Carom

The story of an A Level extracurricular maths group

It's Thursday lunchtime, and my classroom is hosting a *Carom* session. We are not a large group, but each week we meet to discuss beautiful bits of mathematics that the syllabus in its wisdom decrees are less essential than The Useful Stuff like partial fractions, vectors and the Sin Rule (although, of course, I realise these are beautiful too in their own way.)

I look on amazed. My fellow Caromites are leaning back in their seats, howling with laughter. 'So it doesn't matter!' they are screaming. 'Brilliant! It doesn't matter!' So how had I provoked my group into this ribaldry?

'Today's topic is infinity,' I'd begun, innocently enough.

Ten minutes later: 'Ah! So the infinity describing the rationals and the infinity describing the natural numbers must be the same,' says Beth.

Five minutes on: 'Ah! So the infinity represented by the real numbers must be a bigger infinity than this,' exclaims Stephen.

Breathlessly I ask, 'Might there not be an infinity BETWEEN these two infinities? Kurt Godel showed in 1940 that it was impossible to prove that such an infinity exists…'

My voice becomes reverential: 'Then in 1963, Paul Cohen showed that it was impossible to prove that such an infinity does NOT exist! Mathematics works perfectly well, without contradictions, either way! So you can't decide if this middle infinity exists or not - it doesn't matter!'

Somehow the idea that the crowning achievement of your mathematical life should be the phrase, 'It doesn't matter!' struck my disrespectful protégés as completely hilarious. 'What a good day's work that was! Ha, ha, ha!' said Stephanie.

In my early years teaching at Paston college, I often helped out the theatre department with music for their shows. It was clear to me that a student would hold on to powerful memories from contributing towards these shows, memories that would probably be stronger than those provided by any funded exam course run strictly along syllabus lines. I asked one of the theatre directors once, 'Which is more fundamental, curricular work, or extra-curricular work?'

He smiled, and said, 'Extra-curricular work is more important. The relationships you form with students there are deeper than those formed during curriculum work.'

I think he was right. And of course, those extra-curricular relationships are then taken back into the classroom, with hugely positive effects.

What can a maths teacher do, then, to foster life with his students outside the classroom? He can't obviously put on a maths play, as the Drama department might, or show off videos of student maths

coursework in the way that the Media department does, or take part in mathematics sporting leagues on a weekly basis in the way that the PE department does. My solution has been to run a lunchtime maths group called *Carom*.

I've run this group for maybe the last eleven years – sometimes it has been just me and one student, as they try to learn extra material for Oxbridge. At other times I've had a group of ten, as I have this year. The word 'carom' is defined as 'a rebounding', for example, on a billiard table – others will know the carom ball in cricket is becoming fashionable. As an acronym for us, *Carom* stands for 'Creative Activities Resulting in Offbeat Mathematics.' The offbeat aspect stands for 'off-the-beaten-track' – this is stuff that syllabuses don't cover. The goal is simple – to take a look at sweet maths that we wouldn't otherwise have time for, and to broaden our minds mathematically.

How does it work? Each Monday morning, I send out preparation material in the form of hopefully imagination-busting questions. We get together for Thursday lunchtime (50 minutes in our college) and while munching our sandwiches we see what people have managed on these. Then we have 20 minutes of us DOING maths together – if this doesn't, happen Carom becomes a lecture, and no one comes (quite rightly). For the last fifteen minutes, I can then gather up our thoughts and explore further theory with the help of a Powerpoint. This is quicker than I would like, but if anyone there wants to access the file afterwards, they can.

A good *Carom* session is the best fun I have all week. The material sometimes allows surprising people to shine, and since none of it is examined, we can have a laugh and a chuckle, and with the tension off, students learn in new, confidence-building ways.

I know as teachers we are all up against it time-wise (I can really only find the time for *Carom* easily because I'm part-time), and a

lunchtime a week is precious, but if you can manage to find this space in your day from somewhere, you and your students will be amply rewarded.

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Jonny's resources for Carom are at **www.carom-maths.co.uk**.
These are a first draft – if you have any suggestions for improvements, please email him.

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