

# BIRS Math Fair Workshop

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The BIRS Math Fair workshop was unusual for BIRS in that its focus was Education rather than research. The participants were teachers from elementary schools, junior high schools, colleges and universities, and also people from other institutions and organizations that have a deep interest in Mathematics Education.

The purpose of the workshop was to help teachers learn how to run a successful math fair, to exchange information about math fairs, and to put the members of this diverse group in contact with each other. The deeper purpose is to change the mathematical culture in the classroom, and after five years of experience we believe that this is beginning to happen.

It must be stressed that the sort of math fair that we are talking about is radically different from a typical science fair. Without going into too much detail, the four main tenets are that the math fair be non-competitive (no prizes), that it be all-inclusive (not just for the elite students), that it be interactive (not a poster session) and that it be based on problem-solving.

The problem that we have now is to disseminate the news about the success of math fairs. Workshops are one way of helping teachers learn about math fairs, helping them sustain their efforts, and letting them share experiences with co-workers. As well, workshops build trust between teachers and other educators.

Teachers were invited to the workshop on the condition that they subsequently hold a math fair in their own schools. All participants received a booklet that contains the underlying principles for the math fair.

The workshop dealt with what constitutes a good problem for a math fair, included several examples, and described several different types of math fairs that are based on the guidelines. Many of the participants had already organized math fairs at their schools, and although there was great variation in the details all followed the guidelines set out in our booklet.

How does a teacher find problems that are suitable for the math fair? Do you begin with a curriculum topic and design an appropriate puzzle, or do you start with a challenging puzzle and try to fit it to the curriculum? The workshop advocated the latter approach, and spent some time having the participants find ways to adapt a good puzzle to the curriculum. A few days ago we visited a math fair organized by one of the workshop participants, and saw that this adaptation was taking place.

One of the most valuable and spontaneous aspects of the workshop occurred when the teachers who had already conducted math fairs began sharing information about their experiences. The ones who had not yet had a math fair asked many questions and picked up the enthusiasm from those that did. There were some common fears experienced by teachers who had done the math fair for the first time: They want their students to succeed and have a tendency to intervene when students are presented with an unfamiliar task. The math fair works best when, as one teacher put it, you let

the students take ownership of their problems. This is a difficult thing for teachers to do, especially when they know that the result is going to be on public display.

Because of the uncertainty of a new venture, many teachers will limit either exposure or participation on their “first-time” math fair. Discussions about this indicated that subsequent math fairs would be greatly expanded, and that the math fair would become a regular part of the students’ math activities.

Bill Ritchie, one of the participants in mentioned below, told the teachers that they should be immensely proud of what they are doing, that they are part of a group that could revolutionize how mathematics is being learned in North American school systems. (Bill Ritchie is the CEO of Binary Arts. He has maintained close contact with many schools throughout North America, and is very familiar with what is going on in many school districts.)

**Participants:**

Patricia Bessette, St. James School  
 Paula Borges-Couture, Good Shepherd  
 Judy Darroch, Lendrum Elementary School  
 Micheal Dumanski, St. Gerard School  
 Manny Estabrooks, Red Deer College  
 Lindy Ewasiuk, St. Clement School  
 Sharon Friesen, Galileo Education Network Association  
 Jennifer Gluwchynski, St. Michael School  
 Suzanna Hartmangatti, St. Philip School  
 Laura Hodak, Lendrum Elementary School  
 Tiina Hohn, Grant McEwan Community College  
 Tom Holloway, University of Alberta  
 Auriana Kowalchuk, Consulting Services, Edmonton Public Schools  
 Indy Lagu, Mt. Royal College  
 Ted Lewis, University of Alberta  
 Andy Liu, University of Alberta  
 Patti Lovallo, Killarney Junior High School  
 Chalaine McCulloch, St. Michael School  
 Kelly McKie Grenier, Galileo Education Network Association  
 Linda Melnyk, St. Francis of Assisi  
 Shirley Mitchell, Pacific Institute for the Mathematical Sciences  
 Heather Pawliuk, St. Dominic School  
 Kyle Porter, St. Patrick School  
 Tracy Poulin, Lorelei School  
 Suzanne Prefontaine, Holyrood School  
 Chris Raymaakers, John Ware Elementary School  
 Bill Ritchie, Binary Arts  
 Angela Rozycki, Edmonton Catholic schools  
 Emma Skinner, University of Alberta, Malcolm Tweddle Elementary School  
 Gail Slen, John Ware Elementary School  
 Jean Springer, Mt. Royal College  
 Wen-Hsien Sun, Chiu Chang Publishers  
 Jane Thiell, Louis St.Laurent Jr High/High School