THANKS

First of all to the INTEL Foundation for funding this dissemination effort and the most recent cycle of Got Math? Our program officer Rob Richardson immediately saw the value in our unorthodox approach and advocated for us from start to finish.

Thanks also to mentors, too numerous to name, without whom the program could not have succeeded. The bonding between the mentors and their groups was the ingredient that made this cake rise.

In the development of the first curriculum and the overall conception of Got Math? Math professor Annette Guertin did the pioneering work. She also was the first program coordinator. The second year Crosby School teachers Vic Beaudin, Andy Mickle, and Meagan Ledendecker conducted the sessions.

The third year it was Berkshire Community College Service Learning Coordinator Margo Shea. All contributed value to the evolving Got Math? Professor Nancy Zuber contributed her math and teaching expertise to bringing the curriculum into its present form. We also want to thank the principals and consulting teachers at Stearns, Crosby, and Highland Schools, where Got Math? was offered in its first three-year rotation.

The authors and Berkshire Community College have not copyrighted this material in order to encourage its dissemination.
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INTRODUCTION

Why Got Math?

For many kids math is like spinach--something to be avoided if possible. This may well be because they see learning math as a rather abstract process, cut off from the real world. For many teachers, with large classes and pressure to prepare for standardized tests, opportunities to individualize math instruction and to experiment with creative group activities that bring math alive remain out of reach. As a result of these and other factors, across the nation our children’s math achievement levels remain pretty disappointing.

Got Math?, an out-of-school-time mentoring program for third through fifth graders, is one model that aims to turn that dynamic around. Staffed with math-savvy volunteer mentors from the nearby college, the program allows for small group and individual work in a structure that helps children learn by applying math to problem solving and by working closely together in small task-groups of three or four. The strong relationships that evolve over the course of a school year both with the mentors and with other participants encourage children to try hard and to perform well in math. In contrast to one-on-one tutoring, our one-on-four groups develop more like teams, with the mentor serving as coach. This is a key aspect of our model.

The Got Math? model helps children both improve math skills and become much more comfortable with the subject. When you ask them what they like about Got Math?, participants describe the games, the field trips, and the chance they get to make “really real” objects like pies and key chains. They also talk about the chance they get to make new friends and to have fun. The classroom teachers remark on the increased math confidence of children in the program. Unlike conventional teaching or after-school tutoring, Got Math? does not teach math as an isolated subject. It is not “schooling” but rather experiential learning using math-rich projects and activities that forms the core of the model. This is made possible by partnering with businesses in the community that have an interest in math-proficient future employees. The partners assist with curriculum advice, field trips, and limited instruction. They could also fund the program.

Developed first by Berkshire Community College in 1999, the program has served children in Pittsfield, Massachusetts, schools each year since. Typically we use six or more mentors to engage twenty-four fourth-grade children whose performance in math has been below grade level or who have been identified as showing signs of emergent math anxiety. The sessions here occur Tuesday and Thursday mornings for an hour before the school day. We have three 7-week blocks that begin once mentors are recruited and trained. They extend for the rest of the school year. Attendance by children has been excellent even though parents have to get up early and bring their children to school. Attrition has been negligible.
In Pittsfield our curriculum units have been The Math of Plastics, The Math of Paper, and The Math of Farming because we have good partners in these fields. In other communities different units might be appropriate, but many of the activities already developed could be used.

**Purpose of This Guide**

With the generous support of the Intel Foundation, this guide and accompanying complete curriculum have been prepared and made available for colleges and schools considering their own Got Math? Programs. While some of the lesson plans and suggestions for program development may not suit your institution or your community, we hope that you find ideas, suggestions, and concrete tools that will enable you to better facilitate fun and rewarding math programs that link college students with elementary school students. Most college-school partnerships require intensive nurturing in order to combat the obvious challenges – different schedules and notions of time, conflicting needs, and an array of demands on both sides. This guide is meant to help others benefit from our experience and lessons learned by trial and error.

All materials may be copied and used at will. We ask only that you share with us ideas and improvements that you feel can strengthen the model. With these materials and a capable director, a successful program can be funded and offered with about six months lead time. Some funding sources may have earlier deadlines.

**GETTING STARTED**

**Assembling Primary Players**

In order to develop a plan for a Got Math? program, it helps to pull together at the very beginning the people most likely to become involved. These might include the college’s representative, the coordinator of service learning and community service, an influential math faculty member, the person who handles Federal Work Study for the college, a couple of students with experience in your existing tutoring programs, a school principal, and possibly a fourth grade teacher, plus anyone else you think might be helpful. We recommend making personal contact with each person beforehand and making sure they are receptive to the idea before inviting them. There are advantages to starting out with a school where the college already has a sound relationship. The agenda for the meeting might include:

- Explanation of the Got Math? model
- Discussion of need at the school
- Determining if the program addresses the need
- Deciding if the school and college want to work together to secure funding
- Brainstorming appropriate business partners
- Going as far as possible in getting commitment from individuals who will:
  - Coordinate/run the program
  - Prepare the funding proposal
Serve as liaison at the school
Recruit mentors (through Federal Work Study, service learning for college courses, community service by student organizations)

In general, business people do not have much patience with meetings of the sort we have on campuses. Therefore, potential partners may best be contacted individually at their own offices. Again, the college will already have relationships with some firms; and these are good places to start. Do not rule out non-profits if they seem appropriate.

**Writing the Proposal**

If the college has a grant writer available, you will just have to supply the particulars and review the proposal. Otherwise, expect to write it up and prepare the budget yourself. The grant guidelines will shape how this is done. See sample budget in the budget section below. Secure hard information through the school principal on how the district and targeted classes have been doing in math. This helps you make an irrefutable case to demonstrate need. Quotes from business partners about the need for math skills in new employees can further bolster this case.

In writing up the proposal, bear in mind that most funders love partnerships. It makes them feel they are to get their money’s worth and that more segments of the community are behind doing what you propose.

Stress the partnership work that has already occurred and that will support the program you are proposing. Letters of commitment (as opposed to letters of support) from the school principal, at least one business partner, and a college official such as the president should be attached. Other letters that might be helpful, but are not essential, might come from: the school superintendent, other business partners, and the math faculty member to be involved.

**Budget**

The budget provided below reflects expenses for a program that occurs before the school day or does not require busing. In our setting we have been able to get parents to bring children to school early two mornings a week. Of course, they go home on the bus at the regular time. An after-school offering of Got Math? would probably require busing because many parents are still working in late afternoon. This budget also does not provide snacks because we assume the children have just had breakfast. Other possible expenses not reflected here are any curriculum adaptation that might be necessary in order to partner with businesses in your community. We have paid a college faculty member with elementary teaching experience to perform this service in years when it was necessary.

Costs shown are for 2002. One column includes projected in-kind match to meet grant requirements. These estimates would change under different circumstances.
# GOT MATH?

## BUDGET NARRATIVE

<table>
<thead>
<tr>
<th>Direct Costs</th>
<th>Grant Request</th>
<th>In-Kind</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Program Staff</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Project Director</td>
<td>6,076</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 hours x 31 weeks x $28/hr.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. BCC Director of Special Programs</td>
<td></td>
<td>1,890</td>
<td></td>
</tr>
<tr>
<td>6 hrs./month x 9 months x $35/hr.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Consulting Teacher</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 hrs. x $25/hr.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Federal Work Study Students</td>
<td></td>
<td>1,240</td>
<td></td>
</tr>
<tr>
<td>6 hours of training, then 3 hours x 24 weeks = 78 hours x 2 students x $7.95/hr.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Industry Partners</td>
<td></td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td>3 partners x 10 hours x $40/hr.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal for Program Staff</strong></td>
<td>6,476</td>
<td>4,330</td>
<td>10,806</td>
</tr>
<tr>
<td><strong>2. Instructional Materials</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials for instruction and activities: Math manipulatives, molds, Play Doh, calculators, micrometers, pie materials, paper, rulers, etc.</td>
<td>616</td>
<td>302</td>
<td>918</td>
</tr>
<tr>
<td><strong>Subtotal for Supplies</strong></td>
<td>616</td>
<td>302</td>
<td>918</td>
</tr>
<tr>
<td><strong>3. Participant Travel</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field Trips</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charge for school bus @ $48/trip x 3 trips; Pittsfield School System absorbs balance of true cost.</td>
<td>144</td>
<td>90</td>
<td>234</td>
</tr>
<tr>
<td><strong>Subtotal for Participant Travel</strong></td>
<td>144</td>
<td>90</td>
<td>234</td>
</tr>
<tr>
<td><strong>4. Staff Travel</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reimbursement for travel to workshops and conferences in state.</td>
<td>300</td>
<td>240</td>
<td>540</td>
</tr>
<tr>
<td><strong>Subtotal for Staff Travel</strong></td>
<td>300</td>
<td>240</td>
<td>540</td>
</tr>
<tr>
<td><strong>5. Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORI (Criminal Records Check) fees: 12 students x $10; absorbed by the Commonwealth.</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORI application prep: 7 hours x $19.45; Pittsfield School</td>
<td>136</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognition event for participants and parents: Refreshments for 60; space and some refreshments donated.</td>
<td>140</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Certificates for completers: BCC Graphics Department.</td>
<td></td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>T-shirts for completers and mentors: $9/shirt x 36 (participants and mentors)</td>
<td>324</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance costs: 24 students x $34; Pittsfield Schools</td>
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<td>816</td>
<td></td>
</tr>
<tr>
<td>School facilities for program activities: 48 hours x $37/hour</td>
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<td>1,776</td>
<td></td>
</tr>
<tr>
<td>BCC facilities for mentor training: 30 hours x $65/hour</td>
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<td>1,950</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal for Other</strong></td>
<td>464</td>
<td>5,048</td>
<td>5,512</td>
</tr>
<tr>
<td><strong>TOTAL DIRECT COSTS</strong></td>
<td>$8,000</td>
<td>$10,010</td>
<td>$18,010</td>
</tr>
</tbody>
</table>
Funding Sources

Got Math? is a very fundable project because so many employers are aware of poor math preparation in schools, because it provides nice public relations opportunities for business partners, and because it has already been shown to work. Here are some funding sources to consider:

The Campus Compact organization for your state. To find out if your state has a Campus Compact, go to www.compact.org.
The foundation associated with a major employer in your community. If that employer is one of your partners, that opens the door.
One of the business partners as a form of direct corporate giving (but see caveat below).
State Department of Education funds for after-school programs.
The school district -- either through a direct grant or as a sub-grant from funds they receive to improve test scores (it’s essential not to let Got Math? be subverted into a test prep program).
Funds available to America Counts programs. See www.ed.gov/americacounts
A private benefactor (but see below).

Be aware that college development offices cultivate long-term relationships with well-heeled individuals and corporations in order to elicit large gifts from them. You can incur the wrath of your own development people if you independently go to one of these donors and secure a few thousand dollars for your project. Possible consequences of this include having the donor say they have done their thing for the college this year by supporting Got Math?, and the President’s pet project gets nothing.

YOU’VE BEEN FUNDED! NOW WHAT?

Once you’ve been able to secure a grant to run a Got Math? program, it seems as if everything needs to happen at once. The program coordinator should establish good communication early with those people who represent the key partners of the program – school personnel, college students who will serve as mentors, and community business partners who will help to shape much of the curriculum and activities. With each of these groups, there are key issues that will eventually arise. Some of these issues are outlined below.

Your Partner School

Once your program has been funded, it is time to clarify roles and responsibilities. An elementary school that opens its doors to you is taking a risk and in some ways adding to its already long list of duties. Making sure that your school partners understand what you expect from them and outlining what your responsibilities are in the partnership at the very beginning will increase the chances of a strong and durable association.

Success of the program will depend on a close and positive relationship with both the principal and one classroom teacher at the elementary school. It does not matter which is your key day-to-day contact – most principals find it useful to assign a teacher whose students are in the program the role of primary contact – but it is necessary to have one.
There will be occasions when you need that person’s phone number. See also the section on roles in this guide.

**Issues To Clarify**

**Primary Space**

Where in the school will Got Math? run? The cafeteria, library, or a classroom are options, the Art Room or another space that is less strongly associated with traditional classroom learning is ideal. It is important to be certain that all players with a stake in that space are informed well in advance by the principal of its use for Got Math?

**Other Spaces**

It also helps to get up-front permission to use the gym and have access to the kitchen on occasion and if possible, to provide dates you’ll need them well in advance. While it is unlikely that anyone will be using the gym before school hours, in most elementary schools the kitchen is a busy place in the early hours of the day.

**Storage and Display**

**Storage**

Find out if there is any available place to store things you use on a regular basis – the folders for each participant, balls, markers and crayons, and other art supplies, etc. Otherwise, the coordinator or lead mentor will have to carry everything to and from the site.

**Display**

Ask permission up front to display projects on the walls of your space or within the school. It is important for participants to have public recognition and most schools are happy to have you decorate the halls with Got Math? projects. There may be rules about tape or thumb tacks.

**Arrival Times**

If Got Math? is being operated as a before-school program, the school contacts and the school custodian need to be informed of the arrival times of the coordinator, mentors, and the participants. In many communities, the Got Math? coordinator will be one of the first people to arrive at school on the days the program runs.

**Appropriate Behaviors**

It makes sense to establish Got Math? ground rules with the school’s principal and to be consistent with the school’s philosophy for discipline. The program leader should have the right to drop a child from the program for persistent, disruptive behavior. However, we have
not had to do that to date. Instead, we have redirected the difficult child’s energies into program activities and in one case of an ADHD boy assigned an extra mentor to his group. See Ground Rules appended to the Curriculum.

School Calendar / College Calendar

Before the program starts, it is necessary to sit down with updated school and college calendars. There will be different vacations, cancelled classes, and days off. Usually mentors prefer not to have program responsibilities during exam periods and the long Christmas and January break. A calendar for the program, once developed and cleared with the school, should be printed up for parents of participants. See Appendix 5.

Procedure for Field Trips

Field trips are an essential part of the Got Math? model. They are also a major responsibility and your school partner is placing a great amount of trust in you when it allows you to take its children off site during school hours. Thus it is important to address all potential concerns up front and establish clear responsibilities for all parties when planning trips.

Appropriate Notice

Schools often plan their field trips far in advance. Since Got Math? field trips do not usually conclude until about 10:00 a.m., it is important that classroom teachers, parents, and students have ample notice.

Ordering Transportation

Generally, a school bus is necessary to transport Got Math? participants from school to the field trip site. A school bus can be secured with enough lead time. It is often easier for a school official to order the bus. Make sure it is clear who will pay for the bus.

Field Trip Permission Slips

It is important to clarify who will print out permission slips. Got Math? participants should receive a slip a week before the session. They have two opportunities to bring it to Got Math? It is also helpful to set a policy by which they can give the signed permission slip to a designated person such as the school secretary any day between the day they receive it and the day before the field trip.

Adequate Supervision During Field Trips

It is advisable to have at least one school representative on any field trips. Unruly behavior is more common when students are away from school and not with people who generally discipline them in any significant way. It is also important to arrange for college representatives to attend field trips, as mentors often face schedule conflicts on those days.
Other College Partnerships

It is beneficial to know if your college or any other colleges have other on-going programs operating in your school partner’s site. While those other programs should not affect Got Math?, sometimes they do and knowing about the programs and the key players can often prevent confusion or miscommunication later.

**Recruiting Got Math? Participants**

Depending on the size of the school in which you are working, you will be recruiting from the fourth grade, the third and fourth grades, or possibly even the third through fifth grades. Bearing in mind the optimum number of twenty-four students, the school principal can help you to gauge where to begin recruitment efforts.

Your teacher liaison and the school principal will play the major roles in recruiting program participants. We send a letter explaining the program to all parents of children in the grades targeted; some parents and students will want to sign up at that point. We also work through the teachers to recruit children most likely to benefit from the program. Once you have enthusiastic students, it also helps to ask them to get their friends or neighbors to join. Because students often carpool or walk to Got Math? together, recruitment by the “neighbor” technique also is helpful with program retention.

You should not have any problems recruiting Got Math? participants. If you are encountering difficulties, see if this signals an emerging problem with your partner school.

**MENTORS**

It goes without saying that the college’s volunteer, service learning, or Federal Work Study mentors are at the heart of your program. Without them, all the funding, preparations, strong partnerships, and enthusiastic staff will be of little consequence when it comes to making Got Math? a success. Mentors serve as coaches, guides, and teachers to their young student participants.

**Recruiting Mentors**

*How Many?*

We recommend recruiting a minimum of six and a maximum of twelve. Two mentors per group can work well. When a mentor has to miss a session, two groups can be combined, but it is far better to have another mentor who can step in.

*Where Do Mentors Come From?*

College mentors can be recruited in the following ways:

- From math classes. Math faculty will know continuing students who would make good mentors. Students may respond positively if they feel it is an honor to be invited to interview for a mentorship.
From service-learning courses where students are responsible for a community placement as part of their coursework. Ask your service learning coordinator to push this placement.
From previous or current mentors who can recruit their peers and friends.
From your college’s work study office.
Make sure there is a job description on file.
It helps to make flyers and hang them all over campus as a Help Wanted sign.
From the volunteer center, honor societies, campus ministries, etc.
Make sure there is an updated position description with these offices.
From the international office. Some international students are looking for ways to connect with the local community.

What Motivates Mentors?

Generally, students get involved for one or more of the following reasons:
They think they might want to pursue a career in education.
They find it a more interesting work study assignment than the other options.
They love math and want to share their enthusiasm.
They do not like math and feel that if they had more support and encouragement they might be more successful in the subject; they therefore want to help a child.
They belong to an honor society and need to perform a set number of hours of service.
They are taking a service-learning course and need a project.
A friend was or is a Got Math? mentor and told them it was a great experience.
They like the early morning hours because then their service or work study job is “out of the way”
They want to add to their resume.
A professor has suggested to them that they would be a good mentor.

Particularly if you have a college with a large math department supportive of Got Math?, you could fill all your mentor slots from this one source.

Mentor Orientation

In order to keep mentors engaged and energized about the program, training and ongoing opportunities for leadership development are crucial. Mentors generally go through several stages of development in their relation to working within the program. From beginners to “experts” to humbled aspiring motivators and educators, college students often use their mentoring experiences to play out a variety of roles in relation to kids, to authority, and to the role of education in society. Without supportive and open space for them to voice ideas, concerns, and suggestions for the program, it is normal for them to feel disaffected at different times and to voice that by exiting the program. This is damaging for kids because they bond with their mentor, and their learning depends in part on this personal connection. Moreover, loss of a mentor disrupts the program and makes more work for the coordinator. Training and reflection are the best ways to keep mentors engaged.
Pre-Program Orientation

Goals of Orientation

The initial orientation needs to accomplish the following:

- Excite the mentors
- Offer the mentors a chance to get to know one another
- Discover the mentor’s individual and collective strengths vis-à-vis mentoring
- Clarify expectations for the program and expectations of mentors, i.e. consistency, reliability, punctuality, attendance at reflection sessions
- Explain the significance of the mentor relationship.
- Prepare the mentors to work with third-fifth graders.
- Provide an overview to the lessons and academic goals for Got Math?
- Offer them a chance to try some of the activities they will be leading.
- Review the math skills they can expect from participants.
- Provide them with important contact information for the coordinator and the school.
- Orient them to the partner school – location, established procedures, etc.
- Offer them the chance to ask questions.

Guests at Orientation

Usually, the best guests at orientation are one or more former mentors and the partner school’s consulting teacher. An expert in mentorship or a psychology or education professor from the college also would be useful and welcome guests.

Scheduling Orientation

It is worth the time it takes to find a time when everyone can attend orientation. A two and a half hour session that includes dinner is often a good option for college students. When scheduling orientation, it is important to offer enough flexibility to enable mentors to get to know one another and to ask questions. Additional orientation sessions may be necessary depending on the mentors, availability of guests, and other factors.

Mentor Roles

One of the key challenges for mentors is to understand their role in the classroom and the program. At orientation, it helps to ask the new mentors themselves what they believe to be an appropriate role for them. Mentors often struggle between wanting to befriend children and wanting to create space where children can learn. They rarely relish disciplining so they need to be involved and invested in the Ground Rules for the program so they can support the coordinator in enforcement.

There is a fine line between being a friend and being a mentor to a child. This distinction bears discussion. It might be helpful to establish boundaries for mentors in the form of simple rules:

- Do not give Got Math? participants rides in your car.
- Do not intervene in a Got Math? participant’s problem with a classroom teacher.
Do secure principal’s permission before offering extra tutoring or help out of program time and off site.
Use the reflection session to discuss learning and behavior problems that may arise.

Training

Each week the mentors will need some coaching to prepare for the following week’s lessons. In some cases this can be minimized and the session can move quickly into reflection. In others, as when mold-making or origami are scheduled, mentors really need to know what they are doing before they are expected to teach others. Normally the program coordinator conducts the training and tries to relate the specific activities and skills to the big picture of the unfolding curriculum.

Over the course of the program, certain issues will undoubtedly emerge that would be best addressed through training with an outside specialist. Some of these might include:

- Learning styles and multiple intelligences
- Learning disabilities
- Aggression in children
- Behavioral problems
- School finance
- Standardized testing
- Mentoring skills
- Leadership development
- Math anxiety

Training should be only as long as it needs to be, and it should be strongly encouraged but optional. Use your contacts and networks to bring in good speakers and trainers and try to do something nice for the mentors who come – provide dinner, give lottery tickets, or a small honorarium, etc. Work study students should be paid to attend training. Most of all, make sure the training is of interest and of use to the mentors. They already dedicate so much time to Got Math?

Reflection

College students in general are ill-disposed to reflection as a theoretical concept but supportive of it in practice. Therefore, scheduling reflection sessions or building time to reflect into an already demanding program is difficult in the beginning. It becomes easier as mentors realize they have more and more they want to digest and discuss. Many models can work for reflection; ask what makes sense in their schedules. For some groups, staying twenty minutes after each Got Math? session is the best approach. For others, an early morning or late afternoon/early evening weekly session is better. Dinner together can work for some, often more social, groups.

Who Facilitates

The program coordinator usually facilitates reflection, though a lead mentor, program aide, faculty member, or mentors themselves can certainly facilitate.
Agenda for Reflection

One can begin reflection sessions by asking the mentors themselves to set the agenda. This can be a useful preview of issues and problems that are arising. By allowing mentors to set the agenda, it usually gives them more sense of program control. Topics that usually need to be covered include:

- Relationships with groups
- Problems with specific kids
- Problems between kids
- Placing upcoming lesson plans in larger context
- The same with just completed lessons
- Issues with specific lessons or students’ difficulties with certain concepts or tasks
- What to do about mentors who do not show up (this usually makes things harder for mentors who do show up).

Allot a specific amount of time for training and reflection. People tend to relax when they know that the session will end at a definite, appointed time and are more willing to give one another room to think aloud and raise issues that may have been raised recently if they know that it won’t lead to going over the specified time limit.

Having the consulting teacher come to sessions periodically is extremely useful. If there are learning issues, behavioral issues, or problems with the site or the space, it is important to have someone present who can address these concerns, bring information back to the site and provide solutions. If a teacher cannot come, it is imperative that the program coordinator or lead mentor bring the information to the consulting teacher.

Leadership Development

An effective way to keep mentors engaged and committed throughout the course of the program year is to create leadership development opportunities for them both within the program and within the broader community and the college.

Opportunities for Program Leadership

Mentors should be given the chance to design and lead lessons. They should feel confident that suggestions they make for program improvements and changes are heard and heeded. This helps avoid resistance that can develop toward the coordinator and consulting teacher when mentors feel the agenda for Got Math? is imposed top-down by the “experts.”

Opportunities for Broader Leadership

Encouraging your mentors to design and develop workshop presentations for collegiate, K-12, and community service/service learning conferences about mentoring and Got Math? is a great way to help them develop confidence, build public speaking skills, process what they have learned and can share about their program, develop ownership of Got Math?, and increase their commitment to their work.
Other ways to develop leadership skills in mentors are: have them talk with evaluators, give them the task of communicating with the school principal or consulting teacher, ask them to go on the radio or TV when Got Math? is being highlighted, and assisting with planning and finding funding for the next year. Some mentors will appreciate and respond to these invitations and others will not.

**ROLES**

**At The School**

**The Principal**

The most important role of the principal is to show support for the program with all constituents – the school’s staff, students and parents, and the Got Math? mentors and business partners. An engaged principal can raise the energy and commitment level of all the program’s partners. It is important to inform the principal from the start if you are going to request his or her presence at events or publicity activities and to see if that kind of involvement and public face vis-à-vis the program is acceptable.

**The Consulting Teacher**

The consulting teacher is usually one whose students are in the program. Ideally he or she is offered a stipend to:

- Attend the program as time permits
- Attend mentor training and reflection occasionally
- Share information between the other teachers of Got Math? students and the program coordinator and mentors
- Assist with issues that arise in the day-to-day management of the program
- Offer suggestions and feedback regarding the curricular coverage of math and the participants’ reported experiences of Got Math?
- Make arrangements for field trip buses
- Accompany all field trips
- Coordinate program evaluation with other assessments conducted by the school.

Having an engaged consulting teacher can make the crucial difference between a good and great Got Math? program. His or her enthusiasm, support for mentors, understanding of participants, ability to spot potential problems, and ability to communicate with others in the school about issues affecting Got Math? can help create an open, flexible, engaged learning environment for everyone. Other teachers in the school often follow this teacher’s example in establishing their attitudes about the program.

However, with teachers being asked to do more and more with less and less, it is no wonder that elementary schools would be hard pressed to find someone willing and able to come to school and hour early, work with the same kids they see all day and coach inexperienced college students about teaching and classroom management techniques. While the program can be strong and effective without a Super Teacher on your side, having someone to help you negotiate the unique world of your school site can be real asset.
With Business Partners

Partner Representatives

Each business partner will designate an employee to represent the company and serve as liaison to the program. Someone who works with math regularly and who relates well with children makes the best choice. The representative will advise on exercises and curriculum in cases where businesses other than those used here become partners. He or she also will consult with the program coordinator beforehand on what is planned for the presentation to the class (and may be reminded to keep it at least somewhat interactive). The partner presents at least one lesson and may introduce the whole unit. These partner presentations do more than expose kids to math, they expand horizons. For example, for the Math of Farming urban or suburban students may need to be introduced to a whole new way of thinking about where food comes from and what accounts for the cost of, let’s say, a tomato.

Typically, the business partner will supply samples of their product for use in the different lessons – representative grades/sizes of apples, simple molded products, varieties of paper and card stock. For the culminating event in each unit, the representative makes arrangements at the business end and will, as appropriate, prepare other employees to explain how math figures in what they do, specify where the bus is to drop the kids off, have safety goggles available, and plan the actual tour of the plant and/or related on-site activities.

Roles in the Program

Director of Special Programs

At other colleges the functions of this person might be assumed by an assistant dean or dispersed among others, but at Berkshire Community College the following administrative functions reside with this individual.

- Securing initial funding, all grant reports and grant management, securing funding for the next year
- Hiring staff
- Liaison with – work study office and service learning function, assisting program coordinator in the recruitment of mentors
- Fiscal management, making budget come out at the end, signing time sheets, etc.
- Substituting for the program coordinator on occasion
- Helping to publicize the program on campus and in the community
- Providing the quality control and coach function, as needed

Program Coordinator

The coordinator can assume some of the above duties if the funding and program are planned accordingly, but the coordinator’s primary function is orchestrating and delivering a dynamic learning experience for the children. This includes leading the after-school or before-school sessions and insuring that the necessary supplies are on hand for them to run smoothly. Liaison with the principal and consulting teacher also fall to the coordinator, as do communication with other parts of the college. Maintaining cordial relations with the college math department on the one hand and classroom teachers on the other should not be overlooked.
A major part of day-to-day implementation responsibilities of the coordinator relates to first recruiting, and then orienting and supervising the mentors. The weekly training and reflection sessions for mentors normally are conducted by the coordinator. Maintaining mentor esprit and enthusiasm for the program makes everything else go more smoothly.

**Lead Mentor**

While not essential, a lead mentor can ease the burden on the coordinator. Such a person could be a VISTA worker, a mentor returning from the year before, or simply a mature and responsible mentor ready to take on more responsibility. Such individuals sometimes emerge as the year progresses, and utilizing their potential provides the added plus of encouraging leadership development. Depending on the abilities of the lead mentor, duties can include:

- Insuring that there is mentor coverage for each group each time
- Recruiting additional mentors
- Conducting the reflection
- Keeping the supply closet organized and inventoried
- Getting supplies to sessions
- Conducting parts of whole-group sessions

**LESSON PLANS**

The lesson plans in the separate curriculum have been developed in an effort to reinforce and strengthen the central skill areas for third through fifth graders and to expose children to more advanced and sophisticated mathematical concepts and operations. The lesson plans are designed for a 50-60 minute time period. While many of the original Got Math? lesson plans can be utilized with minimal readjustment, several plans and lesson descriptions relate directly to the work of our community business partners. It may behoove you to hire someone with elementary education curriculum development expertise to help you design lesson plans that pertain to your designated partners.

**ASSESSING IMPACT**

In order to continue to secure funding for Got Math?, you’ll need to prove that it is effective at meeting its stated goals. If possible, hiring an external evaluator to help you create an assessment structure and assist in the data collection and interpretation takes an enormous load off of the program coordinator. Generally, assessment for Got Math? falls into the following general categories:

1. Skill Development
2. Participant Attitudes
3. Mentors’ Experience
4. Program Organization and Effectiveness
Pre- and Post Assessment

Testing Skills

A locally produced test that is grade appropriate is the least expensive and may be the best way to objectively determine progress. We have used the Stanford 9 Open-Ended Math Assessment available from Harcourt because our funding stipulated a nationally normed skills test and greater resources and emphasis on assessment than one would expect in a program that had progressed beyond the pilot or development phase.

Assessing Attitudes

Got Math? has been designed to help math-aversive students become more comfortable with the subject. The simple assessment we use at the beginning and end of the program appears on the next page.

Mentor Experience

The existing source for comprehensive assessment of the program from the mentor’s perspective is their own journals and reflection. We have had good results from asking them to do a summary reflection, which can be in the form of a memo to a college official, addressing what the program meant to them in the big picture of their learning and personal or professional growth, what benefits they saw for the children, and opportunities for program improvement.

Program Effectiveness

The evaluator will devise her or his own interviews, observations, or surveys to collect data deemed necessary in this area. Often funders will have specific questions they expect to be answered.
Sample Participant Evaluation

1. I think math is: (circle all that you agree with)
   OK       Hard       Easy       Stupid
   Interesting       Challenging       Fun
   Useful       Used in Computers       Used in Video Games

2. My friends like math. Yes or No

3. The best thing about math class in school is:

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

4. The worst thing about math class in school is:

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

5. My favorite subject is:

   __________________________________________________________

6. On a scale of one to five (one is low and five is high), this is how I feel about math:

   1       2       3       4       5
APPENDICES

1. Task Checklist ........................................................... ...................................21

2. Sample Mentor Recruitment Flyers .........................................................22-23

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5. Session Schedule .........................................................................................26

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8. The Got Math? Pie .........................................................................................29

9. Closing Celebration Invitation .......................................................................30
<table>
<thead>
<tr>
<th>TASKS</th>
<th>TARGET DATE</th>
<th>ACTUAL DATE</th>
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<tbody>
<tr>
<td>Determine who will spearhead the program</td>
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<td>Meeting(s) with Math Department and other players on campus</td>
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<td>Campus representative meets with school principal and possibly an interested grade teacher</td>
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<tr>
<td>At least two business partners identified and committed</td>
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<td>Funding source(s) identified, proposal drafted</td>
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<td>Letters of support; college president, principal, strongest business partner</td>
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<td>Proposal, budget, supporting materials reviewed for completeness and effectiveness before mailing. Be sure to budget for snacks and bus transportation home if program takes place after the school day</td>
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<td>Proposal submission deadline</td>
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<td>Award notice received</td>
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<td>Set up grant account number and grant management system at the college</td>
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<td>Secure remaining business partners</td>
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<td>Prepare calendar for program; account for college and school vacations</td>
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<td>Do press release</td>
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<td>Recruit mentors</td>
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<td>CORI checks for mentors, if required</td>
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<td>Curriculum revision for first unit if needed</td>
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<td>Mentor training; schedule ongoing training and reflection sessions</td>
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<td>Recruit children for program</td>
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<td>Select parents and get permission forms signed</td>
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<td>Program and first unit begin</td>
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<td>Pre-testing if desired</td>
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<td>Unit Two begins</td>
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<td>Mid-year reports</td>
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<td>Plan some publicity</td>
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<td>Unit Three begins</td>
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<td>Plan grant spend down</td>
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<td>Post testing if desired</td>
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<tr>
<td>Recognition event</td>
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<tr>
<td>Final paperwork, reports, etc., completed</td>
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What?
A before-school math mentoring program run by BCC

Where?
Highland Elementary School

When?
Tuesdays and Thursdays from 7:30-8:45

How?
To get involved, see Margo Shea in the Service Learning office (H218) ext.337
Got Math?

Want to help kids improve their skills and increase their understanding of the world of math?

Be a GOT MATH? Mentor!

GOT MATH? meets Tuesdays and Thursdays, from 7:30a.m.-8:45a.m. at Highland School. As a mentor, you’ll work on projects with small groups of 4th graders. Have fun and help make a difference in your community!

See Margo Shea in Service-Learning (H218) or call ext. 337 to learn more.

(Federal Work Study Eligible!)
10/16/2001

Dear Parent or Guardian

Math is an important success factor later in life, but nationwide many students have weak math skills and try to avoid math when they can. Fourth grade students at Highland School have the opportunity to participate in a creative new math program to be held this year.

For the past two years, Berkshire Community College has brought mentors from BCC to Pittsfield elementary schools for a creative math enrichment program called Got Math? In the first year, BCC partnered with Stearns, followed by Crosby. The mentors are math students at the college, and the children have very much enjoyed the projects and national recognition. This year the program has been funded again and will come to Highland. We invite you to apply for your child if you feel this would be beneficial. **You will also need to commit to bringing your child to the school early two mornings a week for approximately 20 weeks of the school year.**

Here’s how it will work. Beginning October 24, on Tuesdays and Thursdays fourth grade students in the program will arrive at Highland in time to begin Got Math? in the cafeteria at 7:45. They will work in small groups with trained BCC mentors in sessions under the direction of teacher Brendan Dillon and Got Math? Program Director Margo Shea. The program has been designed so that students will be doing projects and activities that require them to apply math in practical situations.

Each of the three major learning blocks has a local partner from the business world. The first is MedSource, formerly Apex Engineering, who will help us with the Math of Plastics. The second block looks at the Math of Paper with our partner Crane Stationery Division. Our third block is the Math of Farming with Bartlett’s Orchards and the Orion Society (a national environmental education organization). Each unit culminates in a field trip to see math at work in the real world. After each session students will go directly to their regular classes.

We look forward to starting this exciting program on October 24th and hope your child can be a part of it.

Sincerely

Mary Ellen Trumble
Principal

Margo Shea
Program Director
COMMITTMENT FORM
Please return to Crosby School Office by October 13.
Please use a separate form for each child.

I would like to enroll my child in the Got Math? Program, a before-school program running Tuesdays and Thursdays for this academic year. The program runs from 7:45 to 8:35 in the morning and follows the enclosed calendar.

By signing below I grant permission for my child to attend the program, for him/her to be photographed for news stories, and to take field trips. (Separate permission slips will be sent home for each field trip.)

Name of child:

Name of parent or guardian:

Address:

Phone number for the period 7:45-8:35 AM:

Signature:

QUESTIONS?
Call Victor Beaudin at 442-6667, ext 230 or Chris Nye at 499-4660, ext. 565.
WORD PLAY
and
GOT MATH?
SCHEDULE

<table>
<thead>
<tr>
<th>Tuesday</th>
<th>Thursday</th>
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<td>Session 1:</td>
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<td>October: 30</td>
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<td>November:</td>
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<td>Session 2: January:</td>
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<td>Session 3: March:</td>
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<td>April:</td>
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* Half-day of school

Total: 37 Meetings
MENTOR BRIEFING SHEET
GOT MATH?/CROSBY SCHOOL

Directions:

From downtown Pittsfield, come out West Street to the crest of the hill. See Crosby School back from the street on the left side.

Parking: Please bear right around the school building and use the parking lot at the back, not the areas in front.

Times: Since we will need to set up before the program begins, and since some children will be dropped off early, please be there by 7:40. The activities will run from 7:45 to 8:35. Then there will be some picking up. This should give you plenty of time to get back for 9:25 classes.

Dress: Remember that mentors are role models. You don't need to dress up, but look clean and neat. No hats indoors.

Rest Rooms: There are rest rooms directly outside the Library entrance.

Signing in: When you get there, sign in with the teacher, Vic Beaudin for the first unit. You don't need to sign the visitor book near the principal's office.

Forms of address: Practice at the school is for adults to be addressed as Mr. or Ms, etc.; children are called by their first names.

FWS Timesheets: Work study money is available for BCC mentors in this program. If you think you are eligible, talk with Chris Nye about getting on the payroll. Work study students need to complete a weekly timesheet, get it signed by Vic Beaudin or Andy Mickle, and then turn it in.

Discipline: It is important to maintain order and keep the noise level down in the Library. If it is necessary to discipline a child, we recommend three levels of intervention.

1) If, for example, a child simply needs to be calmed down or centered, and verbal coaching doesn't accomplish this, he or she can be separated from the group and asked not to return until he or she feels ready to rejoin and behave as a team player.

2) For more serious or repeated misbehavior, a more distant and decisive separation from the group needs to occur. The student rejoins only after the activity leader or teacher decides it is appropriate.

3) The final level of intervention, which should not be necessary here, the student can be referred to Mr. Mickle, the vice principal.
How can one engage parents in making Got Math? even more effective? One option we recommend considering is selecting a book to be given out before the long Christmas break and then used by participants and their parents over the break and into Spring until it is completed. The paperback bestseller The Number Devil ($18.00 in 2001) can be reviewed to see if it is a good choice for your group. The title page appears below.
TUNE in to WUPE 96 FM for the GOT MATH PIE

On April 26th, students in Got Math? had the chance to learn about fractions and measuring by baking apple pies. We saved and froze one of our pies for a good cause.

On Wednesday, May 9, 2001, from 3:10 – 3:19 p.m., the pie baked by GOT MATH? participants will be auctioned off on WUPE 96 FM and given to the highest bidder. You’ll be able to hear the students on the radio at that time. Proceeds from the pie will be donated to the American Cancer Society’s Relay for Life Campaign.
COME CELEBRATE A SUCCESSFUL YEAR OF

GOT MATH?

BERKSHIRE COMMUNITY COLLEGE AND HIGHLAND ELEMENTARY SCHOOL invite you to attend the Got Math? Celebration to wrap up a wonderful year of Morning-Math, to thank the teachers and mentors and to recognize the hard work of the program's participants with T-shirts and certificates.

PLEASE JOIN US!

DATE: Thursday, June 6, 2002
TIME: 7:00 p.m. – 8:00 p.m.
PLACE: Berkshire Community College SBA Lounge

LIGHT REFRESHMENTS WILL BE SERVED.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL MARGO SHEA AT 499-4660 X.337