

Cambridge Maths Master Classes

Week 1

This week's session (17/11) 'Mathletics' was run by Dennis Richardson and Alan Thompson, both retired math teachers.

The first part of the session was an exciting, fast paced competition in which you worked on your table in a team (team names were mathematicians some of which were unknown-Alan Turing) competed with each other to earn as many points as possible! In total there were twenty teasing questions, making a maximum 60 points- the top team only scored 42! The scoring system meant that you got 3 points correct answer first time, 2 points correct answer second time, 1 point correct answer third time and 0 points wrong answer third try. The questions seemed simple at first but got harder and more confusing the further you went. You needed knowledge of: ratio, radius, fractions, percentages, addition, subtraction, division, multiplication and geometry to even have a shot at answering correctly!

The last part of the session was looking at working out and creating strategies to win games such as 'Nimu'. A simple game for two players in which seven counters are placed down. One player starts taking one or two counters then play continues with the same idea. The winner was the one who takes the last counter. We then moved on to discuss 1001 2p coins! "If you started every coin on heads, then flipped every one, then every 2nd, then every 3rd etc., right up to every 1001th what coins would you be left with on tails?" Dennis asked. After numerous guesses of prime numbers and other similar ideas, someone decided to actually draw out coins and flip them! We discovered it was square numbers due to their odd number of factors-finally!

Week 2

At the master classes this week we had David Spiegelhalter who works at the Medical research council and volunteered to help out at the master classes.

He has been on total wipe out and luckily got to the second round and nearly got to the 3rd round.

He worked on the shipman project, where he worked on statistics and found out we could have caught him earlier in the years gone by.

Week 3

This week's session (1/12) 'Excel-ling' was run by Alan Davies. He is assistant head at St Ivo's school. He is a maths and ICT teacher and started the master classes 10 years ago! He also was the county maths advisor. The session even though was run on a similar excel program was about thinking about why and how we think.....

The start of the session was getting to grips with the program. We made a euro converter using the current exchange rate in a formula to allow you to convert any number of UK currency into euros! We then started a spread sheet on a game in which you had to guess a number. We progressed that into, it being able to tell you higher or lower. We used a similar formula and layout to then guess a rule. In the end we finished on a magic square and after setting it up and creating formulas we

thought about how we found out the answers. All very brain numbing but interesting and challenging in the end!

Week 4

At the master classes this week we had a few more lecturers than before. They were all graduates of Cambridge University, so we were in safe hands. But our main speaker was Tore Butlin. We learnt about maths in music.

One experiment we did was putting coffee on a speaker then changed the frequency of the sound and saw what patterns came up, it was really interesting.

Week 5

This week was run by Liz Crooks, a math teacher at Long Road sixth form college, Cambridge. This session was all about logic puzzles. Liz took this idea when she saw Ian Porteous run the session in Liverpool. Liz is a member in the committee and first got involved when her own children came.

With 2D and 3D puzzles there was a broad range of puzzles to try and although some were difficult and confusing, overall they were all a lot of fun! My favourite puzzle was a 3D building puzzle. You had to fit the shapes into a cube: by trial and error we finally managed it. Other teasing puzzles included fitting shapes into other shapes such as a circle or cube. This session was teasing, fun and helped build on our skills of logic. This session

Overall I've really enjoyed the sessions and would like to do it again. I hope these sessions continue for students in following years as they help develop skills across Mathematics. Thanks to Dennis and his crew!

By Annie and Karis