Title of Proposal   Promoting SNAP Math Fairs

Contact information

The one person and place to Communicate with the applicant(s).

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Summary   *Less than 100 words*   **Total amount requested in this competition** $ **15,000**

To create and distribute a video to publicize Math Fairs for elementary school children, to update, expand and distribute materials to help teachers organize a Math Fair, and to finance demonstration Math Fairs in other parts of Canada.

Applicants   *Put any specific information on the relevant experience or expertise of an applicant in "Other".*

Name(s)	James Timourian	Andy Liu	Ted Lewis
E-mail	jgt@sassoun.com	aliu@math.ualberta.ca	tlewis@math.ualberta.ca
Position	Professor Emeritus	Professor	Associate Professor
Employer	University of Alberta	University of Alberta	University of Alberta
Address	632 Central Academic Bldg. University of Alberta Edmonton Alberta T6G 2G1	632 Central Academic Bldg. University of Alberta Edmonton Alberta T6G 2G1	632 Central Academic Bldg. University of Alberta Edmonton Alberta T6G 2G1
CMS member number	003869	003457	
Current Grants	0	World Bank 2003-2004 $9.000	U of A teaching award 2004 $2,000 one year

The SNAP Math Fair for elementary schoolchildren has been in existence for seven years, and the concept has spread to several countries and more than 50 elementary schools. The Math Fair concept is flexible, but the basic idea is that children are divided into small teams each of which is given a mathematics or logic problem to solve. Booths are set up in such venues as shopping mall common areas, gymnasiums, hallways or classrooms emptied of furniture and visitors to the booth (who can be students from other classes, grades or schools, parents, or in some cases complete strangers) are challenged to solve the problems. The children manning the booths give encouragement and helpful hints. The problems are challenging enough that most adults are not able to immediately provide solutions.

Those who have been involved in their organization are confident that something important is happening to the children's understanding and perception of mathematics and logic as a result of their participation in them. There is interest in learning about the fairs and how to put them on, because of the intuitive understanding of their benefits, in mathematics and elementary logic as well as in development of teamwork, confidence, and communication skills in children. (We have not yet conducted any research to verify these positive effects.)

The best way to learn about what a Math Fair is about would be to attend one. Each year at the University of Alberta future elementary school teachers hold a model Math Fair that is attended by 700 to 1000 children and their teachers. As successful as this event is the number of teachers exposed is still limited. One intent of our proposal is to create a professional video presentation that captures the essence of what excites children, teachers and parents about the fairs. We have had some experience with videos, including two different short presentations created by local television stations, to know that it is possible to accomplish what we want through the medium. The videos would be distributed on CD, on our website, and shown at presentations before professional organizations, so that we can reach many more to explain what our model of a Math Fair is and its potential benefits.

A second intent of our proposal is to update and expand materials to help others organize a Math Fair in their schools. We have a booklet, The Math Fair Booklet that helps. One of the features in the booklet is a guide to how to create suitable Math Fair problems, along with some samples. We have discovered that creating suitable problems is intimidating for elementary school teachers and the lack of problems can inhibit the organization of a fair. Schools that have had Math Fairs for several years in a row do not want to recycle the same problems over and over again, yet they do not feel comfortable with creating their own new problems. We need to create a collection of new problems suitable for elementary school children and develop a new edition of our Math Fair booklet, publish and distribute it. The booklet would also be updated to reflect the greater experience we have with organizing fairs. The new edition of our Math Fair Booklet would be available from our website and we are exploring other ways to distribute it.

Finally, our idea is to promote the Math Fair concept across Canada by holding demonstrations fairs in Ontario, Atlantic Canada, and British Columbia over the next three years. We would bring experienced teachers in to a selected elementary school to help them put on a fair, and at the same time would invite elementary school teachers in the immediate area to come and observe. We have made preliminary contacts to identify suitable teachers and schools.

Budget

Description	Revenue		
Snap Fair Foundation (privately raised money)	5,000	0	0
Registration fees for observing Math Fairs, attending workshops	1,000	1,000	1,000
Revenue from problem booklet	2,000	5,000	2,000
Revenue from CD		2,000	2,000
CMS Endowment Grant requested	5,000	5,000	5,000
Total Revenue $	13,000	13,000	10,000

	Expenses		
Prepare video for CD	7,000	3,000	
Travel to Demonstration Fairs, hold workshops in each province	4,000	9,000	10,000
Produce problem booklet	2,000		
Produce video CD		1,000	
Total Expenses $	13,000	13,000	10,000

Other
Funding, partners, revenue potential, information on applicants such as publications or awards, at most 20 lines.

The SNAP Mathematics Foundation was created to publicize and support the Math Fair concept for elementary school children as originally created in 1997 by Andy Liu and Micheal Dumanski. The concept is very flexible, but there are certain essential features. They are:

<u>Student oriented</u>. The students create their booths and solve the problems.

<u>Noncompetitive</u>. There usually is 100% enthusiastic participation. Since there are no winners students do not appraise their chances of winning and adjust their efforts accordingly.

<u>All-inclusive</u>. No matter what their talents all students can participate and contribute.
<u>Problem solving</u>.

Dr. Andy Liu has won many awards for his university teaching and his work in mathematics education. They include the MAA Tepper Haimo Teaching Award, the CMS Adrien Pouliot award, the 3M Teaching Fellowship, the outstanding Educator Award of the Ontario Institute for the Study of Education, and the CASE/CCAE Canadian University Professor of the Year (1998).

Dr. Ted Lewis has been involved with teaching future elementary school teachers on the undergraduate level. He has introduced a version of the Math Fair for these teachers, in which the future teachers put on a fair for children who visit from many schools. He was responsible for writing the first edition of The Math Fair Booklet. He won the PIMS Education Award and an award from the University Alberta Faculty of Science for his teaching.

The first edition of The Math Fair Booklet was financed by PIMS. The SNAP foundation has organized conferences at Grant MacEwan Collage and at BIRS to promote its Math Fair concept.

Project start date: <u>January 1, 2005</u>   **Project finish date:** <u>December 31, 2007</u>