Successfully retrieved submission ENV2435.

Application Form for the CMS 2016 Endowment Grants Competition Deadline September 30

Title of Proposal

Montreal Math Circle

Contact information

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

Name	Alina Stancu
E-mail	alina.stancu@concordia.ca
Telephone	514-848-2424 ext 5345
Fax	514-848-2831

Institution or department to administer grant funds

Name	Concordia University		
Address	Department of Mathematics and Stati	Contact	Alina Stancu
	1455 Blvd. de Maisonneuve West	E-mail	alina.stancu@concordia.ca
	Montreal, QC, H3G 1M8	Telephone	514-848-2424 ext 5345
		Fax	514-848-2831

Summary

Less than 100 words

Total amount requested in this competition $ 2500

Montreal Math Circle is an enrichment activity in mathematics offered to local area students from grades 3 to 8, and occasionally higher. Striking a balance between teaching problem solving skills and using hands on activities to explain fundamental mathematical concepts, the circle can reach approximately 200 students/year. It meets every Sunday for 1.5 hours for each of the three levels http://www.concordia.ca/artsci/math-stats/about/math-outreach/math-circle.html. At this crucial moment when the circle is gaining popularity with students and parents, we seek funding to increasing the number of graduate students qualified animators to insure a dynamic environment and for developing innovative hands on materials and activities.

Applicants

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

Name(s)	Alina Stancu	Ildiko Pelczer	
E-mail	alina.stancu@concordia.ca	montrealmathclub@gmail.cor	
Position	Associate Professor	PhD student in Math. Ed.	
Employer	Concordia University	Concordia University	
Address	Department of Mathematics a	epartment of Mathematics an	
	1455 Blvd. de Maisonneuve W	1455 Blvd. de Maisonneuve W	
	Montreal, QC H3G 1C9	Montreal, QC H3G 1C9	
CMS Member #	015312		
Current grants	NSERC Discovery Grant		

What you propose to do

at most 40 lines

While trying to foster the interest in mathematics of talented children, our circle's mandate includes in addition a desire to alleviate the math anxiety in children which we address by creating a number of hands on activities in which solving mathematical problems becomes simply an essential life skill.

Given the response of parents and participating students we had over the past year, students who were often seen clustered over a paper discussing animatedly, this kind of activity filled an existing need in the larger Montreal area. The participants were a cross section of our urban school age population: mostly public schools students, Anglophone and Francophone, boys and girls. At this time, the Montreal Math Circle is still the only public Montreal area mathematical outreach activity offered on a regular basis.

The typical Montreal Math Circle's Sunday consists of about 30-40 students divided in three streams: grades 3-4, grades 5-6 and, respectively, grades 7-8 (or 8+). Each stream meets for 1.5 hours and is provided with materials prepared in beforehand. The students register in advance for a session that consists, in average, of 5 consecutive Sunday meetings. Last year, we run a total of 6 sessions during the year. We advertise through the department's web site and that of the (Institut des sciences mathématiques) ISM's as well as an extensive system of electronic contacts.

A highly qualified bi-lingual instructor animates the stream's meeting. Ideally, we would have present another qualified student or other qualified volunteer. We benefit immensely from the support of the ISM whose advertising of volunteering opportunities among the Montreal area University students is extremely efficient. Last fall, we were happy to have a local high school teacher volunteer for several consecutive meetings. In many ways, this is an exceptional set up as it can offer teachers models of enquiry-based teaching practices that can be reproduced and adapted to their classrooms.

Our short time objectives and challenges include: providing a smaller ratio of students to qualified instructor during the math circle; to create a few kits of hands on materials which can be used in our activities; to create opportunities for high school teachers to see and take part in some of our activities with the goal of offering alternate models to the instructional process taking place in their classrooms. We aim at offering a series of hands on workshops in between the regular circle's sessions. Given the sustained rhythm of our circle meetings and the small number of people involved, the focus was on the dynamic of each stream during the problem solving. We used several occasions to test a number of hands on, MoMath style (http://momath.org) yet our original, activities. In particular, during a hands on workshop open to the public, parents and children alike, we set up eight activities tables, animated partly by students who underwent some preparation for it. The activities included constructing constant width shapes, arithmetic tricks with decks of cards, binary magic, chess type puzzles, and anamorphic transformations like the ones used to make road signs.

The new funding will be used for recruitment of qualified university students who will act both as animators and mentors making it possible to sustain activities for larger groups of children. Additionally, we can address the question of developing new innovative hands on materials. We therefore ask for $2500/year for the next three years.

Budget

Use Tab key to navigate

Description				
		Revenue		
Fees (self generating)		3000	3000	3000
Institut des sciences Mathématiques		2000	1000	1000
CMS (anticipated)		2500	2500	2500
	CMS Endowment Grant requested			
	Total Revenue $			
		Expenses		
Paid students animators (Equivalent of 2 per year) exc		6000	6000	6000
Materials for hands on activities		1000	400	300
Printing, Advertising		500	100	200
	Total Expenses $			

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

For the moment, the Montreal Math Circle is partially self funded, and partially benefits from the generous support of the Institut des Sciences Mathématiques (ISM) as well as the in kind support of Concordia University which offers rooms and IT support.

An influx of funding at this time, will propel the program forward by allowing a higher recruiting of university students to be trained and work as animators, and by allowing the creation of a data base of hands on activities. By offering to remunerate the animators who participate and instruct regularly in our sessions, we can offer a high quality, efficient program. Once the program reaches a certain level of maturity, we believe that it can acquire a self-renewing mechanism of creating qualified instructors able to participate continuously in the program as well as an ability to attract other type of funding to continue its development.

Identifying students who want to pursue working on challenging problems, we provide mentorship toward participating in mathematical contests. The past year, one of our instructors mentored three teams of middle and high school students to the international contest called Purple Comet and one of the middle school teams with five participants came ranked first in Canada http://purplecomet.org/2161winners.htm#bycountry.

Project start date January 2017 Finish date December 2017