

# ATM Conference 2011 – Introduction

## Welcome to Telford Conference 18th-21st April 2011

It is 50 years since the first ATM conference. Over the years many people have been inspired and challenged by all that conference has to offer. For me, conference is an opportunity to enjoy doing maths with others, to share ideas and improve my teaching. I always leave filled with excitement, looking forward to trying out everything I've learned with my students.

ATM was founded in 1950 by a group of enthusiasts; especially, Caleb Gattegno. 2011 is the 100th anniversary of his birth and so this year's conference includes a strand of sessions exploring how his philosophies influence the learning and teaching of mathematics. Come and join us in Telford, the 'birthplace of industry', for a celebration you will never forget.

*Karen Wintle and the Team*

## The man and his legacy ...

Caleb Gattegno made a significant impact on teaching and thinking about education not only in the UK but also in many countries around the world. Within mathematics this includes the creation of ATM, the promotion and use of Cuisenaire Rods, the creation of geoboards, developments of the animated geometry work of Nicolet, and the Gattegno 'tens' chart for number. He also worked extensively on the learning of reading and foreign languages with 'infused reading' and 'the silent way'. In addition he challenged many in the educational world to consider what is involved in learning and how our actions as teachers should be subordinated to the way in which children have already proved they can learn as a pre-school child.

## Opening Plenary: Alf Coles

### —“Towards a Science of Education”



Alf will offer activities, ideas and images related to Gattegno's call for all teachers to become scientists of education in our own classrooms.

*Alf is currently working part-time as a senior lecturer in education at the University of Bristol, finishing a PhD, and working with a Primary School on developing student creativity in learning mathematics. Alf previously taught mathematics in secondary schools in Zimbabwe, Eritrea, London and Bristol. He spent thirteen years at Kingsfield School in Bristol, seven of them as*

*head of mathematics and two as an assistant headteacher. Alf has been involved in research in mathematics education for over ten years; his interests include the role of the teacher in creating a space for inquiry in the classroom.*

## Special Plenary: Piers Messum and Roslyn Young —“Visible and Tangible Language”



Many people around the world know of Gattegno but have no idea that he was a mathematics educator. They know him because he also worked on the teaching of literacy and foreign languages. We will describe and demonstrate some of the ways in which his understanding of the learning of language led to his innovations in language teaching. We will use French as the target language for you in our demonstrations.

Gattegno called his approach to teaching foreign languages 'the Silent Way', reflecting one of his most striking discoveries: that pronunciation is best taught by a 'silent' teacher, not by one who asks her students to 'listen and repeat'.

His work on language and literacy demonstrates that his model of the learner can be applied beyond the learning of mathematics. In fact, it helps us to understand the learning of all human activities, at all ages.



*Piers Messum first came across Gattegno when he learnt Japanese by the Silent Way in the mid-1980's. He went on to do a PhD inspired by Gattegno's ideas that examined how children learn the pronunciation of their mother tongue. He now teaches English to adult migrants in London and continues his research in child language.*

*Roslyn Young met Gattegno in 1971 when she was looking for a better way of teaching English as a foreign language. She began using the Silent Way immediately. She obtained a doctorate in Linguistics in France in 1990 on Gattegno's work in the teaching of French and English, as both native and non-native languages. She is now retired but continues to train teachers in the Gattegno approach.*

## Closing Plenary: David Fielker —“Fifty conferences”



David Fielker, who has attended more conferences than any other else, looks back over their changing nature during the last fifty years and considers possibilities for the future.

*David Fielker was always actively involved in ATM, and among other things was editor of Mathematics Teaching from 1972 to 1983. Before retirement he taught in secondary schools in London, and was Director of Abbey Wood Mathematics Centre.*

# ATM Conference 2011 – Introduction

## Student Union Bar

For those 'real ale' enthusiasts the student union bar is the place to be, there will be a locally produced ale plus a fully stocked bar.

## Monday Evening

Special Event: 7.30PM – 9.00PM – **doing Mathematics together**

*Celebrating 50 years of doing mathematics together. Work with others on problems old and new.*

## Tuesday

Primary Day TBC: 9.00AM – 5.30PM

*Priorslee Hall will host our first conference Primary Day. As well as sessions focusing on teaching Key stages 1 and 2 there will be a special primary education lunch.*

## Tuesday Afternoon

AGM: 2.00PM – 3.30PM

*You are warmly invited, by General Council, to attend the AGM – Main Lecture theatre SA 102.*

## Tuesday Evening

Special Plenary : 7.00PM – 8.00PM – *main lecture theatre SA102*

### **Visible and Tangible Language – Piers Messum & Roslyn Young**

*Many people around the world know of Gattegno but have no idea he was a mathematics educator. They know him because he also worked on the teaching of literacy and foreign languages.*

*We will describe and demonstrate some of the ways in which his understanding of the learning of language led to his innovations in language teaching. We will use French as the target language for you in our demonstrations.*

*Gattegno called his approach to teaching foreign languages 'the Silent Way', reflecting one of his most striking discoveries: that pronunciation is best taught by a 'silent' teacher, not by one who asks her students to 'listen and repeat'.*

*His work on language and literacy demonstrates that his model of the learner can be applied beyond the learning of mathematics. In fact, it helps us to understand the learning of all human activities, at all ages.*

Quiz: 8.00pm – *in the Refectory*

*Phil Dodd has once again agreed to write the ever popular quiz for teams of up to 5 people. Don't worry if you don't have a team, just turn up and the conference team will help you find one. It's a great way to make new friends.*

## Wednesday Lunchtime

Student/Newly Qualified Teachers Lunch: 12.30PM – 2.00PM

*Orchard Room, Priorslee Hall*

*All students and newly qualified teachers are invited to a special lunch in the Orchard Room, Priorslee Hall. A chance to get together and share ideas and experiences.*

## Wednesday Evening

Cocktail/Wine Reception: 7.00PM – *Orchard Room, Priorslee Hall*  
*kindly sponsored by OUP*

Musical Evening: 7.30PM – 9.00PM – *main lecture theatre SA102*

*Our Conference Team invite you to take part in the musical evening, a long standing tradition at ATM conferences with a wide variety of musical styles and talents. An audience who are willing to participate where appropriate is always a pleasure, but some forward planning is also needed! There will be opportunities for forming small groups if you provide email addresses and suggest what instruments would complement your own. Come along to play, sing and listen! We usually manage some practice time for groups. Remember to indicate on the booking form if you would like to be included in the programme as a solo performer or as part of a group (and if you would need an accompanist ).*

*Many thanks to Chris Messenger for once again organizing the Musical Event.*

Ceilidh: 9.00PM – 'All Blacked Up' – *in the Refectory*

*Highly acclaimed, driving 6 piece band with 2 melodeons, keyboards, drums, saxophone and guitars producing great dance music.*

## Conference Team

Our Conference Team is always on hand to help:

Karen Wintle, Karen Kirkley, Su Strange, Karen Foster, Claire Beckett, David Lawrence, Andrew Roberts, Liz Woodham and Jayne Stansfield.

## Publishers – all day, Tuesday and Wednesday in the Refectory

A variety of publishers and educational suppliers will be exhibiting, in the Refectory. Come along, meet the publishers and browse their wares.



**Don't miss Oxford University Press at ATM conference!**  
*We're offering the right resources to support you in the classroom (including the highly practical 4-book approach for GCSE), PLUS extra support to help you relax with an Oxford Blue cocktail at the conference reception.*

## Telford Campus

Telford Campus is set in the grounds of the Grade II listed, 18th century mansion Priorslee Hall based in the rural county of Shropshire. Nearby famous attractions include the World Heritage Site Museum Ironbridge Gorge, Hawkstone Park and Follies, the aerospace museum at RAF Cosford and Severn Valley Railway. The campus offers wireless Internet access; there is a supermarket, a pharmacy and cash point nearby and Telford town shopping centre is only 10 minutes away on the bus ...

## Workshop – in the Student Union Bar

Claire Beckett and the team welcome you to the workshop which is at the heart of the Conference. This special place for individual or shared activity is open from early till late, with space for you to build models, discover new materials, discuss problems, solve puzzles or simply think about mathematics. Everything you ever imagined to make mathematics work for you is there, ready to be explored.

## eXtra Sessions

If you have a brilliant idea... a burning issue... an ambition or project you want to share... then collect an eXtra Session sheet from the ATM Bookstall, fill in the details, and stick it up on the board. A time and a room will be allocated, so delegates who share your interest can join you to discuss your work. And don't forget to check the eXtra Sessions notice board yourself, and sign up for whatever catches your eye!

## ATM Bookstall

The ATM bookstall will be in the Foyer and will be open throughout the conference, giving an opportunity to view and buy ATM materials at special conference prices. Help ATM to support and develop the teaching of mathematics. Bring along your order books/requisitions, cheque books and credit cards. Karen, Karen and Su will be pleased to help you spend your money!

## Internet Access

Computers with internet access will be available during the day. Free wireless internet will also be available in areas, including bedrooms .

## Payment

Various methods of payment include: online booking via our secure website – [www.atmbuy.net/conf11](http://www.atmbuy.net/conf11) – cheque payable to ATM – credit/debit card and Maestro – Direct Debit – Invoice. **Please see booking form.**

**ATM** Unit 7 Prime Industrial Park, Shaftesbury Street Derby DE23 8YB  
Tel: 01332 346599 Fax: 01332 204357 Email: [conference@atm.org.uk](mailto:conference@atm.org.uk)

## The Gattegno Strand

The people running sessions within the Gattegno Strand have identified that a part or the whole of their session will have some relation to the work of Caleb Gattegno. Given the theme of the conference we felt that it may be helpful this year for conference members to be able to identify this link more explicitly within the session programme. It is important to note that this does not mean that other sessions within the programme will not be influenced by Gattegno as over the years many sessions at ATM conferences have had this influence.

## Conference Session Information

Sessions are coded with regard to their area(s) of interest:

**KS1 – KS2 – KS3 – KS4 – KS5**

**T – Tertiary, A – Advisory, G – General**

**Sessions are offered as follows:**

AB:	Double session	Monday	16.00 – 17.30
		Tuesday	09.00 – 10.30
A:	Single session	Monday	16.00 – 17.30
B:	Single session	Tuesday	09.00 – 10.30
CD:	Double session	Tuesday	11.00 – 12.30
		Tuesday	16.00 – 17.30
C:	Single session	Tuesday	11.00 – 12.30
D:	Single session	Tuesday	16.00 – 17.30
EF:	Double session	Wednesday	09.00 – 10.30
		Wednesday	11.00 – 12.30
E:	Single session	Wednesday	09.00 – 10.30
F:	Single session	Wednesday	11.00 – 12.30
G:	Single session	Wednesday	16.00 – 17.30
H:	Single session	Thursday	09.00 – 10.30

# AB Double Session Monday 4.00-5.30pm and Tuesday 9.00-10.30am

				Foundation	KS1	KS2	KS3	KS4	KS5	Primary	Advisory	General
AB1	Aidan Harrington and Geoff Faux	<b>The Subordination of Teaching to Learning</b>	In Gattegno's book "What we owe children", he explores how a teacher's role changes if they put their attention onto learning rather than teaching. These two sessions will draw on this work, together with exercises and discussion, to explore how our own practice might develop and change. <b>Gattegno Strand</b>		2	3	4	5	T	A		
AB2	Laurinda Brown Tracy Helliwell and Jan Winter	<b>Learning the students and metacommenting</b>	Gattegno said: The students learn the mathematics, the teacher learns the students. What does this look like in practice? What does the teacher do? We will explore these ideas practically through observation and discussion of lessons using 'metacommenting'. <b>Gattegno Strand</b>	F	1	2	3	4	5	T	A	
AB3	Helen Farmery	<b>Numicon. A multi sensory approach to the teaching and learning of early number skills</b>	A work shop where participants gain an overview of the theory that underpins Numicon whilst taking part in practical activities that address mathematical problem solving in the KS1/2 inclusive classroom. The session addresses the difficulties that early numeracy presents to many young children and highlights how, by providing structured imagery in an environment where children construct their own understanding, these difficulties are overcome. <b>Gattegno Strand</b>		1	2						
AB4	Alison Parish	<b>Get to Know GeoGebra and Logo (for KS1 to KS3)</b>	This hands-on session will look at how a dynamic geometry program (GeoGebra) and Logo (both are free) can be used with primary and lower secondary pupils to encourage mathematical thinking whilst addressing skills often taught through textbooks. The session will look at where the two programs are relevant to the mathematics curriculum and, after an introductory tour to the programs, delegates will be encouraged to develop some ideas for use with their own classes. Starter files will be available for adapting. No knowledge of the programs is required!		1	2	3				A	
AB5	Leo Rogers	<b>History of Mathematics in the Curriculum: Opportunities and Choices</b>	This session will offer materials on the History of Mathematics for the classroom for experiment and discussion. Most have been used with different pupils from KS2 (Years 6/7) to KS5 and with PGCE students. Some of this material has already appeared on the 'History Corner' on MTi and been published in the May 2010 issue of Mathematics in School.			2	3	4	5	T	A	
AB6	Kathleen Cross and Anne Haworth	<b>ATM Inspirations - 40 years on</b>	In the year of ATM's 50th conference, we reflect on how ATM inspired us as new teachers and continues to inspire us 43 conferences later. Every Easter we come home enthused with new ideas that help us to work with others to see the beauty of mathematics and to make mathematical connections. In these seminars we will share some of our favourite mathematics (such as spirals and tessellations) and invite you to work on it with us. What is its continued relevance for today's classroom? How can it help you to assess what your students know, understand and can do? How can such ways of working help your students to become better mathematicians?		1	2	3	4	5	T	A	



# B Single Session Tuesday 9.00-10.30am

			Foundation	KS1	KS2	KS3	KS4	KS5	Tertiary	Advisory	General	
B1	Liz Gibbs	<b>Mental mathematics with dice and playing cards</b>	This is a hands-on workshop, where you will be able to use a wide selection of dice and playing card games to enhance and develop children's mental calculation methods. You will be encouraged to play all the games in pairs or small groups. During the workshop, there will be some discussion time to adapt the games to suit the needs of your own class.			1	2					
B2	Chris Messenger and Lucy Sayce	<b>Linking mathematics and music</b>	Consciously or unconsciously musicians and composers function mathematically. According to a myth, Pythagoras was prompted by blacksmiths' hammers on anvils to examine the link between their masses and the harmonies they produced. Researchers in Los Angeles found that pupils who learned to play the piano and read music improved their numeracy. In these sessions we will explore some of these links both for rhythm and harmony. Be prepared for some practical experience along the way. Your experience of the sessions will vary according to your own musical background but we will try to cater for a wide range. We hope that discussion will arise about how ideas could be further developed in the classroom.			1	2					
B3	Caroline Ainslie – Bubblz	<b>Investigating uses for soap bubbles and balloons</b>	F	1	2						A	
B4	Leanne Williams and Jayne Stansfield	<b>Flexagons</b>	An exploration into the wonderful world of flexagons! Whether you have never heard of these bizarre paper-folding mysteries or consider yourself to be a bit of a fi-expert, all are welcome on this voyage of discovery to understand how a strip of paper can be so much more. The session will include a brief history of flexagons, demonstrations, hands-on construction of some of the forms that flexagons can take and plenty of mathematical group discussion and analysis as to how and why these paper tricks work.				2	3	4		T	A
B5	Kate Mackrell	<b>Number, Algebra and Geometry in Dynamic Geometry Software</b>	Dynamic geometry software has moved far beyond its roots in geometry. In this session, we will compare the ways in which different dynamic geometry programs (Cabri, Cinderella, GeoGebra and Geometer's Sketchpad) enable the integration of number, algebra, geometry (and a bit of handling data) through looking at some approaches to exploring the area of a circle.					3	4	5	T	A
B6	Sidney Tyrrell	<b>Stats with Attitude!</b>	Thoughts, ideas and resources for teaching statistics at all levels, with an emphasis on delivering concepts, rather than proofs and detail, to those who are not mathematicians. Real data, real stories and hopefully some real surprises! Resources to take away.					3	4	5	T	A

# CD Double Session Tuesday 11.00-12.30pm and Tuesday 4.00-5.30pm

			Foundation	KS1	KS2	KS3	KS4	KS5	Primary	Advisory	General			
CD1	Lyndon Baker and Leif Kragh	<b>Awareness - but of what?</b>	When we share mathematical problems with children and colleagues what awarenesses are we hoping to seed and fertilise? How can we be sure of the level and nature of awareness that has been raised in others? How can we safely build further on these differing states of awareness in the classroom? Come and join us, look at a few problems, share some insights and possible solutions but also examine more closely just what newer horizons are now visible.			<b>Gattegno Strand</b>					3	4	5	A
CD2	MacMaths – John Hibbs	<b>Constraints</b>	Using ideas pinched from the classroom active research, the group will explore the constraints placed on teachers of mathematics ('What stops me teaching the way I wish to teach?') and seek strategies to get around these.				2	3	4					
CD3	Helen Williams and Mike Ollerton	<b>Active learning and progression using the same tasks across KS1 to KS4</b>	This session will explore how the same ideas can be used across the KS1 to KS4 age range. An important issue will be to consider progression and ways of achieving this both conceptually and cognitively.			1	2	3	4					
CD4	Sue Pope and Tung Ken Lam	<b>Using origami to nurture mathematical thinking</b>	This practical workshop will be an opportunity to explore how folding paper can provide a motivating context for the development of mathematical understanding. We will share models that can be used with a range of learners and discuss teaching strategies. We will show how origami can be used in many aspects of mathematics.			1	2	3	4	5			A	
CD5	Paul Stephenson and colleagues from The Magic Mathworks Travelling Circus	<b>The Cube</b>	A popular target age-range for Royal Institution masterclasses is years 8-9. Two years ago in Swansea we tried out on some of your good selves such a workshop on the topic of figurate numbers. This year our subject is symmetry. Through a large number of experiments, involving vast quantities of Multilink, rather less Polydron, and perspex cubes partially filled with water, we aim to prepare your 13-year-old role-playing selves for formal work on the group concept when you enter the sixth form in 2015. The typical masterclass consists of two sessions of an hour and a quarter. By taking a double session at this conference we aim to allow half an hour for criticism.					3					A	

# C Single Session Tuesday 11.00-12.30pm

				Foundation	KS1	KS2	KS3	KS4	KS5	Primary	Advisory	General
C1	Judy Sayers	<b>Gattegno – Taking us beyond routine practice</b>	A workshop looking at ways in which we can go beyond practising mathematics. We will look at a selection of activities for primary children and discuss how we might take children beyond the practising of what they already know. We will look to see how Cuisenaire rods and Multilink can support this approach. We will also take a critical look at the use of the Nintendo DSi maths training program in this regard. In so doing we will think about what children can achieve if we go beyond practising procedures.	1	2							A
C2	Els De Geest	<b>Gattegno's mathematizing</b>	Gattegno states that only awareness is educable. In his book "The awareness of mathematization" he describes awareness of mathematics as the dynamics of (mathematical) relationships and uses mental activities to work on this. He argues that equivalence allows thinking in terms of what one is allowed to do to transform a problem. In this session we will play with the notions of equivalence, imagery and substitution in the context of mathematical tasks to explore Gattegno's concept of mathematization: becoming aware of dynamics of mathematical relationships.	F	1	2	3	4	5	T	A	G
C3	Alan Catley	<b>Using Autograph at A/level</b>	This session will focus on a wide variety of applications of Autograph to teaching and learning Pure Maths, Mechanics, Statistics and Decision Maths. The flexibility of the software makes it the ideal classroom tool and there will be many demonstrations of how it can be used to keep the learners totally focused on the mathematics being studied. Delegates attending will be provided with access to a wealth of lesson plans and student 'activity' sheets that will be of immediate use in the classroom.					5				
C4	Liz Woodham and Lynne McClure	<b>Developing mathematical thinking through "low threshold – high ceiling" tasks</b>	The NRICH website initially published problems for high-attaining pupils. Recently we have catered for a wider range of children by creating "low threshold – high ceiling" tasks. In this session we will work on an activity and discuss how such tasks allow all learners to engage with key mathematical processes, regardless of prior achievement levels.	1	2							A
C5	Jean-Jacques Dahan	<b>Resources created with Cabri 2 Plus and Cabri 3D to teach "perimeter and area" at a middle school level</b>	As a French middle school teacher wanted to teach perimeter and area by using dynamic geometry, she asked me to prepare some files with Cabri 2 plus and Cabri 3D to help her to do it. I achieved several files and she put them in her courses after designing them. I will present these files and how they were used by the middle school teacher with her students. Some files model the unfolding of triangles, polygons and arcs; other ones allow the user to discover experimentally number Pi.		2	3	4	5	T	A		
C6	Joe Watson	<b>WOW!</b>	An enrichment session aimed at stimulating interest in mathematics through some surprising results. Though some of the topics should be comprehensible to students at KS4 (able) and above, a detailed discussion would require a greater background. Come along and see: Why $-1 = \infty$ , How to write down some very big numbers, A very irrational curve, Why all the rational numbers between 0 and 1 don't amount to much, How some sums can be rearranged to give any answer you wish, Why there are many different infinities, Some geometrical coincidences, etc., etc., etc.....				4	5	T	A		
C7	Karen Wilding	<b>Real World Maths- Teaching Primary Maths Through Relevant and Engaging Contexts</b>	Do you use contexts such as sports events, parties and young enterprise projects to teach maths? Come and be excited and inspired by simple, yet effective, ways to engage both learners and teachers of mathematics in the Primary classroom. This practical workshop will demonstrate how by beginning with maths in 'Real World' contexts we can show children the relevance and application of this fascinating subject in every part of our lives. The session will also look at how 'Real World' maths is embedded within the 'Learning and Teaching Cycle' to ensure high quality practice at all levels.	1	2							A

# ATM Booking Form – Introduction

**DIRECT DEBIT**—spread the cost of conference over 4 months—we will collect 4 payments starting 04/01/11. Please use the Direct Debit form overleaf.

**Early Booking** – Early booking is recommended. Please note: discount for bookings, with payment, received before 31 January 2011.

**Residents' rates** – Ensuite room – Your fee includes accommodation, breakfast, coffee, lunch, tea and evening meal plus access to all sessions.

**Students' rates** – Ensuite room – Your fee includes accommodation, breakfast, coffee, lunch, tea and evening meal plus access to all sessions. (To qualify for the student rate you must currently be a student member – if not, you may join for £25)

**Non-residents' rates** – Your fee includes coffee, lunch, tea (but not evening meal) plus access to all sessions.

**Day rates** – Your fee includes coffee, lunch, tea (but not evening meal) plus access to all sessions on the day.

**Non-Members' rates** – Delegates who are not current members (excluding students) of ATM can attend at the non member rate.

For Non-member prices please see booking form – to save on fees, why not become a member?

**Cancellation Charges** – Cancellations received before 7th Feb 2011 – 75% of fee will be refunded. Cancellations received between 8th Feb 2011 & 18th March 2011 – 50% of fee will be refunded. Any cancellation after 19th March 2011 – no refund will be given.

**Completed Booking Form** – Please complete all sections of the booking form and return with your payment as soon as possible, or book securely online at [www.atmbuy.net/conf11](http://www.atmbuy.net/conf11)

## The Association of Teachers of Mathematics

Unit 7, Prime Industrial Park, Shaftesbury Street, DERBY DE23 8YB

Tel: 01332 346599

Fax: 01332 204357

Web Site: [www.atm.org.uk](http://www.atm.org.uk)

Email: [conference@atm.org.uk](mailto:conference@atm.org.uk)

# Session Choices

Please write session number in box provided.

Sessions do fill up quickly, please give alternative choices—just in case!

## FIRST CHOICE

## SECOND CHOICE

AB (Double)

or AB (Double)

A (Single)

and

A (Single)

B (Single)

B (Single)

CD (Double)

or CD (Double)

C (Single)

and

C (Single)

D (Single)

D (Single)

EF (Double)

or EF (Double)

E (Single)

and

E (Single)

F (Single)

F (Single)

G (Single)

and

G (Single)

H (Single)

H (Single)

Yes, I would like to participate in the musical event

I will bring .....

I would be able to accompany on keyboard

# ATM Conference 2011 – Booking Form – Course Fees

Please tick only ONE of these SEVEN boxes

£ Sterling

Payment Before

31/01/11

Direct

Debit

Payment After

01/02/11

## Resident Fees

<input type="checkbox"/> ATM Member	385.00	400.00	423.50
<input type="checkbox"/> Non-Member	445.00	460.00	489.50
<input type="checkbox"/> Student ATM member	225.00	240.00	247.50

## Non-Resident Fees

<input type="checkbox"/> ATM member	240.00	255.00	264.00
<input type="checkbox"/> Non-member	300.00	315.00	330.00
<input type="checkbox"/> Day member (Includes coffee/lunch/tea) (Please state which day)	140.00	—	154.00
.....			

<input type="checkbox"/> Day non-member (Includes coffee/lunch/tea) (Please state which day)	160.00	—	176.00
.....			

Total Due	.....	.....	.....
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■ Please tick if required:

- I would like Lunch on Monday 18th April
- I would like Lunch on Thursday 21st April

■ Special dietary requirements

.....

■ Other special requirements

.....

■ Please tick  – if you need a Ground Floor room

– Room adjacent to .....

■ Wireless Internet Access

A username and password will be issued to you at conference.

■ IMPORTANT: Direct Debit is only available via completion and return of the form provided overleaf





# ATM Conference 2011 – Booking Form – Direct Debit form

## DIRECT DEBIT

### Instruction to your Bank/Building Society to pay Direct Debits

Please complete the form to instruct your bank to make payments directly from your account. Then return the completed form to:

**Association of Teachers of Mathematics Unit 7 Prime Industrial Park Shaftesbury Street Derby DE23 8YB**



The Manager: ..... Bank/Building Society  
Address: .....  
Postcode: .....

### Originator's Identification Number

9 0 7 9 9 1

### Membership Reference No. (if known)

.....

**1** Please write the full postal address of your branch in the box above

**2** Name of Account Holder  
.....

**3** Bank/Building Society Account Number  

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**4** Branch sort code  
(from the top right hand corner of your cheque)


**5** Instruction to your bank or building society  
Please pay The Association of Teachers of Mathematics, Direct Debits from the account detailed on this instruction, subject to the safeguards assured by the Direct Debit Guarantee. I understand that this instruction may remain with The Association of Teachers of Mathematics and I, so, details will be passed electronically to my Bank/Building Society

Signature(s) .....

Date .....

Bank/Building Societies may refuse to accept instructions to pay Direct Debits from some types of Accounts

**This guarantee should be detached and retained by the Payer**

### The Direct Debit Guarantee

- This guarantee is offered by all Banks and Building Societies that take part in the Direct Debit Scheme. The efficiency and security of the Scheme is monitored and protected by your own Bank or Building Society.
- If the amounts to be paid or the payments dates change The Association of Teachers of Mathematics will notify you at least 14 working days in advance of your account being debited or as otherwise agreed.
- If an error is made by The Association of Teachers of Mathematics or your Bank or Building Society, you are guaranteed a full and immediate refund from your branch, of the amount paid.
- You can cancel a Direct Debit at any time by writing to your Bank or Building Society—please send a copy of your letter to The Association of Teachers of Mathematics at Unit 7 Prime Industrial Park Shaftesbury Street Derby DE23 8YB.



# D Single Session Tuesday 4.00-5.30pm

			Foundation	KS1	KS2	KS3	KS4	KS5	Tertiary	Advisory	General		
D1	Andrew Jeffrey	<b>An Introduction to Cuisenaire – Theory and Practice</b>	In the spirit of Gattegno, this hands-on session will consider the origins of (and Gattegno's thinking behind) the use of Cuisenaire in the classroom. It is not merely a sit-and-listen session; delegates will also try around a dozen activities to take away and use in the primary classroom. It is designed for teachers with little or no previous experience of using Cuisenaire rods, who wish to explore the potential of these multi-sensory resources for themselves. Other interested parties are always welcome of course! <b>Gattegno Strand</b>			1	2						
D2	Alan Catley	<b>Using Autograph at KS3 and GCSE</b>	This session will focus on a wide variety of applications of Autograph to teaching and learning algebra, geometry, graphing, data handling etc. The flexibility of the software makes it the ideal classroom tool and there will be many demonstrations of how it can be used to keep the learners totally focused on the mathematics being studied. Delegates attending will be provided with access to a wealth of lesson plans and student 'activity' sheets that will be of immediate use in the classroom.					3	4				
D3	William Lacefield	<b>Celebrating Number Sense through Rich Tasks and Rich Discussions in the Primary Classroom</b>	Research in mathematics education supports a rationale for engaging young learners in rich tasks characterized by meaningful problem solving opportunities and thought-provoking discussions. During this session, participants will engage in selected rich tasks rooted in number and operations. Follow-up discussions will focus on common characteristics of rich tasks as well as resources to assist teachers as they plan for innovative instruction.			1	2						
D4	Doug Williams	<b>Working Mathematically with Infants</b>	Derived from Calculating Changes, enriched by the Task Centre and Maths300 and integrated with Maths With Attitude this new resource supports K-2 teachers to build their curriculum around the concept that all students can learn to work like a mathematician in best practice classrooms. The workshop will introduce you to the kit through activity, expose its simple and flexible framework, which includes a week by week planner, and highlight teaching craft features such as threading and investigations which captivate students. As one teacher wrote: "Kids love the Poly Plugs and are enjoying the other activities from the WMI program."			1						A	
D5	Bob Burn	<b>Escher's Horses and Escher's Sea Horses</b>	We will look at Escher's Horse tessellation and perhaps some others, and search for other tiles which might be used to make the same tessellation. What shapes might they be? Might they be long and thin? Might the area vary from tile to tile? Then we will look at Escher's Sea Horses which have a bit more symmetry, and search for tiles which may make the same tessellation with or without half turns. The sea horse pattern has links with conventional school work. The first half of the workshop will be a repeat of a workshop at ATM 2009, with some supplementary worksheets for those who came then. Please bring a pencil, a ruler and a rubber			1	2	3	4	5	T	A	
D6	Alison Kiddle	<b>Developing mathematical thinking through "low threshold – high ceiling" tasks</b>	The NRICH website initially published problems targeted at highly achieving maths students. Now we try to cater for a much wider range of students by creating "low threshold – high ceiling" tasks. This session will offer delegates the opportunity to work on one of these tasks, and to see how such activities allow all students to engage with key mathematical processes, regardless of their prior level of achievement.					3	4			A	

# EF Double Session Wednesday 9.00-10.30am and 11.00-12.30pm

			Foundation	KS1	KS2	KS3	KS4	KS5	Primary	Advisory	General	
EF1	Dave Hewitt	<b>The Science of Education: teaching and learning mathematics</b>	The phrase 'Science of Education' comes from Caleb Gattegno who proposed that there are ways to consider the 'cost' of learning something. I would like to explore this idea further to see whether such this notion might inform the way in which we go about our task of teaching mathematics. The session will involve a number of activities as well as reflection and discussion from those activities. It will be suitable for those teaching any age of student. <b>Gattegno Strand</b>			1	2	3	4	5	T	A
EF2	David Cain	<b>Small people – are we aware of their awarenesses</b>	Inside the heads of very small children are powers which we ignore at our peril – and even worse, at their peril. Let us throw the theories of Piaget and his ilk out of the window and look at the levels of mathematics that we should be offering to these young people so that they can exercise their powers to the full. We will do lots of mathematics and spend time questioning what kinds of awarenesses we can expect from six and seven year-olds or ten and eleven year-olds. Perhaps more importantly, we will examine what awarenesses they already possess. Even more importantly, we will discuss what levels of awareness their teachers should possess! <b>Gattegno Strand</b>			1	2					A
EF3	Ian Sugarman	<b>Engaging young minds – developing number awareness</b>	Practical sessions exploring how equipment and virtual equipment can help 4-7 year olds develop number awareness through exploiting their natural inclination to subitise small numbers. <b>Gattegno Strand</b>			1						A
EF4	Jayne Stansfield	<b>Mobile Maths</b>	This workshop is based around the final project of a Maths Enhancement student which was inspired by the art of Alexander Calder and explores the mathematics of balance. In this workshop we will use these ideas to make a Calder style mobile and show how the maths can be adapted for use in classrooms at a range of levels throughout primary and secondary. This is a double session. The first part will explore the mathematics involved. We will build our mobiles in the second part which will take place in the workshop. You may attend either part separately if you wish.			1	2	3	4	5	T	A
EF5	Derek Ball	<b>Isosceles triangles and other shapes</b>	This two-session workshop focuses mainly on cutting up polygons, but you will not require scissors. We may also do some fitting of shapes into other shapes. As usual, the cutting up will be done more by the participants working in groups than by the session leader. Some of the cutting will be done in our heads. The ideas will be mainly relevant to key stages 3 and 4, although, as with all geometry, they might just as well be appropriate for students at key stage 2 or key stage 5...				2	3	4	5		A
EF6	Kate Mackrell	<b>Dynamic Geometry, Dynamic Art</b>	The connections between art and static geometry are rich, diverse, and well known. Dynamic geometry software enables us to explore some of the additional possibilities that arise when representations of geometric objects are set in motion; beautiful objects emerge, evolve, and transform, sometimes in quite unexpected situations. In this session we will create a variety of simple, beautiful objects using Cabri II Plus, Cabri 3D, Cinderella, and Geometer's Sketchpad 5, and discuss some of the mathematics behind these objects. <b>Please bring your own laptop.</b> Demo versions of each software will be provided.					3	4	5	T	A
EF7	Charlene Morrow	<b>Geomegami: Connecting Girls with Mathematics Through Origami</b>	Participants in this workshop will both experience and hear the theory behind a two-week origami workshop that connects girls with geometry through a set of carefully designed projects. The beauty of the paper and the objects that are constructed provide motivation to work through challenging projects. The focus will be on principles for encouraging girls to become confident and find interesting connections with mathematics. These ideas have been developed over 25 years of experience directing a month-long summer mathematics program for academically motivated girls. A booklet detailing the origami workshop and associated learning principles will be shared.					3	4	5	T	

# E Single Session Wednesday 9.00-10.30am

				Foundation	KS1	KS2	KS3	KS4	KS5	Primary	Advisory	General
E1	Sidney Tyrrell	<b>Confidence and Creativity in Excel</b>	Starting from scratch this session introduces Excel 2007, including conditional formatting, PivotTables, Filters and IF statements. These are powerful tools, none are particularly tricky and each can help you and your students get more out of maths and stats. Gain confidence in the know how, and get creative.				3	4	5	T	A	
E2	Lydia Showan	<b>Introduction to the National Stem Centre</b>	The National STEM Centre is home to the UK's largest resource collections for STEM subjects ages 5-19. Come along to investigate: <ul style="list-style-type: none"> <li>• a treasure chest of inspirational resources, including hands-on kit</li> <li>• how our online community can support your school/college and networks</li> <li>• where to look for wider STEM support</li> </ul>	1	2	3	4	5	T	A		
E3	Joe Murray	<b>Practical Geometry; level 1 to 3</b>	A very practical session addressing shape and space objectives for less-able pupils in secondary or as first exploration in KS2. The approach will use images of triangles and quadrilaterals which children will sort, classify, match, explain, talk about, reason with, etc. There will be opportunity to look at extensions of this work and share ideas which participants have developed with less-able. All of the ideas have been extensively used in school and in regional SEN mathematics conferences in the North.		2	3	4					
E4	Steve Hewson	<b>Using NRICH to support exceptionally able students and their teachers at Key Stages 4 and 5</b>	In this interactive session we will explore recent innovations and developments on the NRICH website designed to help the development of exceptionally able students. We will discuss the special needs of exceptionally able students, the difficulties facing their teachers and, of course, have a go at some problems for ourselves. The session will be aimed at the Y11/12 content level but may be of wider interest given that exceptionally able students often work well beyond their age. Mathematically less confident teachers very welcome!					4	5		A	
E5	Colin Jackson	<b>cre8ate maths workshop</b>	This workshop will introduce participants to cre8ate maths. cre8ate maths' origins were as a continuing professional development project which sought to engage teachers through involvement with the development of high quality mathematics curriculum materials. The workshop will very briefly introduce participants to the background to the project but in the main they will have the opportunity to try some of the materials developed by the project.			3					A	
E6	Caroline Ainslie-Bubblz	<b>Mathematical Balloon Modelling</b>	A balloon modelling workshop with a difference. Participants will learn the basics of balloon modelling, then be challenged to create a 3D shape. It is surprising how much visualisation is required to create even the simplest of shapes. Bring a challenge of your own! . . . . .	1	2	3	4	5	T	A		



# G Single Session Wednesday 4.00-5.30pm

				Foundation	KS1	KS2	KS3	KS4	KS5	Primary	Advisory	General
G1	Don Steward	<b>Encountering algebra with rod props</b>	Why bother to get bricks out and spend time picking them up off the floor? This is aimed at Cuisenaire rod novices, providing resources and ideas (based on Gattegno's) for those who are partial to utilising student prowess, talk and a focus on relationships. Using manipulatives and rod thinking smoothly enables many students to travel towards a formal knowledge of what algebra is and what it does for you. By alluding to resources, some tasks and classroom experiences, participants will be offering a range of suggestions and perspectives about helping to move students on from just playing with them - to more serious playing. Don Steward has worked as MEDIAN which has collected and disseminated ideas for teaching secondary topics. <b>Gattegno Strand</b>			3	4					A
G2	Liz Gibbs	<b>Using geoboards in KS 2</b>	This is a hands-on workshop, where you will be able to use and explore geoboards (also known as pin-boards). You will be encouraged to build, investigate, solve problems and record a variety of shapes. Geoboards, coupled with square dotted paper supports activities in measurement and number. During the workshop there will be time to look at how working in this way can enhance the children's learning experiences and transfer these fundamental experiences to paper based activities. <b>Gattegno Strand</b>		2							
G3	Jenni Back	<b>Educating awareness of the 'big ideas' in mathematics</b>	This will be an interactive workshop based on ideas that we have been using and developing with teachers and children in various schools around the country. We will try out some tasks that we have developed to use with young children to help them access the big ideas in mathematics. <b>Gattegno Strand</b>	1	2							
G4	Hilary Parks	<b>Getting to know GeoGebra through Celtic Art</b>	GeoGebra is a free dynamic mathematics software. By looking at some of the methods of construction used in Celtic Art and applying these methods using GeoGebra you will gain an introduction to this software to create your own beautiful designs. For those who already have some experience of GeoGebra, this will provide the opportunity to further familiarise yourself with it.			3	4					
G5	Sue Pope and Rebecca Edwards	<b>Exploring the M in STEM</b>	This discussion group will explore the potential of STEM to provide curriculum coherence for the learner and enhance learning in the constituent disciplines of science, design and technology, engineering and mathematics. We will share examples of the use of exciting and motivating STEM experiences as the launchpad for developing rigorous conceptual understanding and positive attitudes.	1	2	3	4					
G6	Vivien Townsend	<b>Stan's Café in the classroom</b>	Two years after the memorable and moving Stan's Café exhibition at Swansea, where each grain of rice represented a person, find out how schools in Warwickshire were inspired to use rice, beads, tea bags, potatoes and other cheap resources to make data come to life in the classroom. We will create our own exhibition during the workshop, will consider the opportunities to make meaningful links with other subjects and will discuss the possibilities for involving parents and the wider school community in our data handling.	1	2	3						
G7	Rosalind Martin	<b>Supporting Struggling Pupils</b>	This session aims to equip teachers with practical, hands on activities which strengthen pupils' basic understanding of number, especially using the Kinesthetic learning style. The ideas largely originated from recent Dyscalculia research, and the resulting resources have been refined as different pupils have responded to them. - Identifying problems without testing - Building confidence with place value - Increasing speed and accuracy with mental arithmetic - What if they CANNOT remember their tables? - Long multiplication that makes sense - Long division - helping weaker students to make it work. Participants will leave the workshop with a selection of photocopyable and interactive-whiteboard-friendly resources.		2	3	4					

# G Single Session Wednesday 4.00-5.30pm (cont)

		Foundation							
		KS1	KS2	KS3	KS4	KS5	Tertiary	Advisory	General
G8	Doug Williams	<b>1 Computer, 1 Data Projector, 1 Piece of Software</b>	Maths300 supports teachers to model what it means to work like a mathematician in best practice classrooms. It highlights learning features that fascinate, captivate and absorb kids. For some investigations one of those features is software and Maths300 has developed one piece with over 60 sub-programs to support and extend problem solving. It is used most fully when students can design and carry out their own experiments, in pairs, on their own computer, but given only one computer and a data projector, such as in an interactive whiteboard classroom, exciting things can still happen. The session will explore a smorgasbord of problems and link each to its software extension.						
G9	Jonny Griffiths	<b>Elliptic Curves – a light-hearted introduction</b>	Elliptic curves are sexy currently; Andrew Wiles used them to prove Fermat's Last Theorem, and they are at the heart of much cryptography. But what are they, and why are they so interesting? This session will introduce the beginnings of the subject; it will be active, and there will be lots of pictures! The good news is that elliptic curves are more than useful, they are beautiful too. Nothing beyond A Level Maths will be assumed.						
G10	Kimie Markarian	<b>Soroban, the Japanese Abacus and Mental-arithmetic</b>	When performing mental arithmetic using soroban images, the brain requires much less effort. Its calculation proceeds from left to right, using number facts only up to ten. Its positive effects have already received international recognition. In this session to create images of numbers, we draw the images on paper instead of using an actual soroban. In this way the images are clearly created onto the brain. The aural exercises using number bonds 5 and 10, bridging, and times tables, leads to real understanding of mathematical processes.						
G11	John Suffolk	<b>More pupil power – learners as teaching aids</b>	The workshop will continue the work at conferences in the last three years in which learners at all levels become teaching aids, becoming shapes, perimeters of shapes, graphs and other objects of their own learning. The activities in which all can participate and develop their maths with understanding and laughter cover much of the curriculum.						
G12	Jocelyn D'Arcy	<b>Vitamin D Maths</b>	Starting points and ideas for curriculum focused secondary lessons that take place outside.						

# H Single Session Thursday 9.00-10.30am

				Foundation	KS1	KS2	KS3	KS4	KS5	Tertiary	Advisory	General
H1	Colin Foster	<b>Possibilities For The Classroom</b>	We will look at examples of 'possibility tables', which are grids of cells with values of two variables running horizontally and vertically. Learners are invited to think of examples of mathematical objects that can go in each cell, or express generalities regarding what is possible or impossible. Participants will be encouraged to try some possibility tables for themselves, consider their use in the classroom and devise others. It will be 'possible' to work on different areas of mathematics and to have different age learners in mind. <b>Gattegno Strand</b>		2	3	4	5			A	
H2	Tony Wing	<b>Gattegno vs Freudenthal: Battles of the Early Years</b>	The workshop will explore the contrasting approaches of Gattegno and Freudenthal to early years' number teaching. We will refer to selected observations of both Gattegno and Freudenthal concerning the merits (and demerits) of structural apparatus (particularly Cuisenaire rods) and number lines, for supporting the early development of number ideas and calculating, and review activities for children that they recommended. In the light of more recent work (e.g. Sfard 2008) we can review whether their differences remain relevant today. <b>Gattegno Strand</b>	1						T	A	
H3	Rebecca Hanson	<b>The Staffroom in the Ether</b>	Would you like there to be a friendly maths staffroom that you can drop into at 24 hours a day? Somewhere where you can get advice, explore you own ideas, help others, sound off or just eavesdrop on interesting conversations? In this session Rebecca Hanson will take you on a tour of the available chat sites and discuss the practicalities and benefits of using them. She might tell a few stories of the things which have happened on them too.	1	2	3	4	5		T	A	
H4	David Acheson	<b><math>\sqrt{66}</math> and all that</b>	Square roots can help bring mathematics to life in many different ways, ranging from the number system itself to chasing the exact value of pi, exotic methods of proof, playing with the infinite, flying an aeroplane and even cooking a hot dinner.									G
H5	Vivien Townsend	<b>Mathematical Mazes</b>	Inspired by the Working Outside the Classroom area of the NCETM website and drawing on the session leader's recent work with KS2 pupils and KS3 teachers, this active workshop explores the possibilities of using mathematical mazes in the classroom. We will experience three styles of giant maze, at different levels of challenge, and consider the mathematics that we're doing. We'll also have a chance to create our own mazes and discuss the possibilities of using mazes back at school. In addition, you will leave with a couple of irresistible starter activities that you can use in school tomorrow.	1	2	3						
H6	James Robinson	<b>Celebrating problems.</b>	I intend here to work on some problems from past conferences, various resources I have found over the years and who knows? Maybe even something new! All of them are problems that I have used with students. Ideas will be suitable for years 7-77 as any good problem begins simply, but can be extended to the complex.			3	4					

