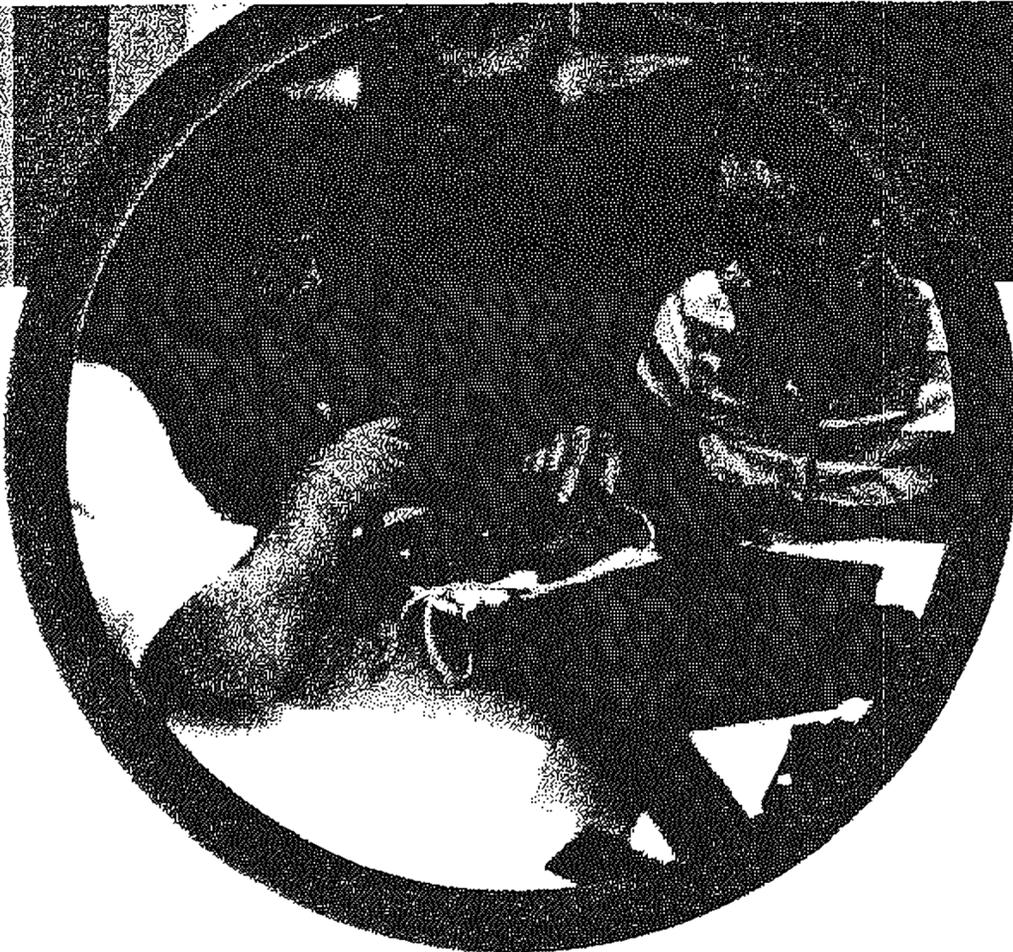
Podcasts produced for *GirlTalk Radio* are posted on iTunes and burned to a special CD distributed to educators nationwide. *GirlTalk* interviews were aired to more than 30,000 families weekly on radio stations in western Pennsylvania in the summer of 2007. The audience is expanding to 80,000 families in 2008.

One of only 10 select programs in the nation, this pilot was made possible by Twin Cities Public Television's DragonFly TV grant addressing girls.



www.BrainCake.org/girltalk

Listen in to what girls are saying...tune in to GirlTalk by visiting our website.



Teams of girls use iKEY technology to practice interviewing and recording.

A cool batch of initial mentors:

Erin Copeland
Pittsburgh Park Conservancy,
Restoration Ecologist

Dr. Bernardine Diaz
Carnegie Mellon University,
Robotics Professor

Ariadna Font-Llitjós
Computer Scientist and Linguist

Dr. Tanya Hagen
UPMC Orthopedist and Pittsburgh
Steelers Training Camp doctor

Jill Johnson
Smithsonian Institution,
Marine Biologist and Exhibit Developer

Jonna Mendez
CIA Agent, retired

Mary Louise Wotring
RiverQuest, Director of Administration

Now, wouldn't YOU like to hear those interviews?

What really happens at a red carpet premiere...

With the serious work of creating podcasts and editing hours of interviews behind them, the biggest question on the girls' minds was, "What party dress should I wear to the *GirlTalk* Premiere?" With paparazzi lining the glitter-decorated red carpet entrance to Carnegie Science Center (decorated with the *GirlTalk Radio* hosts' names, of course), the girls enjoyed "mocktinis," a yummy dinner and a festive time celebrating their accomplishments and listening to everyone's podcasts together.

GirlTalk Radio 2.0

GirlTalk Radio will continue beyond the pilot, allowing more girls to host our radio show and encouraging others to create a similar program with their local radio stations. Stay tuned for *GirlTalk Radio Saturday Academy*. ♀



good ink:

GMSP IN THE NEWS

Envisioning the next Einstein, as a Girl
Carnegie Magazine, Fall 2006

Program is Calculated to get more Girls into Math and Science
Pittsburgh Post-Gazette, May 9, 2007

Dream Job: Girls Go Tech
Pittsburgh Magazine, July 2007

Betting on BrainCakes: Interview with Jen Stancil
Nina Simon, *Museum 2.0*, July 9, 2007

Science Center, Girls Helping New Orleans
Pittsburgh Tribune-Review, Aug. 24, 2007

Summer Sleuthing: This Summer's Click! Agents Solve Medical Mysteries on the North Shore
Carnegie Magazine, Fall 2007

Best Life Site: BrainCoke.org
Justine Magazine, Dec. 2007/Jan. 2008

Science is Applied in Makeup Contest for Girls
Pittsburgh Post-Gazette, Feb. 6, 2008

"Though [engineering, computer science, and mathematics] make for good careers as they are, they can be expanded into the arts world...an engineer could write a book on her most incredible endeavor, a computer scientist could design new tools to create art using the computer. Who ever said that a scientist had to stick to the laboratory?"

CORE PROGRAM // GirlTalk Radio

"[Science and math] give us a way to think critically about the world and allow us to understand things around us at the molecular level, from the very simple to the very complex, from cooking to tackling complex questions like cancer or the environment."

Kay Brummond Professor of Chemistry, University of Pittsburgh, named "Emerging Female Scientist"

Audio engineering? A piece of cake.
Being heard by 30,000 listeners?
A little crazy. Starring in your
own radio show? A once-in-a-
lifetime experience.


engaging girls 101:
GIVE THEM A VOICE

Girls' perceptions of their own abilities in science are influenced by the images they see, the messages they hear, and the methods we teach them with. The first step is to allow girls to see themselves as scientists by introducing them to women, at various stages in their careers, whose stories help girls **break through an initial barrier — the misconception that women don't do science, only men do.** Second, by having the mentors interact with students, the accomplishments of these women — who may only represent an idea — become real. The third step is to give girls the skills and the voice to express their interest in science. Whether it's on a radio show, in a spy camp, or through an online blog, allowing girls to openly communicate their interests, attitudes and abilities in science will show them the power of their own voices.

In an online survey, 128 girls answered:

What scientific career is most interesting to you?

- 1 ● ● ● ● ● ● ● **Chemist** studying makeup {24%}
- 2 ● ● ● ● ● ● ● **Pediatrician** delivering babies {22%}
- 3 ● ● ● ● ● ● ● **Mathematician** solving environmental problems {15%}
- 4 ● ● ● ● ● ● ● **Engineer** of maglev trains {8.5%}
- 5 ● ● ● ● ● ● ● **Physicist** creating safer cars {4.5%}
- 6 ● ● ● ● ● ● ● None of these. I'm not sure yet that science & math are for me. {26%}



[BY THE NUMBERS]

14 GirlTalk hosts from different neighborhoods all across the city

7 podcasts!

More than **30,000** family household listeners per week heard GirlTalk on the radio in 2007

GMSP Mentors & Difference Makers

Racial demographics:

- caucasian {67%}
- african-american {10%}
- hispanic {7%}
- asian {7%}
- african {3%}
- ▲ native american {3%}
- south american {3%}

Career status:

- senior {28%}
- mid-career {23%}
- early {13%}
- historical figure {36%}

CORE PROGRAM // GirlTalk Radio



Who is Kay Brummond?

The Girls, Math & Science Partnership had the privilege of presenting Dr. Kay Brummond with a very special honor: Carnegie Science Center's first Emerging Female Scientist Award. Dr. Brummond is a Professor of Chemistry at the University of Pittsburgh and the first woman to receive full tenure in that department — ever. Her research group makes biologically important compounds that have potential applications in the treatment of cancer, Type II diabetes, and obesity. She has also developed groundbreaking methods of compound synthesis that are now widely used in the field of organic chemistry. She holds a Ph.D. in chemistry from Penn State and a B.S. from the University of Nebraska – Lincoln. GMSP highlighted Dr. Brummond as a mentor on BrainCoke.org; she gave our online audience this advice: "Take and excel at all math and calculus courses that your high school offers. Mathematics is a door-opener and the foundation to many scientific career paths. Also, learn how to study and become a problem solver in everything that you do. **A good scientist asks or researches useful non-obvious questions and solves problems using innovative ideas.**" We hear that math isn't the only key to Kay's success; hard work might have something to do with it too. From the third grade on, she recalls taking a special interest in the sciences. She even gave up recess time to undertake a few additional experiments that the teachers were not able to get to during class.

06-07



The GMSP Teen Team is an elite group of young women from across the Pittsburgh region. These girls act as our ambassadors at outreach events and as our champions to their peers and teachers. They also help us keep our programming current and fresh, lending their voices to shape policy and practice at the Partnership.

Saige Baxter
Mellon Middle School

Petey Bruni
St. Thomas More

Tara Dervin
Jefferson Middle School

Alicia Ferrilli
Southbrook Middle School

Kendall Fitzgerald
West Allegheny Middle School

Alexa Frankovitch
St. Joseph School

Kate Girdhar
Campus School at Carlow University

Naoka Gunawardena
Carson Middle School

Maggie McClain
Sewickley Academy

Chrissy McGinn
Sewickley Academy

Abigail McMahon
Brookline Elementary

Lauren Milley
McMurray Elementary School

Imani Nevel
Linton Middle School

Francesca Pellegrini
Washington Middle School

Olivia Rangel
Jefferson Middle School

Elizabeth Regan
St. Ursula School

Liz Schaming
Taylor Alderdice High School

Emily Schneider
Brookline Elementary

Aditi Shah
Penn Hills Middle School

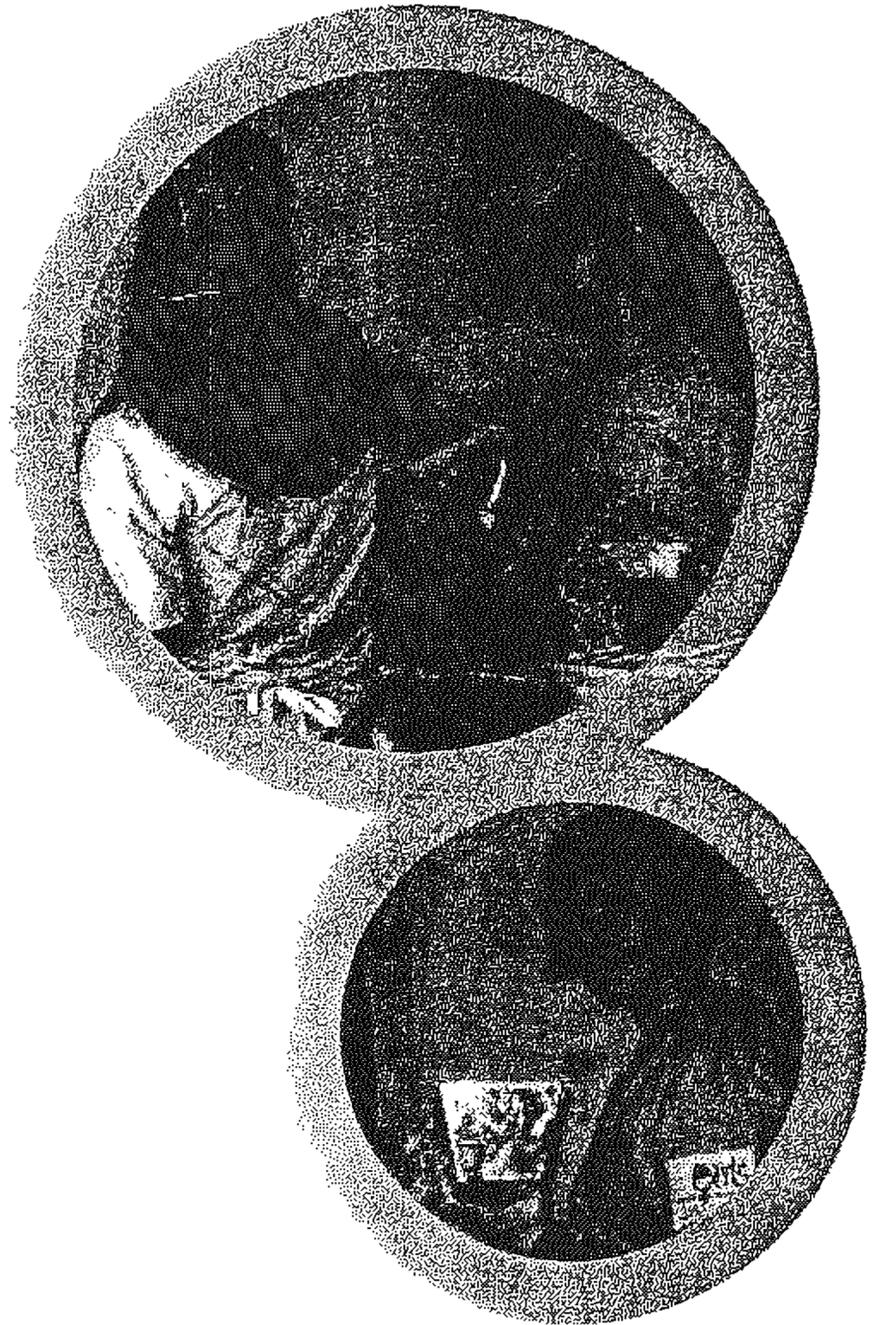
Nicole Sharkey
H.S. for Creative and Performing Arts

Grace Steward
Mars Middle School

Sarah Troetschel
Home School

"You must be the change you want to see in the world."

Mahatma Gandhi



"We at the Women in Science & Engineering Program at the University of Arizona love your work at the Carnegie Science Center, especially BrainCake.org. You've made science and mathematics fun and accessible for girls, and we hope to emulate your efforts here in Tucson. We think what you are doing is awesome, and we hope to get more involved with your amazing efforts."

Hilary Beggs, Events Coordinator, Women in Science & Engineering, University of Arizona

SERVICE + ADVOCACY

[CASE STUDY #1]

We're Getting our Nails Done!



When GMSP launched *The Girl Solution* and put forth the idea of "relationship science," we said that one key to girls' success in science could come from establishing the meaning and value behind science. In this case, when we say science is a "tool to change the world," we really mean it.

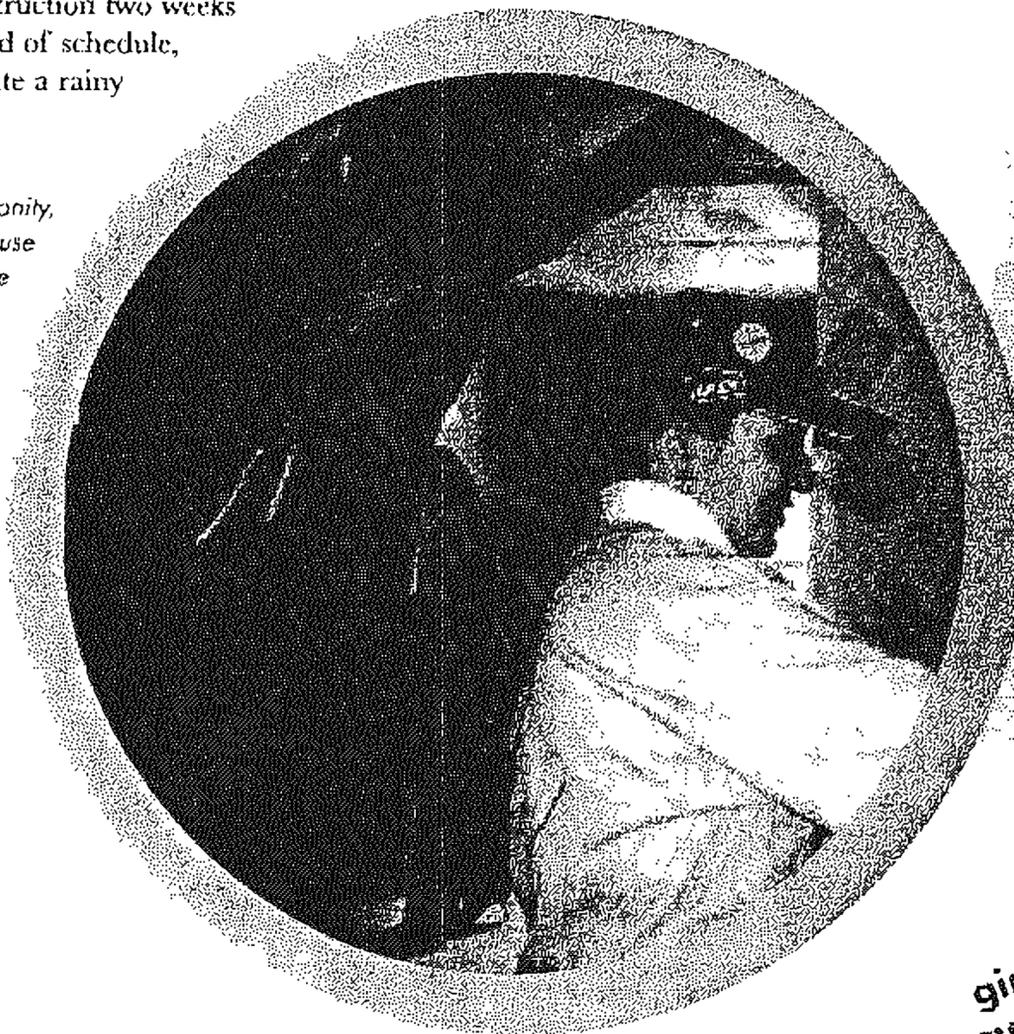
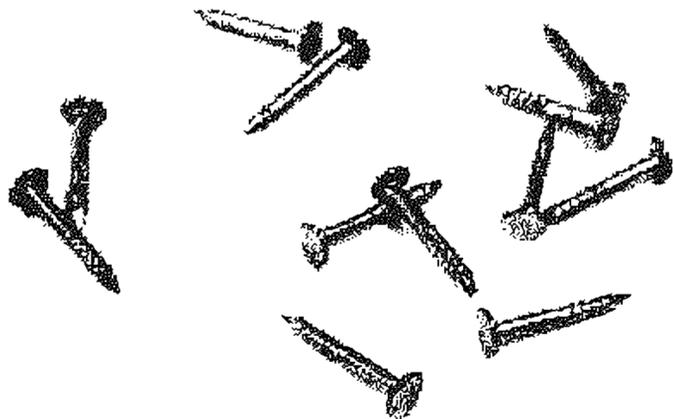
In partnership with Pittsburgh's Habitat for Humanity, the inaugural "We're Getting Our Nails Done" program launched in February 2007 during National

Engineers Week. In the Hill District, an economically depressed neighborhood of Pittsburgh, two dozen girls gathered on Saturdays to help build a house for a single mother and her two daughters. Guided by the project's construction team, the girls talked about architecture, green engineering and careers throughout the day. The hard work of these GMSP girls helped put the house construction two weeks ahead of schedule, despite a rainy

winter. The best part? Sixteen-year olds asking if they could return the following weekend. They did, just out of the goodness of their hearts. ♀



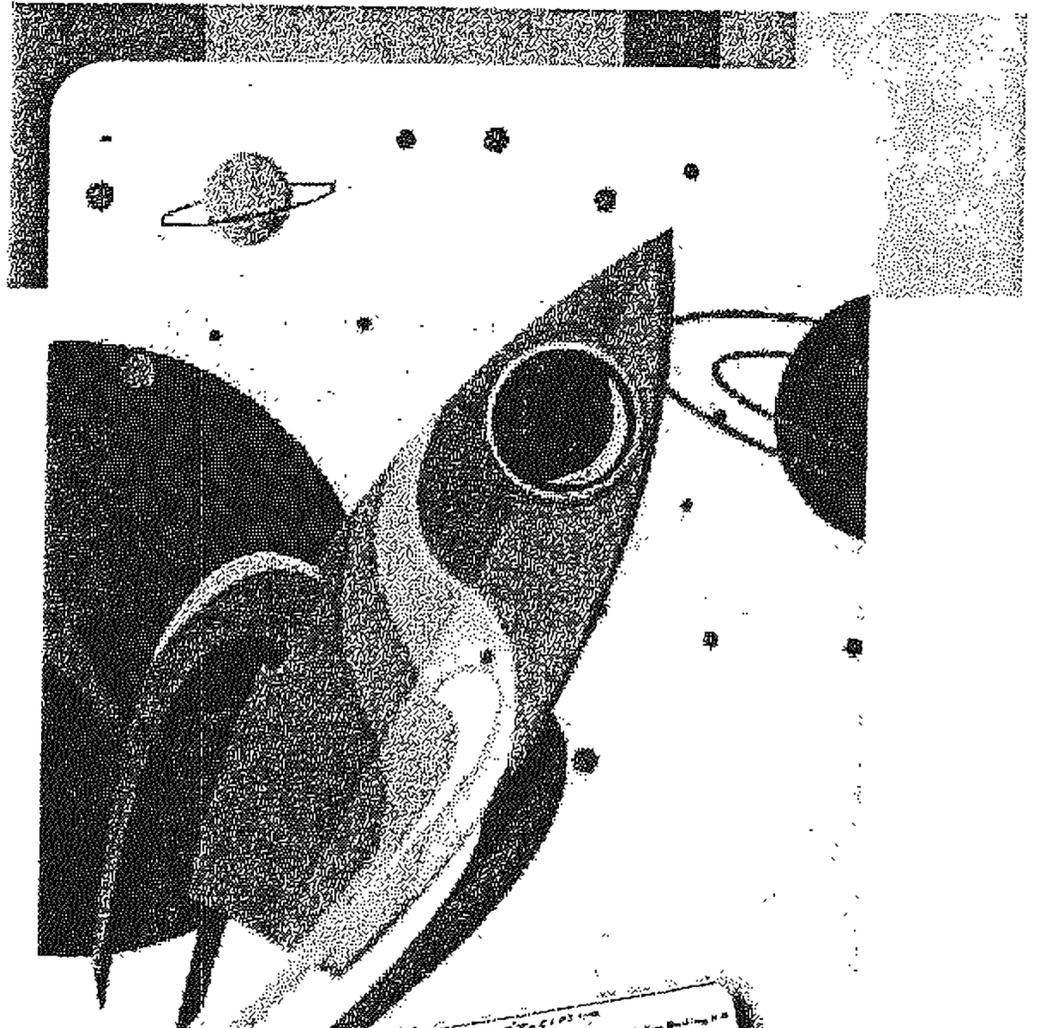
Hard at work with Habitat for Humanity, girls from GMSP helped put the house two weeks ahead of schedule



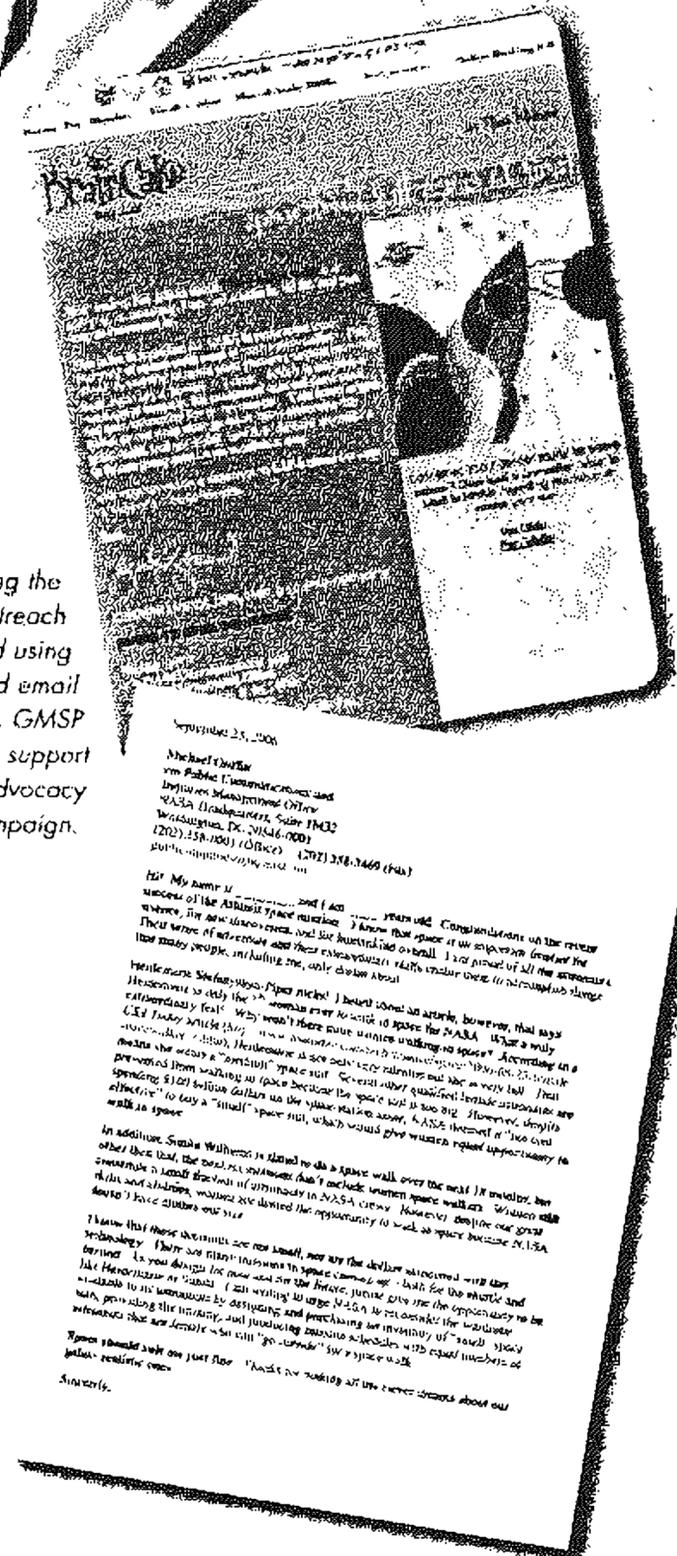


Who is Kate Gidycz?

Kate is a seventh grader at the Campus School at Carlow University who plays soccer and tennis, likes to read, and loves a mean pizza Margherita with pesto. She's an active member of our Teen Team, and has been a vocal advocate for GMSP, both to her peers and to adults. She introduced Mary Hines, the president of Carlow University, at GMSP's *The Girl Solution* toolkit launch with incredible presence and passion. When she's not earning her Level 2 Agent status as a Starling in Click!, Kate spends her summer vacation with another GMSP-sponsored science program at Carlow University, called Summer Science Nation. This past summer she had a chance to do an atom modeling activity, learn about polymers, and visit top scientific institutions in the region with girls far above her grade level. For the 2007-08 school year, Kate is participating in the Pennsylvania Junior Academy of Science, and has developed a research project called, "The Decrease of Vitamin C Over Time in Brands of Orange Juice," aimed at informing people which brand of orange juice retains the most Vitamin C. Deliriously scientific!



Spreading the word at outreach events and using html-formatted email letters, GMSP gathered support for its advocacy campaign.



"Space should suit me just fine. Thanks for making all my career dreams about our galaxy realistic ones."

— excerpt from Advocacy Campaign letter

SERVICE + ADVOCACY

[CASE STUDY #2]

Space Should Suit Me Just Fine



Each year, GMSP undertakes an advocacy campaign that looks deeply at **girls, science and systems change**. In September 2006, after watching Heidemarie Stefanyshyn-Piper become only the seventh woman to walk in space (that's outside the spaceship, tethered to it), we got a little hot under the collar after reading Heidemarie's story in *USA Today*. See, Heidi's tall. She can fit in a male's "medium" sized space suit, which does not eliminate her from this very technical and highly dangerous work. However, if you need anything smaller than a "medium" space suit, you're out of luck. NASA not only doesn't

stock the small space suit, it declined to buy one specifically to be more accessible to women who want to find themselves walking out in space. Too expensive, NASA said. We talked with NASA and they confirmed that indeed they are not going to make an effort to purchase or create a smaller version of the spacewalk suit.

We quickly moved to action, writing and posting letters of petition from girls and from adults. These letters, downloaded 1,373 times from our website and given out to thousands at outreach events over a 12-month period, were sent directly to top

NASA official, Administrator Michael Griffin. Their reply came simply and quietly, as a form-letter thanking us for our interest in their program and telling us where the biographies of their astronauts (with so few women) were located. GMSP cares deeply about the messages that are sent to girls about their potential careers. We want our nation's top employer in science to embrace what women can contribute to the space program, but the message they are sending is that space is a man's frontier. ♀

"Wow! What a wealth of information... Great insight to girls and the sciences — the different ways to approach it and encourage them. It opened my eyes!"

Anonymous Science Teacher

Between October 2006 and December 2007, more than 1,700 letters were sent to NASA from BrainCoke.org members, parents and students in support of the "Space Should Suit Me Just Fine" Campaign.

Email blast-off

Student letters

{651}



Parent letters

{722}





06-07

Members of our 2006-2007 advisory committee serve as ambassadors out in the community and at home at Carnegie Science Center. We thank each of them for their wisdom, guidance, support, and leadership. Our shared vision of the partnership and its goals truly is making a difference.

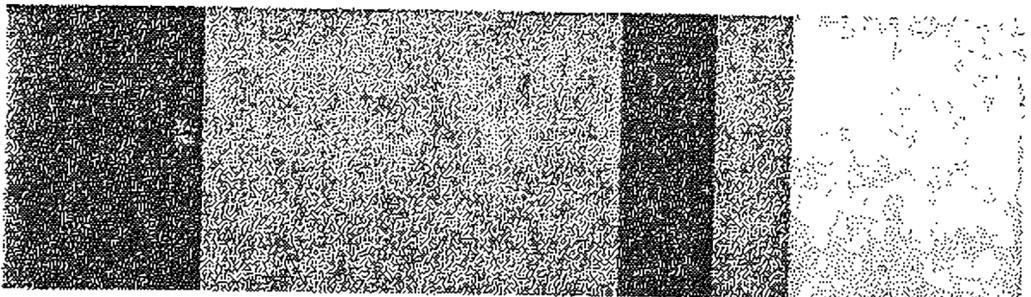
Ron Baillie
Chief Program Officer
Carnegie Science Center

Joanna Haas
Henry Buhl, Jr., Director
Carnegie Science Center

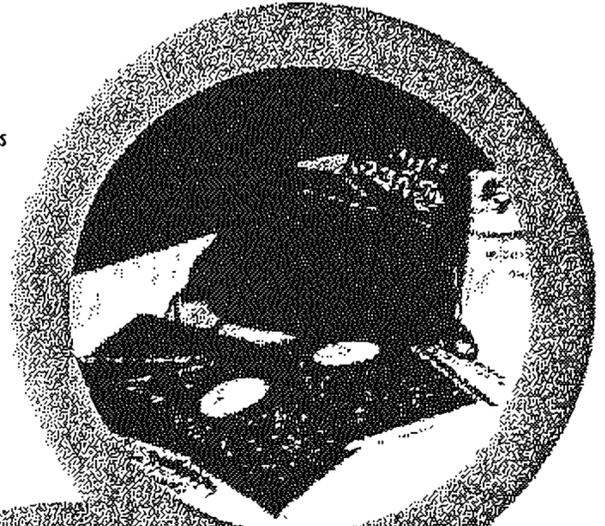
William Isler
President
Family Communications, Inc.
President
Pittsburgh Public Schools Board

Velma Monteiro-Tribble
Chief Operating Officer and Assistant Treasurer
Alcoa Foundation

Margaret Petruska
Senior Program Director
Children, Youth & Families Program
The Heinz Endowments



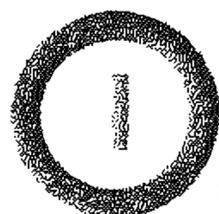
*GMSP Teen Teamers
enjoy changing the
world by packing back-
to-school backpacks for
girls affected by
Hurricane Katrina in
New Orleans.*



"Hurricane Katrina has presented many challenges for our young people during our rebuilding efforts. It is very touching to see teen girls reaching out to each other. Hopefully this will be just the beginning of a long and lasting relationship between Pittsburgh and New Orleans."

Deborah Alfred, Parent and Community Coordinator,
Recovery School District of New Orleans

NOLA Goes Back to School



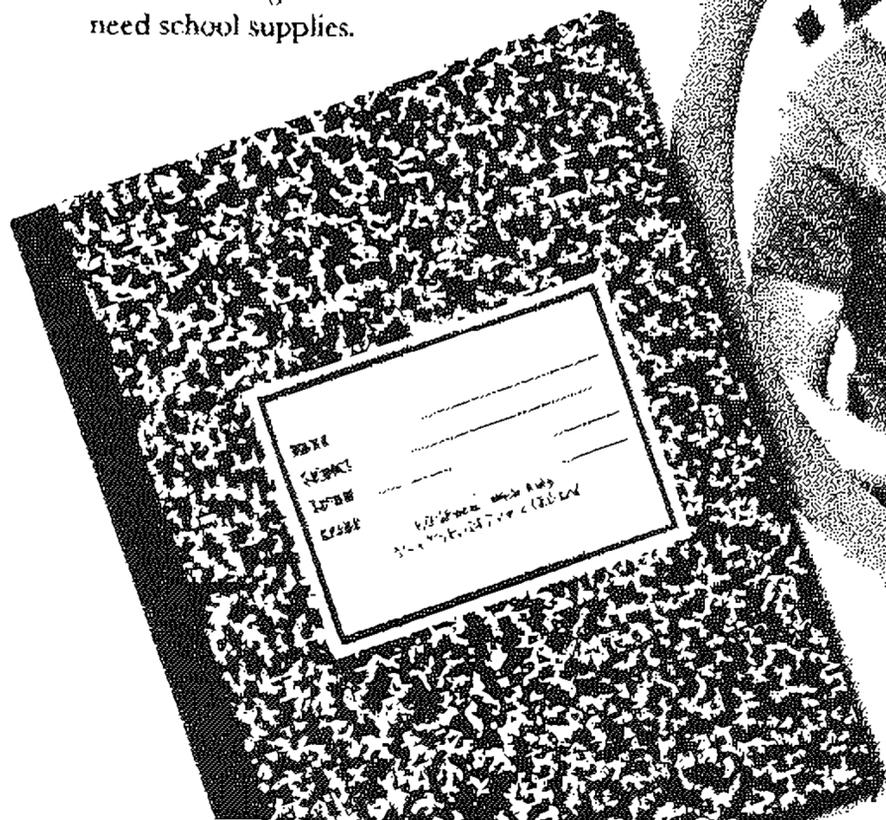
In the winter of 2006, a powerful movie about wetlands, hurricanes, and the resilience of New Orleans, Louisiana (NOLA) touched IMAX Theater audiences around the country. *Hurricane on the Bayou* features three artists, including teenage environmental activist and fiddle prodigy Amanda Shaw. Because this film was reaching such a broad national audience, **GMSP took the opportunity to launch its first national event, "NOLA Goes Back to School."**

With 100 schools damaged in Hurricane Katrina and 20 schools reopening in the fall of 2007, the need was clear to us: hundreds of low-income New Orleans girls would need school supplies.

We partnered with MacGillivray Freeman Films to show the film at no charge while collecting school and personal supplies for New Orleans girls returning to school.

On the second anniversary of Hurricane Katrina's devastation, nearly 100 girls from Pittsburgh, St. Louis, and Birmingham (AL) gathered to watch the film and donated 1,200 pounds of school supplies — backpacks loaded with socks, notebooks, pens, personal care items and, of course, calculators.

Even Amanda Shaw herself chimed in, with a podcast interview and a personal "virtual concert" for participating girls after the movie. ♀





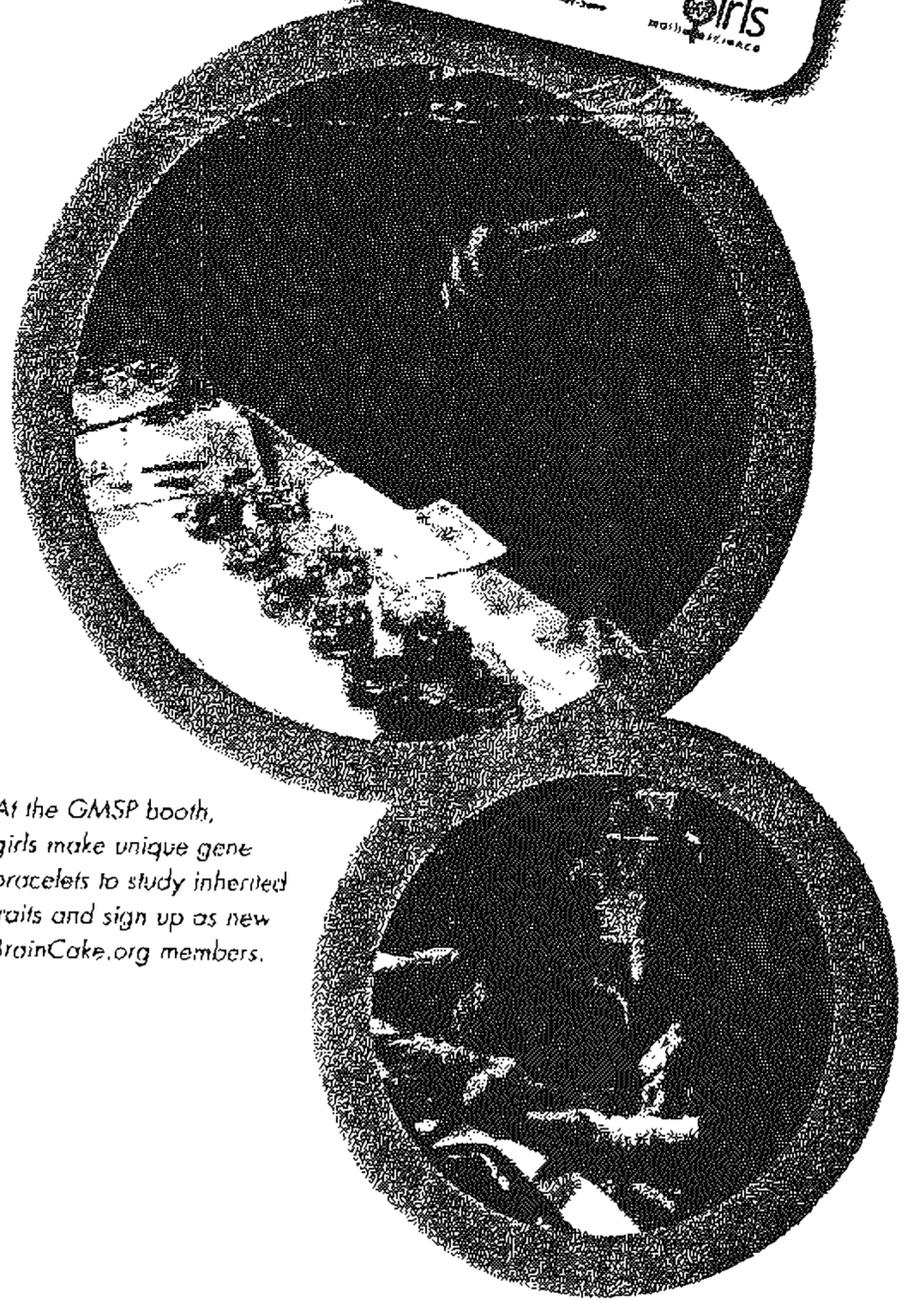
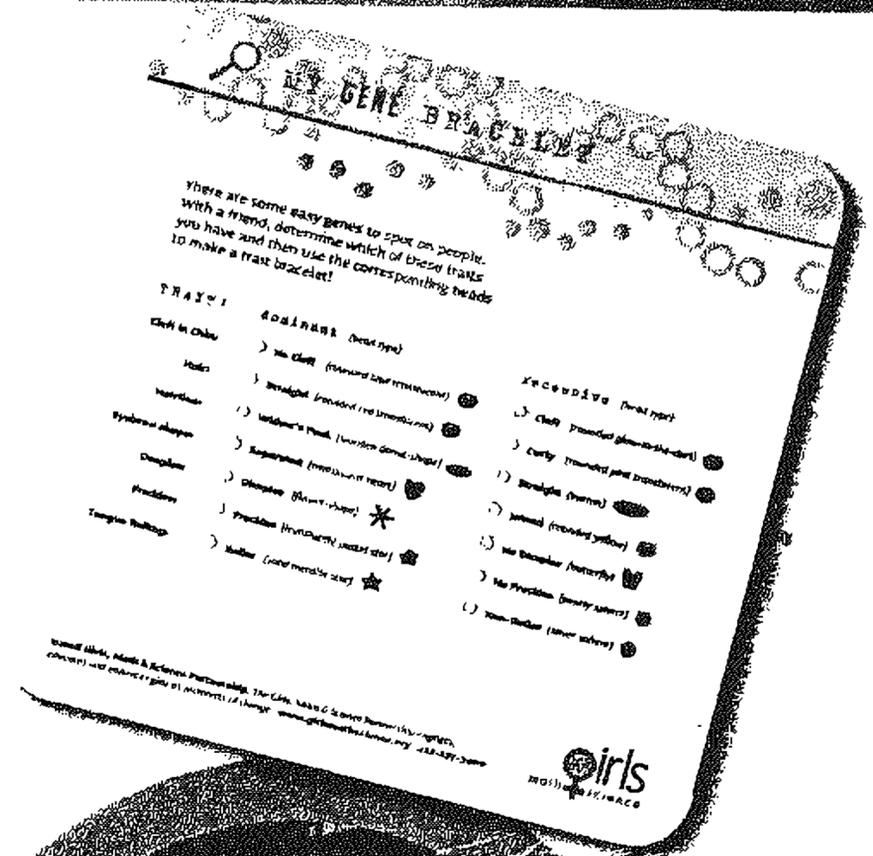
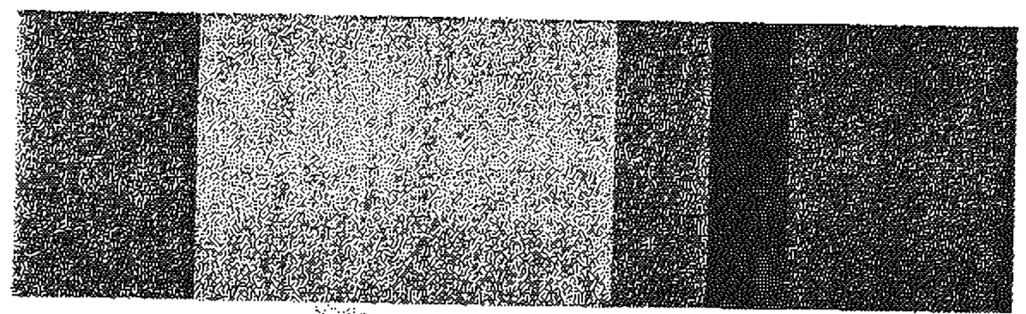
GMSP attended or sponsored the following events:

- Carnegie Science Awards**
National Geography Week
PA Women's Conference
Prepare to Care (with Carlow University)
SciTech Days of Carnegie Science Center (Diamond Sponsor)
National Chemistry Week at Carnegie Science Center
National Engineers Week at Carnegie Science Center
Let's Explore: Workshop at Carnegie Science Center
Pittsburgh Regional Science & Engineering Fair
Girl Scout Day at the Petersen Events Center
PA Science Teachers' Association Conference
Women's Funding Network Conference
Association of Science Technology Centers
Conference

- Carnegie Science Awards**
Network Connections
Prepare to Care (with Carlow University)
SciTech Days of Carnegie Science Center (Silver Sponsor)
National Chemistry Week at Carnegie Science Center
National Engineers Week at Carnegie Science Center
Pittsburgh Regional Science & Engineering Fair
Girl Scout Day at the Petersen Events Center
Girls Coalition of SWPA events (Women in the Media, AlphaGirls speech, event sponsor)
Expanding Your Horizons (Legacy Sponsor)
National Girl Scout STEM Conference
Summer Science Nation (with Carlow University)
Women's Health & Environment Conference
Association of Science Technology Centers
Conference

2006

2007



At the GMSP booth, girls make unique gene bracelets to study inherited traits and sign up as new BrainCake.org members.

Outreach

P

aramount to furthering the GMSP brand, outreach programs have big impact for our small organization, helping us reach more than 20,000 individuals annually with collateral materials, membership promotions, classes, and demonstrations. GMSP has maintained a strong presence at STEM events held both within and outside of Carnegie Science Center. The development of our trade-show booth has allowed us to maintain a highly visible presence at conferences and special events, enabling us to target our key audiences — girls aged 11–17, parents, teachers, and mentors. Drawing visitors to this eye-catching booth allows us to discuss our mission,

distribute outreach materials, encourage online membership on BrainCake.org, and promote upcoming programs. Hands-on activities are a key component to drawing audiences in to learn about GMSP.

etc.), stringing them together to make a completely unique, customized bracelet. This fun giveaway provided the context for an interactive mini-lesson on genetics, and was overwhelmingly popular with both children and adults. ♀

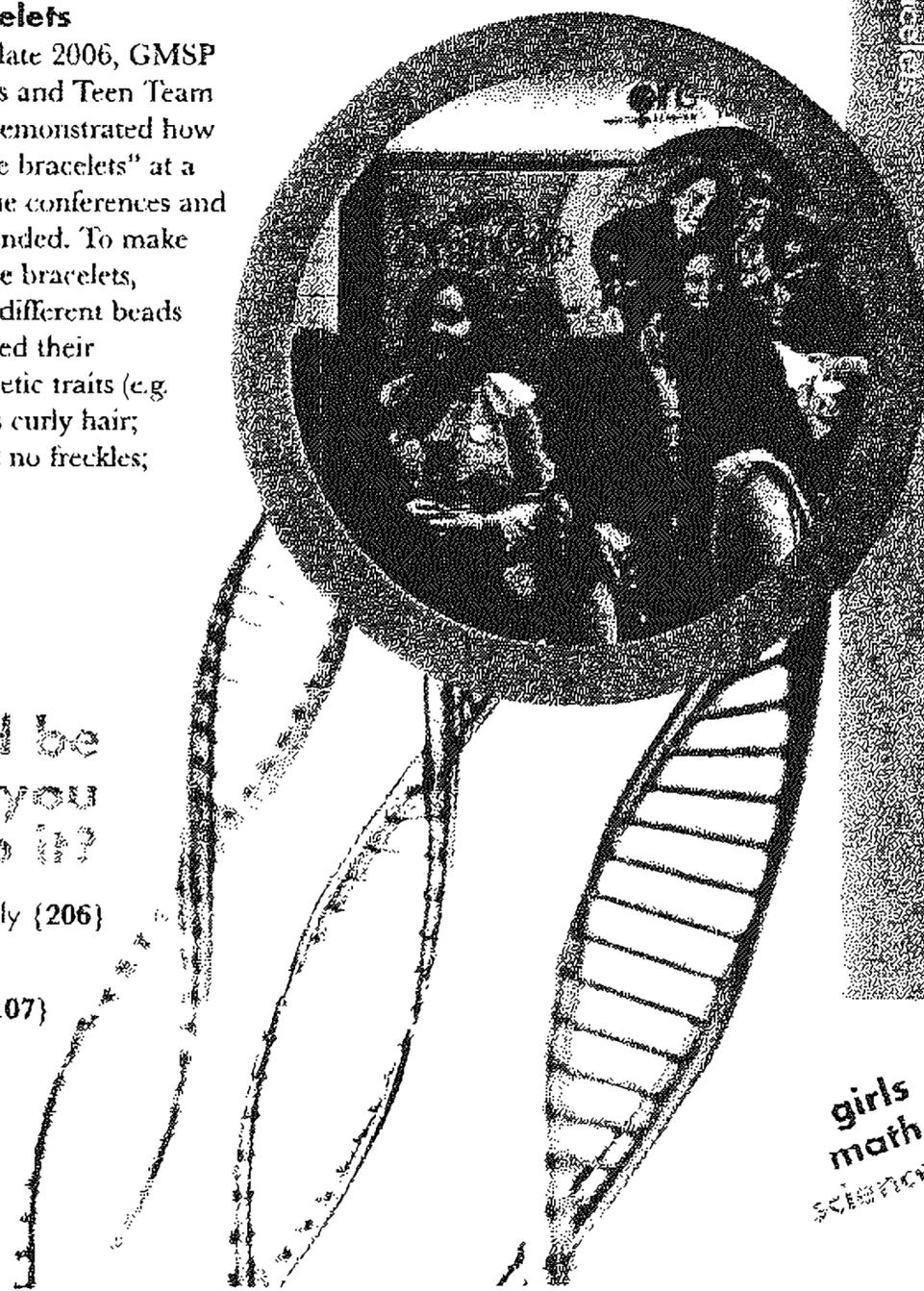
Gene bracelets

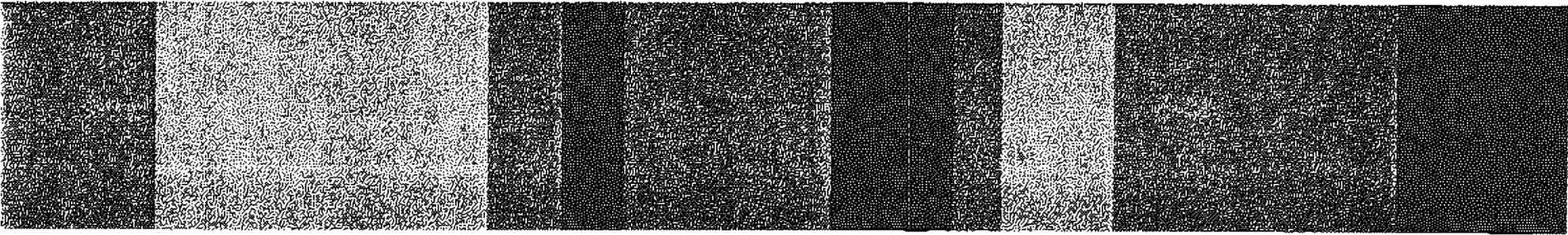
Beginning in late 2006, GMSP staff members and Teen Team participants demonstrated how to make “gene bracelets” at a majority of the conferences and events we attended. To make their own gene bracelets, visitors chose different beads that represented their particular genetic traits (e.g. straight versus curly hair; freckles versus no freckles;

In an online survey, 422 girls answered:

If you could be cloned, would you want to do it?

- **No way, I'm happy being the one and only {206}**
- **Not sure, it could get confusing! {109}**
- **Absolutely, I'd get so much more done {107}**





OUR REACH + GOALS

Our Goals

By 2012, the Girls, Math & Science Partnership will...



Our long term goals support the core values of our mission, to ensure that girls are engaged and interested in math and science, both in the present and as they grow older. Our short-term goals represent the steps needed to embark on this journey

of growth, improvement and change. In order to effectively work with girls and help them become critical thinkers, problems solvers, and scientists, we must build the programming and resources we offer while expanding geographically.

Our continued efforts to both mobilize awareness around issues of girls' access to scientific and technological career opportunities and train critical audiences in methods that are girl-tested will begin to make a difference, one girl at a time. ♀



...enhance the discourse around gender equity in formal and informal education, tackling the question of what techniques and methods work to engage girls in math and science.



...establish affiliate sites across the country to deliver our unique programming to girls **throughout the nation.**



"With engineering you can build space shuttles and cars. Computer science and mathematics are big too. Without them people couldn't build telescopes, computers, satellites, iPods, and basically anything else that makes human life interesting. Astronomy is my passion so I think that without any of those sciences we would all be confined to the earth and twiddle our fingers."



...create programs focused on the subjects in which girls are most underrepresented, including engineering, computer science, technology, architecture, and environmental science.



...connect girls with mentors and their peers in innovative new ways, often led by the girls themselves.



...act as effective advocates and champions for girls, raising awareness and resources to eliminate barriers for girls in math and science.

Partnership is at the core of not only our values but also the implementation of our project. By leveraging the assets of two, three, or sometimes more like-minded organizations, our ability to engage girls as architects of change is amplified. Listed here are new organizational relationships and partnerships for 2006 - 2007.

Partnerships



Partnership is at the core of not only our values but also the implementation of our project. By leveraging the assets of two, three, or sometimes more like-minded organizations, our ability to engage girls as architects of change is amplified. Listed here are new organizational relationships and partnerships for 2006 - 2007.

- area/code
- Carlow University
- Carnegie Mellon University (various departments)
- Del Monte Foods
- Dragonfly TV and Twin Cities Public Television
- Entertainment Technology Center
- The Girls Coalition of Southwestern PA
- Girls Scouts USA (and various regional G.S. Councils)
- Google
- GIS of Allegheny County
- Family Communications, Inc.
- Habitat for Humanity, Pittsburgh
- Liz Lerman Dance Exchange
- MacGillivray Freeman Films
- Magee-Womens Research Institute
- McWane Science Center
- Pittsburgh Public Schools
- Point Park University
- RiverQuest
- Robert Morris University
- The Saturday Light Brigade
- St. Louis Science Center
- Strong Women, Strong Girls, Inc.
- The University of Pittsburgh (various departments)
- WBGH Boston
- Wings WorldQuest
- WQED Multimedia



"Girls continue to be underrepresented in critical fields related to math and science. Our country can't afford to lose half of our potential innovators, especially in this ever-flattening, iPod-loving, Tivo-watching world."

Margaret Spellings, Secretary of Education, National Summit on the Advancement of Girls in Math and Science, 5/15/07

We extend our sincere thanks to all of the supporters of the Girls, Math & Science Partnership. Their generosity makes our programming possible, and allows us to help change the world, one girl at a time.

2006

The Heinz Endowments

\$100,000

U.S. Department of Education

\$99,200

Alcoa Foundation

\$25,000

Joan Meixner

\$1,000

2007

Alcoa Foundation

\$120,000

The Heinz Endowments

\$100,000

Motorola Foundation

\$100,000

DragonFly TV

\$9,000

Jewish Women's Foundation

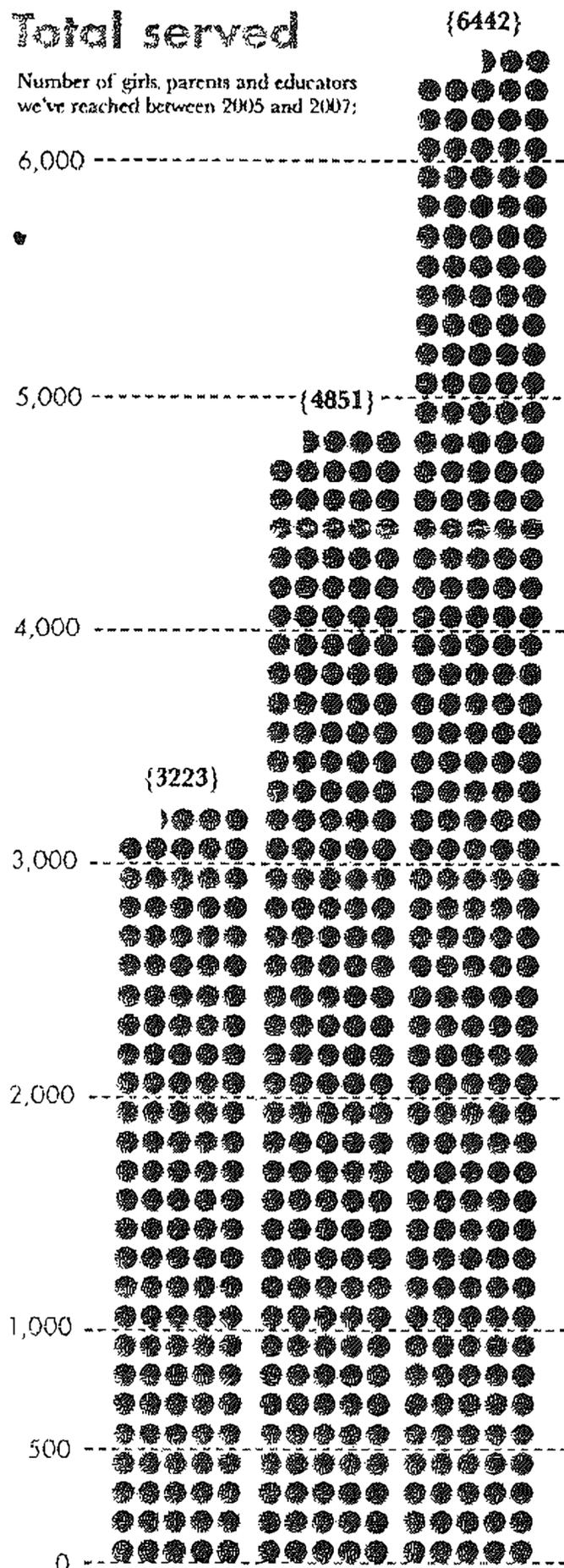
\$7,500

WGBH Boston

\$2,500

Total served

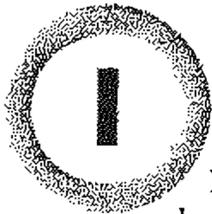
Number of girls, parents and educators we've reached between 2005 and 2007:



'05 '06 '07

● = 25 people

Program Summary



In the past two years, the Girls, Math & Science Partnership has doubled its direct reach from 3,233 to 6,442 participants. The program repertoire has grown dramatically as well as the audience. Now, in addition to direct service to girls, GMSP is serving parents and educators

actively through BrainCake.org and *The Girl Solution* workshops. The Girls, Math & Science Partnership leverages these key influencers in working toward a common goal: allowing every girl a chance to make a difference in the world using math and science. ♀



2006/07

Girls Served Onsite

During 2006 and 2007, 343 girls participated in the following Girls, Math & Science Partnership programs and events:

- Alice {45%}
- Click! {24%}
- NOLA Goes Back to School {12%}
- Habitat for Humanity {9%}
- Focus Group: Ant City {6%}
- GirlTalk Radio {4%}



2006/07

Program Investment

Budget distribution over GMSP programs by percent:

- Click! {43%}
- The Girl Solution {24%}
- BrainCake.org {22%}
- Marketing & Materials {7%}
- GirlTalk Radio {4%}



"Engineering, computer science and math can take you into just about any company imaginable. You can create make-up, build rides for Disney, come up with a better formula for business structure, be a daring fashion designer, create gum that doesn't lose its flavor after 5 minutes...the list is endless. Apply design to each of these topics and you have the makings of an amazing career."

Roselvy - girls program 5/06



change the world with

CREDITS: All of the images of girls are from GMSF programs. No purchased stock images of girls have been used for this report.

Many photographs for this report were taken by GMSF staff and participants. In addition, we thank: Charles Palmer as well as the staff of Carnegie Magazine for photographs of CUEK!; Theresa McMahon for her photographs of NOIA; Juan Cbechle for his photographs of the GirlTalk program and The Girl Solution launch event; Renee Rosensteel for her portrait of Caitlin Lemahan from *Pittsburgh Magazine*.

This book was designed by Jennifer McNulty of StudioLuxe-Design and was printed at AlphaGraphics in the Cultural District.

© 2006, Girls, Math & Science Partnership

us, one **girl** at a time

girls, math & science partnership
a program of Carnegie Science Center

giving **girls** a
lasting relationship with
math & science



girls, math & science partnership
a program of Carnegie Science Center

Carnegie Science Center
One Allegheny Avenue
Pittsburgh, Pa 15212
412.237.3400
www.BrainCake.org



CARNEGIE SCIENCE CENTER
UNIVERSITY OF PITTSBURGH

**Appendix 3:
Curriculum Vitae**

Julia A. Stewart, Ed.D.

(b)(6)

Reflecting on a successful career as an educational leader, I am ready to oversee the Womens' Education Equity Act grant for the Pittsburgh Public School District.

Administrative Experience

EXECUTIVE DIRECTOR CAREER and TECHNICAL EDUCATION DIVISION

Pittsburgh Public School District, Pittsburgh, PA 15213 August 2007 – present.

RESPONSIBILITIES: Assess current operations, review previous CTE plans, survey staff for input, and determine staff's current knowledge of CTE regulations. Use Chapter 339—Vocational Education Standards to gauge development of new academies and align academies with Targeted Industry Clusters and high priority occupations. Cultivate dialogue with local and state government representatives to promote school district's goals and develop partnerships with local businesses and postsecondary educational institutions. Seek Board of Education approval for CTE Academies of Excellence plan.

DIRECTOR of TECHNOLOGY EDUCATION and SPECIAL PROJECTS

McKeesport Area School District, McKeesport, PA July 1997-July 2007

RESPONSIBILITIES: Coordinate educational programs for a comprehensive high school/technology center with enrollment of 1500 students. Serve as a member of the Renovation, Strategic Plan and Design Teams to determine the direction and priorities of the district. Assist in interviewing and selecting staff, organizing, and overseeing reporting requirements for vocational education. Observe, evaluate, and confer with principals, teachers, and other professional staff concerning improvements in the instructional program. Create and monitor budgets for state and federal grants and technical programs. Cultivate dialogue with local and state government representatives to promote school district's goals. Develop partnerships with local businesses and postsecondary educational institutions.

DIRECTOR of SPECIAL PROJECTS and GRANTS

McKeesport Area School District, McKeesport, PA July 1997—June 2000

RESPONSIBILITIES: Coordinated the development and implementation of special projects funded through state, federal and private funding for McKeesport Area School District. Developed an aggressive grant acquisition strategy,

organized a grant team which obtained several million dollars in grant funds to supplement district budget.

ASSISTANT DIRECTOR of Technology Center

McKeesport Area School District, McKeesport, PA August 1996—July 1997

RESPONSIBILITIES: Assisted director in supervising staff and leading development of programs of instruction for Technology Center.

ACTING DIRECTOR of CAREER EDUCATION

McKeesport Area School District, McKeesport, PA 1996

RESPONSIBILITIES: Coordinated K—12 career education system. Created career awareness, career exploration, and career preparation strategies. Led the development of a Career Education Team comprised of district wide administrators. Interpreted School-to-Career Vision to professional staff and administration. Developed and organized a School-to-Career budget and planned School-to-Career activities related to strategic plan.

EDUCATION

Ed.D.	University of Pittsburgh	School of Education Administration & Policy Studies Superintendent's Academy
M.Ed.	University of Pittsburgh	School of Education Administration & Policy Studies
B.S.	University of Pittsburgh	School of Education

PENNSYLVANIA CERTIFICATIONS

Superintendent, Supervisor of Curriculum and Instruction, Director of Career and Technical Education, Secondary Principal, Supervisor—Comprehensive Technical Education

LEADERSHIP

Dual Enrollment Project Manager – McKeesport Area School District
McKeesport Healthier Communities Partnership Member – UPMC McKeesport Co—Chairperson of Project 720 – McKeesport Area School District
Youth Policy Committee Board – Three Rivers Workforce Investment Board
Board of Directors – Mon Yough Chamber of Commerce
Evaluator for Middle States Evaluation Accreditation Team
Advisory Committee — Pittsburgh Technical Council

GRANTS – Acquisition And Management

Goals 2000 Educate America Act	Pennsylvania Department of Education — to implement electronic portfolio and Summer Training Institute
Manufacturing Pathways	Pennsylvania Department of Labor & Industry – to create partnerships between schools and labor to industry
Project 720	Pennsylvania Department of Education – to redesign high school using principals of rigor, relationships and relevancy
Curriculum Grant	Pennsylvania Department of Career and Technical Education to develop model Child Care program
Summer Youth Employment Training Program	Department of Federal Programs/ Pittsburgh Catholic youth – to develop summer career exploration for students and to improve student attitudes towards academic achievement
Infolink Grant	Department of Federal Programs – to develop technology programs for high school students
2+2+2 Robotics Grant	Technology Collaborative – U.S. Department of Labor and Industry – to develop articulated program of studies for Engineering/ Robotics with California and Carnegie Mellon Universities

AWARDS/ HONORS

Distinguished Woman in Education	2006 University of Pittsburgh, Tri-State Area School Study Council
McKeesport Healthier Communities	2006 Honoree
Director of the Year	2004—2005 Skills USA
Hall of Fame	2000 Pennsylvania Association of Private Schools

CURRICULUM VITAE
CHERRI M. BANKS, PhD

PRESENT POSITION

Curriculum Coordinator
Career & Technical Education
Pittsburgh Public School District

ADDRESS

(b)(6)

EDUCATION

University of Pittsburgh, Doctor of Philosophy -Administrative and Policy Studies, 1988
University of Pittsburgh, Masters of Education -Vocational Education, 1978
Cheyney St. University, Bachelor of Science -Home Economics Education, Minor -Science, 1974

CERTIFICATIONS

Distinguished Educator, State of Pennsylvania, 2005
Instructional II – Home Economics, Cheyney St. University, 1977
Administrative II – Secondary Administration, University of Pittsburgh, 1983
Assistant Superintendent's Letter of Eligibility - University of Pittsburgh, 1986
Superintendent's Letter of Eligibility - University of Pittsburgh, 2002

PROFESSIONAL EXPERIENCES

2008- CTE Curriculum Coordinator
2001-2008 Staff Specialist Career & Technical Education
2000-2001 Assistant Director of Professional Development
2000-2000 Acting Regional Assistant Superintendent, East Region
1998-2000 Assistant Director of Professional Development
1997-1998 Administrative Assistant to Supervisory Principal – Middle/Secondary Schools
1993-1997 School Support Specialist, Office of School Affairs
1989-1993 Associate Director, Division of Staff Development
1988-1989 Dean of Students, Brashear High School
1984-1988 Vice Principal, Langley High School
1983-1984 Acting Supervisory Instructional Specialist – Home Economics, Cosmetology and Health Professions
1981-1983 Teacher on Special Assignment – Department of Occupational, Vocational, Technical Education
1981-1981 Team Leader – Foods & Nutrition, Milliones Middle School
1976-1981 Teacher – Foods & Nutrition, Milliones Middle School
1975-1976 Teacher – Foods & Nutrition, Clothing & Textiles, Gladstone High School

PUBLICATIONS

Doctoral Dissertation
The Black School Superintendent: A Study in Early Childhood Socialization and Career Development, University of Pittsburgh, 1988

PROFESSIONAL SERVICES

State - Federal Services

Governor's Institute - Distinguished Educator; Pennsylvania Department of Education – July, 2005
Pew Charitable Trust- Urban Education Planning Committee Member – New York, New York, 2001
Pew Charitable Trust Planning Conference – Stanford University, 2000
Pew Network Meeting – Lexington, Kentucky – 1998
Teaching for Intelligence Conference – New York, New York, 1998
Conference of Great City Schools' Professional Development/Curriculum Conference – Chicago Illinois, 2000

International Principals Conference Member - University of Southern California, 1996
Committee Member – Accreditation for Growth Evaluation Team, Middle States Association, East Side High School, Paterson, New Jersey – November 3-5, 1997
Chair – Personnel Subcommittee, Commission on Secondary Schools, Middle States Association April, 1977-April, 1998
Co-Chair – Middle States Evaluation Committee, George Washington High School, Philadelphia, PA – March 5-7, 1997
Committee Member – Middle States Evaluation Committee, Patterson New Jersey, November 3-5, 1997
Co-Chair – Middle States Evaluation Committee, Martin Luther King High School, Philadelphia, PA – March 24-26, 1995
Committee Member – Middle States Evaluation Team, Charlotte Amalie High School, St. Thomas, Virgin Islands – April, 1994
Commissioner for Secondary Schools – State of Pennsylvania, Middle States Association of Colleges and Schools, 1993 – 1999
Pennsylvania State Advisory Committee Member – Middle States Association of Colleges and Schools, 1990-1993
Committee Member – Middle State Evaluation Team, Jeanette High School, Jeanette, PA, 1986

School District Services

Member, Design Team, Principal Reform Initiative, 2007
 Chair, High School Reform Steering Committee, 2006-07
 *Coordinator, Career & Technical Education Curricula Development Initiative, 2003, 2004
 *Coordinator, Summer Leadership Institute, 2000
 * Member, Teaching, Learning and Assessment Curricula Infrastructure Development Team, 1999-2001
 *District Fellow, Institute for Learning, University of Pittsburgh, 1997-2001
 *Member, Employee Performance Appraisal System (EPAS) Planning Team, 1997
 *Summer Leadership Institute Planning Team, 1997, 1998
 *Member, Core Curriculum Framework Development Team, 1995-1997
 *Member, Strategic Implementation Plan Resource Team, 1994-1995
 *Member Professional Development Infrastructure Committee, 1994-1995
 *Coordinator, Comprehensive Education Improvement Plan (CEIP) Action Team, 1993-1995
 Member Advisory Committee, African American Fellowship-Intern Program, 1993
 Member, Inclusionary-Exclusionary Subcommittee, 1991
 Member, Decentralization of School Administration Planning Team, 1993
 *Coordinator, Professional Development for Administrators, (PRISM II), 1990, 1991, 1993
 *Member, Administrators Professional Exchange (APEX), 1989-1991
 *Co-coordinator, Administrators' Peer Evaluation Steering Committee, 1989-1991
 *Member, Prospect Multicultural Education Center Planning Team, 1988-1989
 Member, Instructional Teacher Leader Planning Committee, 1986
 Member, PRISM II Planning Committee, 1986-1987
 Member, Superintendent's Grass Roots Committee, 1985-1986
 Member, District-wide Discipline Committee Planning Team, 1979-1980
 *Leadership responsibilities

SELECTED EXAMPLES OF IN-SERVICES DEVELOPED AND PRESENTED WITHIN THE PITTSBURGH PUBLIC SCHOOL DISTRICT

Organizational/Leadership Development

Act 48 – Professional Education Implementation
 Shared Decision Making
 Group Problem Solving
 Consensus Building
 Conflict Resolution/Mediation
 Active Listening
 The Change Process
 Strategies for Effective Brainstorming
 Conducting Effective Meetings
 Team Building/Collaboration
 Instructional Cabinet Operations
 Systems Thinking
 Strategic Planning
 Comprehensive Education Improvement Plan (CEIP)
 Refocused Comprehensive Education Improvement Plan – New American Schools
 Employee Performance Appraisal System (EPAS)

Curriculum, Standards & Instructional Strategies

PA Chapter 4 Regulations
The Standards Movement
Principles of Learning
Strategies for the Implementation of Standards into the Curriculum
Core Curriculum Frameworks
Clinical Supervision
Teacher Expectation/Student Achievement (TESA)
Gender Equity/Student Achievement (GESA)
Learning Styles/Teaching Strategies
Monitoring Learning/Adjusting Teaching
Active Participation of the Learner
Classroom Observation/Conference Models

Multicultural Education

Cultural Effects on Learning
Cultural Awareness and Diversity
Cultural Based Learning Styles
Observing and Confering for Equity
Cross Cultural Communications
The Urban Learner Framework

PROFESSIONAL MEMBERSHIPS

National Association of Secondary School Principals
Pennsylvania Association of Secondary School Principals
National Alliance of Black School Educators
Greater Pittsburgh Alliance of Black School Education

EXTERNAL CONSULTING

Team Leader, Quality Review Process - Pennsylvania Department of Education's Distinguished Educator's Program, May, 2005
State of African American Learners – A Town Symposium, Greater Pittsburgh Alliance of Black School Educators - 2004
Strategies for Effectively Educating Urban Students, Wilkesburg School District, 1996
Elements of Effective Instruction – How to Observe in the Classroom, Woodland Hills School District, 1995
Multicultural Education – A Focus on Equity, South Bend School Corporation, South Bend, Indiana, 1993
Multicultural Education – A Focus on Equity, Elkhart School Corporation, Elkhart Indiana, 1993
Educating Urban Youth, Department of Instruction and Learning, University of Pittsburgh, 1992
Managing Conflict through Communication, Greater Pittsburgh Camp Fire Council, 1992
Staff Development in the Pittsburgh Public Schools, International Management Development Institute, University of Pittsburgh, 1992
Group Problem Solving, Pittsburgh /Mt Oliver Intermediate Unit, 1991
Beyond Brainstorming – Planning for Action, Junior League of Western PA, Inc., 1991
A Look at Pittsburgh Public Schools from a Multicultural Perspective, Duquesne University School of Education, 1991
Observing for Equity in the Classroom, Pennsylvania Conference on Black Basic Education (COBBE), 1991
I Feel So Good About Me – Self Esteem for Young Parents, Pittsburgh in Partnership, Hill House Association, 1991

Appendix 4:
Project Manager Job Description

**Position Description – Project Manager
Women’s Educational Equity Act (WEEA) Program**

The Project Manager will oversee all components of the WEEA program’s day-to-day operations.

The Project Manager will report directly to the Executive director of Career and Technical Education and will ensure that all program goals and objectives are met, make presentations, assist in recruiting mentors and work with the Girls, Math and Science Partnership (GMSP), the community, school, college and business representatives. The Project Manager will also be responsible for gathering data and evaluative information in conjunction with Westat.

He or she will have responsibility for:

- Identifying challenges and improve opportunities for girls and young women to participate in math-strong non-traditional CTE programs targeted by the grant.
- Ensuring that the program remains on schedule and within budget.
- Assigning resources as necessary to carry out project goals.
- Ensuring that all activities pursued are aligned with project requirements.
- Initiating, collaborating, and maintaining connections with students, parents, and organizations.
- Scheduling outreach and recruiting events.
- Coordinating parent activities.
- Organizing activities for student participation.
- Monitoring overall success of project including levels of participation, quality of activities, impact on math achievement, attendance, behaviors, retention and transition to post-secondary education.
- Composing and issuing periodic progress reports.

Qualifications

- Commitment to create a school environment that supports increased participation of girls and women in non-traditional math rich CTE programs.
- Excellent project coordination skills, including demonstrated record of completing tasks on time and within budget.
- Strong interpersonal communication and presentation skills.
- Ability to work with and communicate to a wide audience of participants.
- Valid driver’s license and ability to travel.

Position Description – Project Manager
Page 2

- Detail oriented.
- Computer literate.
- Team player who assists in work as needed.
- Bachelor's degree.
- Three to five years' work in education, youth development and project management.

Appendix 5:
Matrix of Program Goals, Program Approach, Benchmarks, Data Sources,
and Timeframe for Data Collection

Table 1: Matrix of Program Goals, Program Approach, Benchmarks, Data Sources, and Timeframe for Data Collection

Goal	Approach	Benchmark	Data Source	Timeframe
1. To attract greater numbers of female students to targeted mathematics- and science-rich Career and Technical Education (CTE) programs that have been traditionally dominated by male students.	<p>1a: Develop a marketing plan that is designed to recruit female students to enter one of seven targeted mathematics-rich CTE programs, as measured by completion of a marketing document that includes a mission statement, a message that targets female students, a branding image, and a plan for distribution of marketing materials.</p> <p>1b: Launch a marketing campaign to recruit female students to enter one of seven targeted math-rich CTE programs, as measured by evidence of our marketing message/image having been distributed via multiple media sources; and sign-in sheets documenting student and/or parent attendance at one of our project's information sessions.</p>	<p>1a. Increased number of female students annually enrolled in CTE programs.</p> <p>1b. Increased awareness of and interest in STEM-oriented high school programs among female students.</p>	<p>CTE enrollment data</p> <p>Baseline student survey</p>	<p>Enrollment data beginning in year 1</p> <p>Baseline survey beginning in year 1</p>
2. To retain a higher proportion of female students in mathematics- and science rich CTE programs	<p>2a. Provide students enrolled in the GEM Achievement program with a mentor for each of the four years of their high school careers, as measured by teacher documentation of the time each girl dedicates to communication with her mentor. (Goals 2 and 3)</p> <p>2b. Provide GEM students with an opportunity to participate in the Girls, Math & Science Partnership's (GMSP) programs that engage them in math and science immersion activities</p>	<p>2a. Increased retention of female students enrolled in a CTE program through participation in GEM.</p>	<p>CTE enrollment data</p> <p>Baseline CTE</p>	

Goal	Approach	Benchmark	Data Source	Timeframe
<p>that have been traditionally dominated by male students. (through the efforts of the GEM Achievement program)</p>	<p>utilizing high-end technology, group-work and hands-on exploration, as measured by electronic, written and video documentation. (Goals 2 and 3)</p> <p>2c. Provide each GEM student with her own e-portfolio to use as a tool to measure and demonstrate her growth in application of PA's Academic Standards for Career Education and Work, as measured by fulfillment of criteria for portfolio content: a resume, completed job applications, an essay on her chosen career pathway, journal entries related to job-shadowing or internship experiences, a research-paper on a career-related topic, documentation of exploration of post-secondary institutions, and a completed graduation project. (Goals 2 and 3)</p> <p>2d. Provide teachers for targeted CTE programs with professional development on integrating the GMSP's nine techniques (for engaging girls in math, science and engineering) into instruction, as measured by sign-in sheets and completed post-evaluations documenting teacher attendance at these sessions. (Goals 2 and 3)</p>	<p>2b. Sustained interest in STEM-related content and careers goals among female students</p>	<p>survey</p> <p>GEM participation survey</p> <p>CTE exit survey</p> <p>Focus groups</p>	<p>CTE enrollment data beginning in year 1</p> <p>Baseline and GEM participation survey annually beginning in year 1</p> <p>Exit surveys as needed</p> <p>Focus groups in years 2 and 4</p>
<p>3. To increase the mathematics achievement of female students in the targeted mathematics- and science-rich CTE</p>	<p>3a. Provide teachers in targeted CTE programs with ongoing, job-embedded professional development on integrating PA's Academic Standards for Mathematics with instruction, as measured by teachers' observation and feedback notes on their peers' instruction.</p> <p>3b. Increase the percentage of GEM participating students scoring in the "proficient" or "advanced" categories on the 11th grade Pennsylvania System of School Assessment (PSSA) in mathematics by 5% in comparison to their scores on the 8th</p>	<p>3a. Increased student mathematics achievement of female students participating in CTE.</p> <p>3b. Improved CTE teacher</p>	<p>9th – 12th grade CTE GPAs</p> <p>8th and 11th grade mathematics CTE PSSA data</p> <p>Teacher</p>	<p>GPAs beginning in year 1</p> <p>PSSA data beginning in year 3</p>

Goal	Approach	Benchmark	Data Source	Timeframe
programs.	grade PSSA in mathematics.	instruction.	interviews	Teacher interviews beginning in year 1

**Appendix 6:
Westat Brief Bios**

Experience and Staffing

Westat is an employee-owned research firm known for the quality of its statistical design, survey research, and program evaluation work. For more than 45 years, Westat has grown steadily by serving Federal, state, and local agencies; businesses; K-12 schools; universities; curriculum developers; museums; and textbook publishers to gather data on a variety of education-related programs. Their evaluations have encompassed both formative and summative components and utilized quantitative, qualitative, and mixed methods, as well as a variety of experimental and quasi-experimental designs. Westat has developed all types of data collection instruments, including web-based and paper surveys, complex online data collection systems, classroom observation instruments, interview and focus group protocols, online logs of teacher practice, and procedures for document reviews.

Dr. Beatrice Lauman, a research analyst at Westat with 15 years of experience in STEM education, will serve as the Principal Investigator. Dr. Lauman has considerable experience with classroom research, survey design, and STEM assessment including research of STEM instruction and learning, development of STEM curriculum and assessments, and evaluation of federal STEM programs. Her Ph.D. from Stanford University is in Curriculum and Teacher Education and she focused on elementary and middle school math and science education and teacher professional development.

Atsushi Miyaoki, a research analyst with 10 years of experience in education and methodological research and policy evaluation, will be responsible for the analyses of record and survey data. He is highly skilled in statistical analysis using techniques such as regression analysis, trend analysis, structural equation modeling, and hierarchical linear modeling. At Westat, Mr. Miyaoka has been involved with diverse research projects in elementary/secondary and postsecondary education, including research on program evaluation, student achievement, teacher preparation, characteristics of postsecondary institutions, postsecondary faculties, and science and mathematics education.

**Appendix 7:
Endnotes**

ENDNOTES

¹Chartwell Education Group LLC, *Report on the Career & Technical Education Programs of the Pittsburgh Public Schools*, February 2007.

²*Carl D. Perkins Career and Technical Education Act of 2006*, 109th Congress, August 12, 2006, S. 250—6.

³*Girls, Math & Science Partnership 2008 Progress Report*, Carnegie Science Center.

⁴Treuer, Paul, "Student EPortfolios: Changing the Way Student Professional Data is Stored and Shared," University of Minnesota, 2003-2004.

⁵"Tracking the Reasons Many Girls Avoid Science and Math," *ScienceDaily*, September 2008.

⁶Halpern, Diane F., Aronson, Joshua, Reimer, Nona, Simpkins, Sandra, Star, Jon R., Wentzel, Kathryn, "Encouraging Girls in Math and Science," U.S. Department of Education, National Center for Education Research, Institute of Education Sciences, September 2007.

⁷*Ibid.*

⁸*ScienceDaily.*

⁹"Friends' School Achievement Influences High School Girls' Interest in Math," *ScienceDaily*, February 2008.

⁹LiveScience Staff, "Top 5 Myths About Girls, Math and Science," August 2007, http://www.livescience.com/health/070827_girls_math.html.

¹⁰Crosnoe et al., "Peer Group Contexts of Girls' and Boys'", *Academic Experiences, Child Development*, 2008; 79 (1): 139 DOI: 10.1111/j.1467_8624.2007.01116.x.

¹¹Brand, Betsy, *Supporting High Quality Career and Technical Education through Federal and State Policy*, May 2008, American Youth Policy Forum.

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

Note: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management, and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States, and if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§ 6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§ 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§ 290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. § 3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with the provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874) and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 327-333), regarding labor standards for federally assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clear Air) Implementation Plans under Section 176(c) of the Clear Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended, (P.L. 93-523); and (h) protection of endangered species under the Endangered Species Act of 1973, as amended, (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §1721 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, Audits of States, Local Governments, and Non-Profit Organizations.
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL 	TITLE Superintendent of Schools
APPLICANT ORGANIZATION School District of Pittsburgh	DATE SUBMITTED 02/24/2009

CERTIFICATION REGARDING LOBBYING

Applicants must review the requirements for certification regarding lobbying included in the regulations cited below before completing this form. Applicants must sign this form to comply with the certification requirements under 34 CFR Part 82, "New Restrictions on Lobbying." This certification is a material representation of fact upon which the Department of Education relies when it makes a grant or enters into a cooperative agreement.

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 34 CFR Part 82, for persons entering into a Federal contract, grant or cooperative agreement over \$100,000, as defined at 34 CFR Part 82, Sections 82.105 and 82.110, the applicant certifies that:

(a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the making of any Federal grant, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal grant or cooperative agreement;

(b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions;

(c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subgrants and contracts under grants and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

As the duly authorized representative of the applicant, I hereby certify that the applicant will comply with the above certification.

NAME OF APPLICANT School District of Pittsburgh	PR/AWARD NUMBER AND / OR PROJECT NAME Gaining Equity through Mathematics (GEM) Achievement
PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE Mark Roosevelt, Superintendent of Schools	
SIGNATURE 	DATE 02/24/2009

SURVEY ON ENSURING EQUAL OPPORTUNITY FOR APPLICANTS

OMB No. 1890-0014 Exp. 02/28/09

Purpose: The Federal government is committed to ensuring that all qualified applicants, small or large, non-religious or faith-based, have an equal opportunity to compete for Federal funding. In order for us to better understand the population of applicants for Federal funds, we are asking nonprofit private organizations (not including private universities) to fill out this survey.

Upon receipt, the survey will be separated from the application. Information provided on the survey will not be considered in any way in making funding decisions and will not be included in the Federal grants database. While your help in this data collection process is greatly appreciated, completion of this survey is voluntary.

Instructions for Submitting the Survey: If you are applying using a hard copy application, please place the completed survey in an envelope labeled "Applicant Survey." Seal the envelope and include it along with your application package. If you are applying electronically, please submit this survey along with your application.

Applicant's (Organization) Name: School District of Pittsburgh

Applicant's DUNS Number: 074987330

Federal Program: Women's Educational Equity Act Program CFDA Number: 84.083A

1. Has the applicant ever received a grant or contract from the Federal government?

Yes No

2. Is the applicant a faith-based organization?

Yes No

3. Is the applicant a secular organization?

Yes No

4. Does the applicant have 501(c)(3) status?

Yes No

5. Is the applicant a local affiliate of a national organization?

Yes No

6. How many full-time equivalent employees does the applicant have? (Check only one box).

3 or Fewer 15-50
 4-5 51-100
 6-14 over 100

7. What is the size of the applicant's annual budget? (Check only one box.)

Less Than \$150,000
 \$150,000 - \$299,999
 \$300,000 - \$499,999
 \$500,000 - \$999,999
 \$1,000,000 - \$4,999,999
 \$5,000,000 or more

Survey Instructions on Ensuring Equal Opportunity for Applicants

Provide the applicant's (organization) name and DUNS number and the grant name and CFDA number.

1. Self-explanatory.
2. Self-identify.
3. Self-identify.
4. 501(c)(3) status is a legal designation provided on application to the Internal Revenue Service by eligible organizations. Some grant programs may require nonprofit applicants to have 501(c)(3) status. Other grant programs do not.
5. Self-explanatory.
6. For example, two part-time employees who each work half-time equal one full-time equivalent employee. If the applicant is a local affiliate of a national organization, the responses to survey questions 2 and 3 should reflect the staff and budget size of the local affiliate.
7. Annual budget means the amount of money your organization spends each year on all of its activities.

Paperwork Burden Statement

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1890-0014. The time required to complete this information collection is estimated to average five (5) minutes per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collection. **If you have any comments concerning the accuracy of the time estimate(s) or suggestions for improving this form, please write to: The Agency Contact listed in this grant application package.**