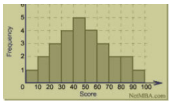
British Congress of Mathematics Education

BCME9
ICT STRAND (10 Sessions)
Coordinated by Douglas Butler

WARWICK UNIVERSITY, TUESDAY 3rd - FRIDAY 6th APRIL 2018

• Tue 16:00-17:30 **A1** ICT Strand 01: **NEW TO TECH?**
Douglas Butler (Learn and share session)

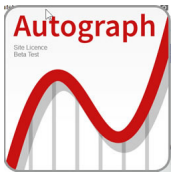


• Wed 09:00-10:00 **B1** ICT Strand 02: **FINDING/INTERPRETING LARGE DATA SETS**
Mick Blaylock (Abacus Plus)

• Wed 16:00-17:30 **E1** ICT Strand 05: **SPREADSHEETS IN MATHEMATICS**
Mick Blaylock (Abacus Plus)

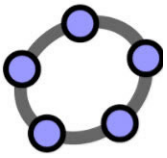
• Wed 10:10-11:10 **C1** ICT Strand 03: **DESMOS FOR TEACHERS AND STUDENTS**
Stephen Britton (Ashford School)

• Wed 14:00-15:30 **D1** ICT Strand 04: **PROBLEM SOLVING USING WEB RESOURCES**
Douglas Butler (TSM)



• Thu 9:00-10:00 **F1** ICT Strand 06: **AUTOGRAPH FOR KS3/4**
Douglas Butler (TSM)

• Fri 9:00-10:00 **I1** ICT Strand 09: **AUTOGRAPH FOR KS5**
Douglas Butler (TSM)



• Thu 10:10-11:10 **G1** ICT Strand 07: **GEOGEBRA FOR BEGINNERS**
Tom Button (MEI)

• Thu 14:00-15:30 **H1** ICT Strand 08: **GEOGEBRA FOR EXPERIENCED USERS**
Tom Button (MEI)

• Fri 10:10-11:10 **J1** ICT Strand 10: **TABLETS IN THE CLASSROOM**
Douglas Butler (Bring and share session)

Desmos www.desmos.com
MEI and Geogebra mei.org.uk/geogebra
TSM and Autograph www.tsm-resources.com

SIGN UP HERE: www.bcme.org.uk
Douglas Butler: debutler@argonet.co.uk

PTO -> for session descriptions

BCME 2018: ICT STRAND

• NEW TO TECH?

New to using technology in your mathematics classroom? We will look at the bewildering array of digital resources, and pick a path through the possibilities, with the overriding maxim that the chosen technology is transparent, letting the mathematics shine through.

We will discuss the hardware scene: laptops, desktops, whiteboards, touch-tvs, visualisers and tablets, then look at web-based resources, including data, simulations, blogs and online texts. Finally, the dynamic software scene: Geogebra, Desmos, Cabri, Sketchpad and Autograph. Delegates should bring a laptop, mouse and power lead, and/or a tablet with a sensibly sized screen.

• FINDING/INTERPRETING LARGE DATA SETS

Improve your data handling skills! Join this session to learn and share ideas about large data sets that now feature in the specifications for AS, Core Maths and A level.

In the session delegates will work with the awarding organisations' large data sets and other sources. Extracts from the data set spreadsheets (single variable, bivariate data, random samples and more) will be represented and analysed in both Geogebra and Autograph. Implications and further options for teaching and assessment will be considered. Delegates should bring a laptop, mouse and power lead.

• SPREADSHEETS IN MATHEMATICS

Improve your skills! Spreadsheet challenges will be set giving delegates opportunity to use formulae in spreadsheets for generating number grids, investigating series, mathematical modelling, including optimisation problems, statistical concepts and calculus. Issues relating to spreadsheet algebra including iteration, absolute and relative references will also be considered.

We will also look at how Excel can be used to perform simple simulations, for example a coin toss or a geometric progression. Bring your own device (laptop with power lead, tablet, etc.) with Excel or Google Sheets loaded.

• DESMOS FOR TEACHERS AND STUDENTS

Improve your skills! An introduction to using Desmos on a variety of devices, its user interface and its procedures for entering equations and sliders in various categories (Cartesian, polar and parametric).

How to access the teacher online environment on teacher.desmos.com, and how a teacher can create a dedicated student space on student.desmos.com. There, teachers can keep an eye on student scores, and students can share graphs around the world.

Delegates should bring a laptop, mouse and power lead, or a tablet with a sensibly sized screen.

• PROBLEM SOLVING USING WEB RESOURCES

Improve your skills! We will explore the web for problem-solving ideas, including objects on Google Earth, to help you to find the best resources to incorporated them in your lesson plans.

We will find data, simulations, tutorials, texts and blogs. Then we will look at the best of the professional sites (e.g. NRICH), and amateur sites (e.g. Mr Barton Maths). Finally, we will look at ways to create your own resources and share them, using screen recording software - a must! Delegates should bring a laptop, mouse and power lead, and/or a tablet.

• AUTOGRAPH FOR KS3/4

Improve your skills! This session will start with an introduction to creating objects in Autograph: points, lines, circles, polygons, shapes and graphs, and using the calculator to manipulate and plot attributes. Then we will look at a series of tried and tested lesson plans for KS3 and 4, including circle geometry, quadratic and cubic graphs and vectors.

Data handling topics will cover linear regression and the proper demonstration of a histogram. Delegates should bring a laptop, mouse and power lead. Software will be provided.

• AUTOGRAPH FOR KS5

Improve your skills! This session will concentrate on using Autograph to help students understand many of the topics in Core Maths and A level through visualisations. These will include the study of vectors in 2D and 3D, and topics in calculus, parametric and polar plotting, and differential equations.

The session will continue with ideas for using Autograph in problem-solving and handling large data. Finally, we will look at the study of complex numbers as dynamic objects in the Argand diagram, including de Moivre's Theorem. Delegates should bring a laptop, mouse and power lead. Software will be provided.

• GEOGEBRA FOR BEGINNERS

Improve your skills! A chance to explore GeoGebra and to grow in confidence using it for visualisations and investigations. There will be an opportunity to learn how to use the two basic 'apps': Graphing and Geometry. Examples for using it in the GCSE and A level classroom will be explored, for both teacher demonstrations and student tasks.

We will also look at how to make use of the extensive collection of existing resources online. Delegates should bring a phone, tablet or laptop with the GeoGebra app/software installed. No previous experience of GeoGebra is required.

• GEOGEBRA FOR EXPERIENCED USERS

Improve your skills! This session will look at a number of tried-and-tested ideas for using GeoGebra in GCSE and A level. There will be an opportunity to learn how to use some of the more advanced 'views' Graphics 2, 3D Graphics, Spreadsheets (including for Statistics) and CAS.

Finally, a look at how to save to the web and how to make resources available on a variety of devices. Delegates should bring a laptop, mouse and power lead.

• TABLETS IN THE CLASSROOM

Improve your skills and share! Join this session to learn and share ideas about using tablets in the classroom. We will first look at the user interfaces of the two main players (IOS and Android), then look at the best of the apps that are currently available for mathematics: calculating, courses, graphing (including Desmos and the web version of Geogebra), statistics and general mathematics tools.

Tools that allow collaboration and sharing will be discussed. Bring your own discoveries along and share. Delegates should bring any device with a sensibly sized screen.
