



## Report of the Math Fair Conference in BIRS in April 2008, 08w2021

This was the sixth BIRS math fair workshop, named as The **Ted Lewis Workshop on SNAP Math Fairs**, which is becoming a popular annual event. The participants came from elementary schools, junior-high and high schools, from independent organizations, and from universities and colleges. The thirty-seven participants at this year's workshop in spite of the bad weather and driving conditions on the highways were educators of all types, from teachers to grad students to expert puzzle and game designers. Our keynote speaker this year was Kate Jones.

The purpose of the workshop was to bring together educators who are interested in using our particular type of math fair, called a SNAP math fair, to enhance the mathematics curriculum. (The name SNAP is an acronym for the guiding principles of this unconventional type of math fair: It is student-centered, non-competitive, all-inclusive, and problem-based.) The projects at a SNAP math fair are problems that the students present to the visitors. In preparation, the students will have solved chosen problems, rewritten them in their own words, and created hands-on models for the visitors. At a SNAP math fair, all the students participate, and the students are the facilitators who help the visitors solve the problems. This process of involving students in fun, rich mathematics is the underlying vision that makes the SNAP program so unique and effective. No first prize! No arguments about judging! Everyone is a winner!".

At the BIRS workshop, the participants learn about and try math-based puzzles and games that they can use in the classroom. They have a chance to see how other teachers have organized math fairs at their schools, how the SNAP math fair fits the curriculum, and what some schools have done for follow-ups. And then they go back to their schools and change the culture of mathematics in their class-room.

This year we learned from Ontario teachers Tanya Thompson and Troy Comish the top ten reasons why not to do math fair and their counterproofs. Kate Jones, puzzle designer in her company Kadon Enterprises, presented how simple shapes and combinations of different shapes lead to very interesting puzzles and beautiful patterns with mathematical properties. Gordon Hamilton from Calgary brought variety of games and problems. The teachers from Woods School in Calgary shared her excellent presentation how math fair is helping to reach students who are already fallen out of the reach of traditional teaching methods. Bill Ritchie from Thinkfun explained math Gamerooms in a school. Grad student from University of Alberta Trevor Pasanen shared his experiences with math fairs

and how to teach difficult concepts in a puzzle environment. He also told us about the GAME organization at the University of Alberta. Dr. Jim Timourian connected the math fair concept with other benefits of student learning and then on Sunday we also touched a very hot topic for teachers, assessment. The newest project that was discussed extensively at BIRS was a video trailer about SNAP math fairs that had been produced by the Capillano College in B.C.

The concept of the SNAP math fair originated in Edmonton with Andy Liu and Mike Dumanski, and it has proved so successful that it led to the formation of a non-profit organization, the SNAP mathematics foundation, which has helped promote mathematics in schools around the world. As well as the SNAP foundation, the Calgary-based Galileo Education Network Association (GENA) helps schools organize math fairs, and provides valuable lesson-study follow-ups.

The BIRS math fair workshops have contributed greatly to the proliferation and popularization of the SNAP math fair. In some places, the use of a SNAP math fair to change children's attitudes about mathematics has almost become a "grass-roots" movement, and so it is difficult to pin down exactly how many schools are now doing them. We have a fair idea about the numbers in Edmonton and Calgary - for example over 60 percent of the elementary schools in the Edmonton catholic system now hold regular math fairs, and as far as we can gauge, the numbers are high in the public system as well. GENA reports similar figures for the Calgary area.

SNAP and CMS are also providing some support for the launch of a similar math fair workshop in the Fields institute in Toronto, and PIMS is providing math fair booklets for the participants. The Fields workshop is being organized by Tanya Thompson who has been a valuable participant at past BIRS workshops. Altogether, the BIRS math fair workshops are having a noticeable impact on mathematics education.

Regards,

Ted Lewis,  
Department of Mathematical and Statistical Sciences,  
The University of Alberta

Tiina Hohn  
Mathematics Department  
Grant MacEwan College