Mathematics Teachers Conference – 2006
Abstracts of Keynote Lectures

Abstracts of Workshops for Teachers

Secondary

S1 - Geometric reasoning through folding circles
   by Ms Teo Soh Wah & Mrs Tan Kum Fong
Folding circles promote the development of spatial visualization, a necessary component in geometric reasoning. In this workshop, the participants will be engaged in a hand-on session, using 2-D circles to form 3-D platonic objects by means of folding. Many other beautiful master pieces can be created simply by just folding and organizing the objects, with no cutting involved. With the concrete experience of feeling the creases, making observations and reflecting on what is generated in folding and combining the objects, the participants can develop dynamic geometric thinking and an intuitive understanding of some mathematical relationships such as Pythagoras Theorem and Euler’s formula.

S2 - Mathematical reasoning in algebra
   by Dr Toh Tin-Lam
Algebra can be seen as a tool to enhance mathematical reasoning rather than a subject of meaningless symbols for students to learn for the sake of examinations. In this workshop, participants will be introduced to how problems that require higher order thinking skills can be introduced into the classrooms. Different sections from both the Elementary Mathematics and Additional Mathematics will be used for discussion in this workshop.

S3 - Using investigative tasks to enhance mathematical reasoning
   by Mr Joseph Yeo B. W.
This workshop will discuss how to use investigative tasks to develop students’ thinking skills and mathematical reasoning. It will also make use of real-life mathematical investigations to arouse students’ interest and to instill in them an investigative attitude. Ready-to-use worksheets for students will be provided. The participants will also be taught how to design their own investigative tasks and how to structure their worksheets to guide their students in their investigations.

S4 - Strategies to enhance students’ reasoning in mathematics at the secondary level
   by Dr Jaguthsing Dindyal
This interactive workshop is intended for practicing school teachers. It will focus on some possible strategies that can be used to enhance students’ reasoning in mathematics at the secondary level and also explore the reasoning behind some common students’ misconceptions. Examples from a broad range of topics at the secondary level will be used to highlight particular strategies. Participants are expected to participate fully in the discussions and may come prepared with their own examples to share with the group.

S5 - Engaging lower secondary pupils through mathematical reasoning
   by Dr Yeo Kai Kow Joseph
This workshop seeks to highlight problem-solving items which go beyond testing skills. Ideas and approaches to prepare lower secondary pupils to deal with such problem-solving items will be presented. This workshop will also assist lower secondary mathematics teachers to examine the techniques and processes of using assessment items in engaging lower secondary pupils through mathematical reasoning.

S6 - Use of IT in the teaching of statistics
by A/P Yap Sook Fwe

Teachers teaching statistics need IT skills to:
- create graphs for worksheets, test and exam papers
- help students explore data and concepts

The purpose of this workshop is to help secondary mathematics teachers acquire some of the above skills. In the process, teachers will also involve themselves in reasoning with data. It will be appropriate for those who have little or no experience in this area. The workshop will be conducted in a computer lab and is limited to thirty participants.