

## **Special Casio New Technology Workshops**

**Gunnar Gjone**

### **2. Workshop on ClassPad 300 in the normal programme**

20-25 participants with their own ClassPad 300 or perhaps around 40 - 2 persons sharing a calculator. 45 minutes but shorter is also possible.

### **3. Workshop on ClassPad 300 in the Special Teachers Day Programme**

20-25 participants with their own ClassPad 300 or perhaps around 40 - 2 persons sharing a calculator. 45 minutes but shorter is also possible.

**Barry Kissane & Marian Kemp**

### **2. Workshop: Using a graphics calculator to learn about inferential statistics**

**Marian Kemp**, Statistics WG,

This hands-on workshop will focus on the ways in which concepts of inferential statistics can be introduced and reinforced through the use of a graphics calculator. We will use the statistical capabilities of the **Casio cfx-9850GB PLUS** in a range of ways. We will explore the links between confidence intervals, hypothesis testing and sample size and use these to consider how appropriate use of such a calculator can be used to enhance student understanding. Previous experience with this calculator is not assumed.

### **3. Workshop: Using a graphics calculator in secondary school pre-calculus classes**

**Marian Kemp & Barry Kissane**, ?? WG To be allocated,

Much of the activity concerned with graphics calculators has taken place at the senior secondary school level. In contrast, this hands-on workshop will focus on the potential influence of this technology on teaching and learning mathematics and on curriculum development in the pre-calculus secondary years. We will use the **Casio fx-7400G PLUS** calculator, designed for such an audience. Examples from Algebra (functions, graphs and equation), Number (Sequences, series and iteration) and Chance and data (data analysis and simulation) will be explored. Previous experience with this calculator is not assumed.

### **4. Workshop: Using a graphics calculator to learn about sequences and series**

**Barry Kissane**, ?? WG To be allocated,

Sequences and series are key concepts in senior school mathematics. This hands-on workshop will focus on the ways in which learning about them might be influenced by the availability of graphics calculators in the classroom. We will use the **Casio cfx-9850GB PLUS** to examine how sequences and series can be defined, represented, manipulated and explored. Key concepts such as explicit and recursive definitions and convergence of series will be involved. Prior experience with this technology will not be assumed.

### **5. Workshop: Algebra and the graphics calculator**

**Barry Kissane**, ??WG To be allocated,

Algebraic concepts are critical to the secondary school curriculum in all countries. This hands-on workshop will highlight the opportunities for developing these that are available to students and teachers when graphics calculators are regularly available in the classroom. Attention will be directed at expressing generality, understanding functions and solving equations and inequalities. We will use the **Casio cfx-9850GB PLUS** to identify the most important new opportunities offered to learners and to consider the impact of the technology upon the curriculum. Prior experience with this technology will not be assumed.

Ludwig Paditz

**2. Workshop in Normal Programme** for 10 (max. 20) participants (e.g. teachers). Here we need the **ClassPad300** for all participants of the workshop **and I think Kurt Klaner will support us with the technology (Kurt says ok)**

Time for a workshop: 45 (better: 60 or max. 120) min

**3. Special ClassPad300 Workshops for Polish and Czech/Slovak Teachers Day** (in English with translator) **Thanks Ludwig!**

I would be happy to work something with Polish and Czech teachers on the topic "How to work with the new Classpad300?". And Margaret could be the Polish translator and Ivan the Czech translator? **(I assume we have a class set of ClasPad300 we can use on the Special Teachers sessions for both Ludwig and Gunnar)**

I could demonstrate some elementary exercises corresponding with my new paper (in german): "Wissenschaftlich-technische Anwendungen mit dem grafikfähigen Symbol-Taschenrechner ClassPad 300" which I wrote for my students (they will begin in winter term 2003/2004) and which I attached for your information. And all participants could do something (the same demonstrated exercises) with an own ClassPad300.

Each of the participants could get the german paper and we could test something with the ClassPad300 - this could be a nice additional workshop.

**Ludwig has sent 10 pages which we can copy and (possibly!) translate**

**Krzysztof Nowakowski**

**1. MODELING WITH CASIO GRAPHING CALCULATORS FOR HIGH SCHOOL STUDENTS**

**During the workshops the various sets of data will be analyzed. We will start with the definition of correlation coefficient and try to estimate it by looking at the different point plots. Next, we will input the set of data into CFX 9850G PLUS Casio graphing calculator and explain the built-in tools to find the line that approximates the set of data the best. The logarithmic, exponential and trigonometric regression will be introduced and explained. More advanced participants should also find solution to these kinds of modeling, where correlation coefficient is not displayed.**