


KEEPING MATHS EDUCATION PROFESSIONALS IN TOUCH

Registered Charity 517028

Do you know which maths activities we can offer?

<p>Contact us Tel: 0151 794 4066/4050 Web: www.maths.liv.ac.uk/~mem Email: orbitereditor@merseymail.com Post: MEM, Department of Mathematical Sciences, University of Liverpool, Peach Street, Liverpool, L69 7ZL</p>	<p>With the new year upon us why not get your pupils off to a flying start by entering them in the MEM Challenge and Senior Challenge Competitions 2006? Read on to find out more about these and other activities in which Mathematical Education is currently involved.</p>	
<p>MEM President: Dr Ian R Porteous MEM Chairman: Mr Barry Grantham MEM Secretary: Mr Benjamin Margetts LMS President: Dr Colin Wright LMS Secretary: Mr Phil Bamber</p>	<p>Challenge 2006 Senior Challenge 2006</p>	<p>Masterclasses 2005 - the success story continues!</p>
<p>Quick Calendar</p> <p>January: Sat 21st LMS Primary Programme "Oral and mental starters" KS1/2</p> <p>February: Gresham in the North Mon 6th 'Stamping through mathematics' Tue 7th 'Lewis Carroll in Numberland'</p> <p>March: Sat 4th LMS Sixth Form Pop Maths Quiz</p> <p>Sat 11th LMS Primary Programme 'Early mathematical development' F/KS1</p> <p>Thu 16th 'Mathematics, Magic and the Electric Guitar'</p> <p>For more info contact Phil Bamber: bamberp@hope.ac.uk</p>	<p>MEM has two competitions which secondary pupils can enter during February, usually over half-term.</p>	<p>The 2005 Masterclass sessions were held in the Autumn term. Around eighty Y8 & 9 pupils from over 40 schools attended five sessions on alternate Saturdays.</p>
	<p>Challenge is aimed at years 7 & 8 , while Senior Challenge is targeted at years 9 & 10.</p>	<p>The venues were the University of Liverpool for sessions 1 & 5 and Liverpool Hope University for sessions 2, 3 and 4.</p>
	<p>Each paper consists of about 7 questions and is attractively produced with lively drawings from Peter Ackerley.</p>	<p>We hope to build on the success of our annual masterclasses with a further series of sessions from October to December 2006.</p>
	<p>A prize-giving for winners is held in May/June at the University of Liverpool; parents and friends are welcome to attend.</p>	<p>Look out for details of how to apply in our May issue!</p>
	<p>One copy of each of Challenge and Senior Challenge will be sent to all Heads of Mathematics around the end of January for duplication in school. We will also enclose a letter giving details of how to enter the competition.</p>	<p>This year's sponsor was Alliance & Leicester.</p>
	<p>Any teachers who are not Heads of Maths but wish to receive their own copies should ring Ann Newstead Tel: 0151 794 4066 as soon as possible and leave a message on her voicemail with their names, addresses and telephone numbers. She can also be contacted by e-mail:</p>	<p>MEM is pleased to acknowledge generous financial help received during the past 12 months from:</p>
	<p>a.newstead@liv.ac.uk giving the same details.</p>	<p>MERCER Human Resource Consulting</p>  <p>Alliance Leicester</p> <p>The Holt Charitable Trust W.H.Smith Promotions Ltd Barclays Bank Liverpool Hope University The University of Liverpool Liverpool John Moores University</p>
	<p>Remember Senior Challenge 1980 - 2003 is now available on CD - Details enclosed.</p>	

LMS Funmaths Roadshow



**Funmaths Roadshow
Boxes 1 to 10 on CD
£20 (p&p included).**

Version 3 of the CD is now available. This edition includes new Boxes 9 and 10, intended for use with Sixth Forms and complementing the older eight Boxes for years 5 to 12 (KS 1, 3, 4 & L6).

All the older material is included, with a few amendments, but also translated into Welsh, Scots Gaelic and French.

Each box contains 25 activities. All that you need can be found on the CD. All puzzles are provided in pdf format, with response forms and certificates in Word format for you to customise.

There are baseboards to be enlarged to A3 and laminated. Templates and shopping lists are included for additional materials.

See also the enclosed January 2006 Funmaths Roadshow Newsletter.

Version 3

To obtain a copy of the CD please send the attached form with a cheque payable to:

The Liverpool Mathematical Society

Any requests for visits (no fee, apart from basic hospitality) should be by email to:

Ian Porteous
porteous@liv.ac.uk

For further information on the Roadshow visit the website:

www.maths.liv.ac.uk/lms/funmaths

To purchase a copy contact

Barry Grantham
granthb@hope.ac.uk

Tel: 0151 291 3612

Fax: 0151 291 3163

Liverpool University Maths Club

- Need more challenging maths?

The club was formed a number of years ago at the request of several pupils who had previously enjoyed MEM masterclasses. The LUMC is ideal for pupils of GCSE standard or above, who are eager to extend their knowledge and take on maths challenges.

We generally meet the last Saturday of each month during term time.

LUMC meets in the Department of Mathematical Sciences at the University of Liverpool, usually for a full morning.

Dates for the next few months are as follows:

28th January
25th February
25th March
29th April

We do not charge anything for pupils to attend.

More details and application forms are available from:

David Lewis
d.m.lewis@liv.ac.uk

www.maths.liv.ac.uk/~mathsclub/

Senior Challenge 1980 – 2003

**Senior Challenge
1980 – 2003 on CD
£10 (p&p included).**



A full set of questions and answers is now available with original Peter Ackerley Cartoons on CD.

To obtain a copy please send a cheque payable to:

Mathematical Education on Merseyside

for the attention of:
Prof. Peter Giblin
at the usual MEM address
(see front page).

Orbiter Online

The September 2005 edition of the Orbiter is now available online for all in pdf format. The January 2006 edition will be added shortly.

In addition all reply slips and application forms will be accessible in Word format from:

www.maths.liv.ac.uk/~mem

ATM

Anybody interested in local Association of Teachers of Mathematics activities or resources is welcome to contact Sue Humphreys at:

suehumphreys@wirral.gov.uk

Tel: 0151 346 1182

Wirral Professional Development Centre, Acre Lane Education Centre, Bromborough, Wirral, L62 7BZ

Can we get in touch?

Do we have up to date contact details for you? Email, phone, fax, address etc

Keep in touch with all the latest news
Contact us at:
orbitereditor@merseymail.com

Please circulate the Orbiter to all Maths colleagues in your department

30 Years of MEM

Part 2 – The Middle Years

Part 1 of this short series appeared in the Orbiter circulated September 2005. It described how Mathematical Education on Merseyside began its life in 1975. The intent then was to enable the participating institutions and other bodies to collaborate effectively in advancing the mathematical education of pupils at or about secondary level in and around Merseyside.

To attract more financial sponsors, MEM sought charitable status during 1985. This was granted the following year.

Activities started in this era include the "Challenge" and "Senior Challenge" competitions.

"Challenge" was launched in 1978 and has been offered every year since then.

Its sponsors from 1979 included ICI (Mond), Littlewoods and Royal Insurance, the latter supporting the venture for many years. Sponsorship in 1981 and 1982 came also from Midland Bank and the Department of Industry.

"Senior Challenge" began two years later having the same initial sponsors.

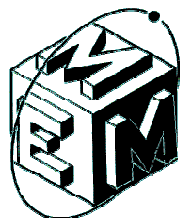
MEM is ever grateful to all its sponsors over the years. Sponsors of current MEM activities are listed elsewhere in this Orbiter.

The cartoons featured from the outset in all "Challenge" and "Senior Challenge" question papers have been by Peter Ackerley. He also designed the MEM logo from which the MEM Orbiter takes its name.

"Radio Challenge" was broadcast from Liverpool on Radio City at a peak listening time for seven years first in 1978, then from 1980 until 1985. Eventually 42 schools entered each year. Teams successful in preliminary local leagues progressed to the knock-out rounds. These were broadcast as seven half-hour programmes comprising the quarter-finals through to the final. A video exists of the 1985 final which was a dead heat between Birkdale High and St Edward's, the latter school winning the tie-break.

Sefton initiated a Numeracy test in the early 1980's. This was then adopted by MEM as the Numerical Proficiency Scheme. It had the approval and active involvement of the Liverpool Chamber of Commerce. The scheme ended a few years ago when similar regional tests became available.

..... to be continued



Wed 29th March

Mathematical Education on Merseyside

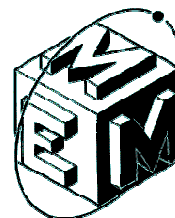
Committee Meeting

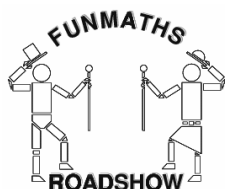
**Resources Room
Department of Mathematical Sciences,
University of Liverpool**

4.30pm

Basic refreshments provided

All are welcome, please come along and get involved!





Funmaths Roadshow Newsletter

January, 2006

For general information about the Roadshow see the September 2005 Newsletter, or type Funmaths Roadshow into Google. For an order form, visit www.maths.liv.ac.uk/lms/funmaths/.

During the last few months links with SETNET, with the Royal Institution of Great Britain, and with the Specialist Schools Trust have all been strengthened and we look forward to working with the new National Centre for Excellence in Teaching Mathematics (NCETM). At Anfield, which the Greater Merseyside SETPOINT hires for several days each term, we now have two stalls, 'Thinking in 3D', with 20, 44, 70 and 94, and 'A Mathematical Breakfast' with 38 bringing in the milk, 63, renamed 'Place Setting', 89 'Court Sudoku' as a topical distraction, and finally 101, the Conway Calendar, to help you work out what day of the week it is. That is all for Year 9 children. But some events are for students from Sixth Forms or Sixth-form Colleges, when again we have two stalls, 'Getting the Hang of things', with 169 'Faultless', 217 'Draughty', 182 'Hang up' and 244 'P + S + V', and 'Identity Parades' with 164, 189, 208 and 232. Normally, of course, at Roadshow events we try to have at least a full Box out, if not two, plus popular extras, but these SETPOINT events are part of general Engineering and Science days. All of these activities we now have for visitors to play with at UCAS visits to the University of Liverpool.

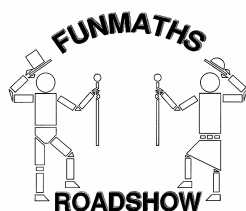
Trials of the French version continue, with Boxes 3 to 6 presented last September to students in schools in Longridge, Preston and in North and South Liverpool and Boxes 4 and 5 presented recently to Year 9 students in schools in Crewe and Southport. Since many primary schools locally are teaching Spanish rather than French, a translation into Spanish of Boxes 1 and 2 has now been commissioned, and hopefully this can be made available for wider use some time during 2006. Interestingly the word 'challenge' is not a French word, but is translated by the word 'défi'. When one is defied by a maths problem one should not turn one's back on it but face up to it! Specialist schools in general should find the Roadshow an ideal activity when organising any event involving children from more than one school. On such occasions, or wherever older children are employed as assisting staff, it is our normal practice to provide these children with a special certificate, commending them for working with younger children to promote the enjoyment of mathematics.

The Royal Institution are recommending the use of the Roadshow as a warm-up or icebreaker activity in Masterclasses and we have been involved this term not only with the annual MEM Masterclasees in Liverpool, with Boxes 5 and 6 used as in input to one of the classes and Box 4 used at the final session in early December, when families are invited to share in the activity, but also in a class for Year 6 children from several primary schools at a secondary school in Rochester, Kent, with further demonstrations planned for the new year in Fulham and Stepney Green as well as in Stevenage, the latter at the invitation of SETPOINT Hertfordshire. We also have a slot in the programme for the Easter MA conference at the University of Loughborough.

During next term we are already engaged to assist with Masterclasses in Glamorgan, Warrington, Wolverhampton and Oldham. A special North of England Masterclass event is planned for Friday, June 16, at the University of Liverpool in association with the Royal Institution. Masterclass organisers will be notified about this event in due course.

Ian Porteous

porteous@liv.ac.uk



Liverpool Mathematical Society

FunMaths Roadshow Version 3



Order Form

Please provide the following details where relevant for payments and delivery:

Date of this order	
Your reference no.	
Name	
School/College/other	
Address	
Address	
Town	
Post Code	
County	
Telephone	
Email	
<p>Version 3 of the Roadshow CD consists of 250 activities arranged in 10 'boxes' of 25 activities, with answers, templates and other supporting information. Boxes 1 & 2 are aimed at Upper Primary/Lower Secondary, Boxes 3 & 4 Lower Secondary, Boxes 5 & 6 Mid Secondary, Boxes 7 & 8 Upper Secondary/Lower Sixth, and Boxes 9 and 10 (new in 2005) Lower & Upper Sixth. Included now are Welsh, Scots Gaelic and French versions of Boxes 1 to 8!</p>	
<p>Individual CDs are supplied in a plastic jewel case at £20 each, including post & packing.</p>	<p>Number of CDs at £20 each</p>
<p>Bulk packs of 10 CDs are supplied in paper sleeves, not jewel cases, at £100 per pack, including post & packing.</p>	<p>Number of packs of 10 CDs at £100 per pack</p>
Total value of order:-	

Cheques should be made payable to **Liverpool Mathematical Society**

Orders and payments should be sent to:

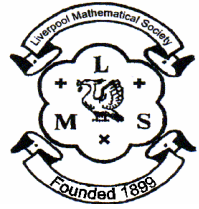
**FUNMATHS ROADSHOW, Barry Grantham, Mathematics,
Liverpool Hope University, Hope Park, Liverpool, L16 9JD**

tel: 0151 291 3612 fax: 0151 291 3163 email: granthb@hope.ac.uk



LIVERPOOL MATHEMATICAL SOCIETY

(INCORPORATING THE LIVERPOOL BRANCH OF THE MATHEMATICAL ASSOCIATION)



BARCLAYS SIXTH-FORM POP-MATHS QUIZ

Saturday 4th March 2006

Byrom St. Campus,
Liverpool John Moores University.

What is a Pop-Maths Quiz?

The 'pop-maths' quiz is a TEAM competition that runs like a Pub Quiz but without any alcohol. Teams consist of at most 5 students (under 19 years) who, during the Quiz, work as a team to attempt to solve a number (about 20) questions on a wide range of mathematical topics. Not all questions require specific A-level maths knowledge.

All solutions are then submitted to a scrutineer for checking.

Prizes (valuable) are awarded to the winner(s) on the day. All prizes are sponsored by Barclays Bank PLC.

When is it?

Saturday 4th March 2005, from 10.00am – 2.00pm with the timetable

10.15am – 12.00 noon Quiz

12.15pm – 12.45pm: Lunch (please bring your own packed lunch)

1pm-1.45pm A brief look at the solutions to the questions and how they were obtained.

1.45pm – 2.00pm: Prize-Giving & Close

Pick up your prize (maybe) and a printed set of answers – and then ask your teacher if (s)he can do the ones you got wrong!!

The winning teams will have their names and school published on the Liverpool Maths Society web site for all the world to see and for you to revel in the glory!

This is the third such annual event in Merseyside.

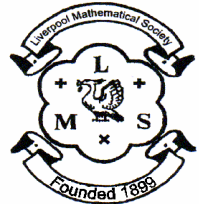
How to Enter

Each school is invited to enter **one or more teams** for the pop-quiz, but as space is limited, you are asked to send in your reply slip overleaf as soon as possible to avoid disappointment and certainly before 17th February 2006 for planning purposes. Teams should be of 5 students where possible, but where the number of students is not equal to zero (mod 5) – (think about it!) – then a team with a smaller number will be allowed. No team can have more than 5 students in it.



LIVERPOOL MATHEMATICAL SOCIETY

(INCORPORATING THE LIVERPOOL BRANCH OF THE MATHEMATICAL ASSOCIATION)



What does it cost?

There is **no entry charge** for this event. Once we have received your completed reply slip then we will acknowledge your place by return (preferably by e-mail) and send out maps and meeting instructions.

ENTRY FORM FOR POP-MATHS QUIZ, Saturday 4th March 2006.

I would like to enter team(s) for the pop-maths quiz on Saturday 4th March 2006.
The number of staff & students attending will be

Each team should consist of 5 students where possible, although one team from any given school or college may have fewer than 5 students. All students should be between 16 and 19 years of age.

Name of Teacher

School

Address.....

.....

Tel:.....Fax:.....e-mail:.....

Please return this slip to: Dr. D. Pountney, School of Computing & Mathematical Sciences, Liverpool John Moores University, Byrom St. Liverpool. L3 3AF no later than 17 February 2006.

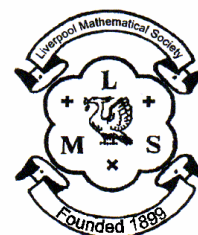
Liverpool Mathematical Society

Primary Programme

During the 2005 - 6 school year we are offering a series of 3 primary meetings, each with a different theme. All will take place on Saturday mornings between 9.30am and 1.15pm at:



The Department of Mathematical Sciences
(University of Liverpool)
Mathematics and Oceanography Building
Peach Street
Liverpool L69 7ZL



Theme

Saturday 21st January 2006

'Revitalise your oral and mental starter' (KS1/KS2)

- Rachel Tomlinson

Fully Booked

Saturday 11th March 2006

'Early mathematical development' (F/KS1)

- Vicki Foy

**Closing date for applications
26th February'**

Programme

9.30am *Arrival, registration and coffee*
10.00am **Session 1**
11.15am *Break*
11.45am **Session 2**
1.00pm *Close*
1.15pm *Light lunch (optional)*

Fee

£50 per person to include refreshments and lunch
Each additional delegate from same school:
£20 plus refreshments and lunch

(Refreshments - coffee on arrival and at break £1.50; lunch plus refreshments £5.00)

Payment is by cheque with application or by invoice to your school to be paid before the event. Refund will only be made for cancellations received before the closing date. Cancellations after that date will be charged in full.

Invoices and/or confirmations of bookings will be sent to you on receipt of application.

Places are limited so please complete and return the appropriate application form(s) as soon as possible to:

For further details and/or application form please contact Wendy Singleton
01254 885907 (Home)
07932 687941 (Mobile)

'Fascinating, informative, enjoyable and accessible.' *Gresham in the North 2005*
 LMS hosts 3 popular mathematics talks this spring term. Bring yourself and members of your maths team.
 All 3 talks are ideal for sixth form mathematicians / interested GCSE pupils. Bring your class!

Gresham in the North 2006

Following the success in April last year of the inaugural *Gresham in the North* lectures, Liverpool Mathematical Society is delighted to once again host 2 free public talks given by Gresham Professor of Geometry, Robin Wilson. These will take place in February at Liverpool Hope University.



Monday February 6th 5.00pm Arrival and snack buffet.

Alexander Jones Building Room 007

5.30 pm – 6.30 pm '*Stamping through mathematics*'



This widely-acclaimed illustrated lecture covers the entire history of mathematics in one hour (!), with around two hundred postage stamps featuring the mathematics and mathematicians involved.



Tuesday February 7th 12.30pm Arrival and snack buffet.

Alexander Jones Building Room 007

1.00 pm – 2.00 pm '*Lewis Carroll in Numberland*'

Although mainly remembered for his 'Alice' books, Charles Dodgson (Lewis Carroll) was an Oxford mathematician. What mathematics did he do? How good a mathematician was he? We answer these questions with reference to his geometry, algebra, logic and mathematical puzzles.

Thursday 16th March - University of Liverpool 5.00pm – 6.30pm

'Mathematics, Magic and the Electric Guitar' Dr David Acheson

In his lecture, Dr Acheson will ask what is so special about the number 1089. He will also investigate the connection between mathematics and the electric guitar, and ask if mathematics can explain the legendary Indian Rope Trick. These questions will be considered in an informal look at SURPRISES in mathematics, and will be accompanied by live demonstrations and computer experiments. The lecture will last about an hour, and will be followed by a question-and-answer session for those who are able to stay.

Thursday 18th May - UOL 5.00pm – 6.30pm LMS Presidential Address Colin Wright

For more information, or to reserve places for any of these events,
 please contact LMS Secretary Phil Bamber

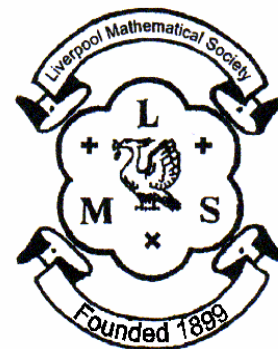


bamberp@hope.ac.uk



0151 291 3490

Liverpool Mathematical Society



Secondary Programme

During the 2005 - 6 school year we are offering a series of 3 meetings each with a different theme.
All will take place on Saturday mornings between 9.30am and 1.00pm at:



Mathematics Education
Liverpool Hope University
Hope Park
Liverpool
L16 9JD



Themes:

Saturday 28th January 2006

Dynamic Geometry Software in the Secondary Classroom
Phil Bamber (Cabri) and Chris Poole (Geometer's Sketchpad)
Closing date for applications 21st January

Saturday 25th March 2006

Pure Maths Applied
Colin Wright
Closing date for applications 19th February

Programme

9.30am *Arrival, registration and coffee*
10.00am **Session 1**
11.15am *Break*
11.45am **Session 2**
1.00pm *Close*

Fee

£50 per person

Each additional delegate from same school:




£25 per person

(Refreshments included - coffee on arrival and at break)

- Payment is by cheque with application or by invoice to your school to be paid before the event.
- Refund will only be made for cancellations received before the closing date. Cancellations after that date will be charged in full.
- Invoices and/or confirmations of bookings will be sent to you on receipt of application.

Places are limited so please complete and return the appropriate application form(s) as soon as possible to:

Phil Bamber, Liverpool Hope University, Hope Park, Liverpool, L16 9JD

 bamberp@hope.ac.uk  0151 291 3490  Fax 0151 291 3163

STOP PRESS! Successful start to LMS SECONDARY CPD...

Sat. 12th Nov 2005

'Developing Mathematical Thinking through interactive teaching'

Sue Cronin Liverpool Hope PGCE Course Leader

'Teaching Maths without a textbook'

Sue Harkness Liverpool LEA Mathematics Advisor

Feedback from some of the 18 teachers who attended:

'It was absolutely brilliant; we came away buzzing with ideas which we have actually used! We have a departmental meeting next week and we intend to go on and on and on about it. We only wish the whole team had been able to attend'

'Lots of excellent ideas and resources ready to use immediately. Fantastic morning! Thank you!'

'Make it compulsory for all maths teachers to attend. Make it a full day!'

'Very practical based. Excellent resources.'

'Brilliant CD. Activities are really flexible and will be of great use in the classroom.'

Sessions still to come...

Saturday 28th January 2006

This hands-on session will demonstrate the power of **Dynamic Geometry Software** to transform the teaching of geometrical reasoning across Key Stage 3 and 4. A series of tasks based on real life situations will serve as an introduction to the basic functions and tools used in Cabri / Geometer's Sketchpad there will also be the opportunity to explore some more advanced features. Participants will be provided with a resource CD containing all the files used in the session, together with sets of detailed instructions on how to construct similar ready made files.

Phil Bamber is a lecturer on the Secondary Mathematics PGCE course at Liverpool Hope University and has delivered in service training sessions on Dynamic Geometry to Mathematics Departments in Merseyside and as part of the Aim Higher initiative.

Saturday 25th March 2006

"Pure Maths Applied" - There is a great deal of mathematics (and not just cryptography!) which was once considered 'Pure' but has now found direct application in the so-called 'Real World'. In this session Colin will use a combination of discussion and practical activities to explore a miscellany of topics, some frivolous, some light hearted, and some deadly serious, to interest you and help engage your students. Discussion sessions will help to see how these topics can be adapted to your classroom. This session will also offer the chance to inflict on someone else the worst nightmare of every maths teacher - "When am I ever going to use this?"

Colin Wright graduated in 1982 from Monash University, Melbourne, Australia, with a B.Sc.(Hons) in Pure Mathematics, and went on to receive his doctorate in 1990 from Cambridge University, England. While at Cambridge he also learned how to fire-breathe, unicycle, juggle and ballroom dance. Since then he has worked as a research mathematician, a computer programmer, and an electronics hardware designer, taking time to give presentations all over the world on "Juggling - Theory and Practice." Colin also enjoys sailing small boats and playing bridge, although not (so far) at the same time. As well as being President of Liverpool Mathematical Society for 2005/06, Colin is currently the Director of Innovation and Engineering for a company that designs, manufactures, installs, commissions, and maintains marine radar surveillance equipment.

Secondary Maths teachers on LMS Secondary CPD:

'Brilliant throughout! Challenged, fed, and inspired in all aspects'

'The resources provided were excellent. Really useful ideas and the activities are really flexible and will be of great use to me in the classroom'

Secondary CPD

~ 28/1/06 ~ Dynamic Geometry Software in the Secondary Classroom

Name(s) of applicant(s) _____ Full Address _____

_____ Telephone No. _____

Cheque enclosed to the value of: £50 (1st applicant) £50
_____ additional applicants @£25 _____

Total _____

OR Please invoice the school for a total of _____

I understand that payment must be made **before** the meeting takes place, and that I will **not** be entitled to a refund should I cancel after 16 December 2005.

Signed _____ (on behalf of the applicant(s) listed above)

~ 25/3/06 ~ Pure Maths Applied

Name(s) of applicant(s) _____ Full Address _____

_____ Telephone No. _____

Cheque enclosed to the value of: £50 (1st applicant) £50
_____ additional applicants @£25 _____

Total _____

OR Please invoice the school for a total of _____

I understand that payment must be made **before** the meeting takes place, and that I will **not** be entitled to a refund should I cancel after 19 February 2006.

Signed _____ (on behalf of the applicant(s) listed above)

Phil Bamber, Liverpool Hope University, Hope Park, Liverpool, L16 9JD



bamberp@hope.ac.uk



0151 291 3490



Fax 0151 291 3163