

What they say about us...



The National
**Mathematics
and Science**
College

A young man with dark hair and glasses, wearing a dark blue school uniform jacket, a white shirt, and a red tie, is looking through a microscope. The background is a soft-focus laboratory setting.

THE
GOOD
SCHOOLS
GUIDE



**GO FURTHER,
COME RUN WITH
THE SWIFT.**

PRINCIPAL

THE
GOOD
SCHOOLS
GUIDE

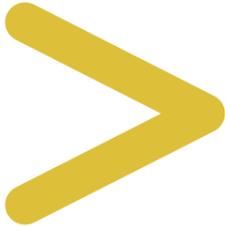
Since September 2020, Andy Kemp BSc MSc EdD MBA (40s). Headhunted for the role while head of Stephen Perse Foundation Senior School, although the fact that (a) he had never even heard of the college and (b) Stephen Perse was something of a family affair (his wife, Ruth, is a maths teacher there and their two daughters both attend the school) meant he took some persuading. 'But, as with the students, once I understood the concept of the college I found it impossible to resist.'

The plan was for the family to move from Cambridge but since Covid put a spanner in the works he's currently resigned himself to a long commute (audio books help - currently Colin Dexter's Inspector Morse series) and some overnight stays nearby.

Not so much chose a teaching career as stumbled upon it. Growing up in Surrey, he had 'absolutely no idea what I wanted to do' and wound up picking medicine, then maths and philosophy before finally settling on pure maths ('what I should have chosen in the first place') at Warwick. Dabbled with the idea of ordination, worked in a bookshop for a year, then taught in an evening college as a stop gap where it turned out he had quite a knack in the classroom. So back he trotted to Warwick for his PGCE and latterly part-time to complete his master's and doctorate in maths education. No wonder he sees the college, which is perched on the edge of Warwick University, as 'something of a homecoming.' He also holds an MBA from UCL.

His 18 years in teaching spans across Warwick School, Taunton School and Wells Cathedral Senior School before Stephen Perse - 'means I've been able to take the best from each,' he says. 'Not that I've brought in anything other than subtle changes to the college so far - mostly dull procedural stuff like recruiting a head of curriculum and integrating boarding so it doesn't feel like an add-on.' We think (and parents agree) that he undersells himself as his positive energy sets the tone, his communication keeps parents well informed (no mean feat when they're dotted around the world) and his proactive leadership keeps everyone on their toes in this ever more stimulating environment. 'Supportive, 'always available' and 'friendly,' say students.





One of the most selective sixth form colleges in the country. We're talking students for whom 8s and 9s at I/GCSE comes naturally (or would do, as nearly all come from overseas) in the subjects they want to study. Three to four applicants for every place, all of whom sit the college's own assessments in maths and English, plus attend an interview to explore interests and aspirations (expect some maths problems to be thrown in too – 'usually the student's favourite bit!' laughs the principal).

Most apply to the two-year A level programme, though some (eight, the year we visited) are advised to join some or all of the one-year pre-A level programme – generally those whose English is weaker or who are a bit rusty in one of the sciences (eg they've decided they want to go into engineering but haven't studied physics for a while). Some students (usually around 10 a year) opt for the Medical Pathway Programme which enhances the core A levels with eg outside speakers (recently a live kidney donor to talk about the patient's experience), additional learning and debates. 'Have you thought about volunteering?' asks one of the questions on the MedSoc noticeboard, and 'Where's your evidence of wider reading?'

ENTRANCE



"Truly a rainbow of nations, with students coming from all over the world."

EXIT

No prizes for guessing the type of degrees most students go on to. Yup, it's STEM, STEM and more STEM eg mechanical engineering, computing, natural sciences, aerospace engineering – although, to be fair, some do read subjects such as law, PPE, criminology and economics and management. Usually around a quarter of students to Oxbridge (four in 2020), and a further quarter to Imperial and UCL. Others to Warwick, Bristol, Manchester, Leeds and Liverpool. The international cohort means overseas universities are also popular, increasingly in north America, with students having recently gone off to eg UCLA and Penn State University. No medics in 2020, though more are expected in future years, following the launch of the Medical Pathway Programme in 2019.



LATEST RESULTS

In 2020, 91 per cent A/A at A level.
In 2019 (the last year when exams took place), 61 per cent A*/A at A level.*



"The aim here is to ensure they experience what it is like to be to be a scientist, not just learn about what other scientists have done."

These classrooms are home to some serious brainboxes who are itching to maximise their potential at every turn. Such is their hunger to challenge themselves that the line between lesson time and spare time is among the most blurred we've seen. We came across one student who had given up his free period to solve university level physics problems 'for fun', while a recent maths modelling competition saw more students champing at the bit to give up 14 hours of their weekend than were even allowed to enter.

In fact, the college claims to be the highest performing school in the country per capita when it comes to national and international Olympiads and competitions, which (unusually) form part of the curriculum. For the last three years, they've had at least one student make the final team to represent the UK in the international Olympiads and students have achieved countless gold medals and awards in the various maths and science competitions.

TEACHING AND LEARNING



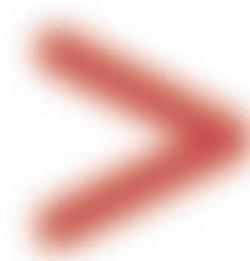
This is an unashamedly specialist STEM sixth form college offering A levels in maths, further maths, biology, chemistry, physics, computer science and economics – of which most students take maths and further maths plus two others (though some focus on three). Significantly, further maths is treated as a full A level – 'To do it in the minimum time, as many schools do, takes all the fun out of it, so we give them time to indulge and space to do interesting maths around the edge.'

Like all sixth form colleges, it sees itself as a bridge between traditional schooling and university, with a focus on seminar style learning and practicals – in chemistry alone, the students complete over 200 practicals across the two year course. 'The aim here is to ensure they experience what it is like to be to be a scientist, not just learn about what other scientists have done.' You can imagine the disappointment of lockdown, 'but the staff were very good about continuing demos online,' said a student who added, 'in fact, they were very good generally across the pandemic, making sure we still had a full timetable and pastoral backup.' In a biology class we sat in on, the teacher gave all the students coronavirus, dengue fever and other viruses (not literally of course) and challenged them to turn the images into origami, an innovative way to get them thinking about structure and how they work. Even in maths, surely the most theoretical of subjects, teachers stretch students beyond traditional methods of learning. And with the EPQ, which all students start, around half get so carried away with the practical aspect of their chosen project that they decide to focus on that rather than writing it up – 'We leave it up to them as the main thing is to enjoy the learning,' the head of EPQ told us.



'The truth is we're all a bit geeky and the opportunity to work with exceptionally bright kids stretching the curriculum is just glorious,' said the principal on behalf of the 12 members of teaching staff who take no persuading to go above and beyond – most recently hosting webinars on eg the chemistry of love and on how the Covid vaccine works in granular detail. 'The calibre of teachers is impressive and they all make it clear that no question is too silly – it's a learning environment after all,' said one student, while another told us, 'You're told at the beginning that you'll never be bored in lessons here and it's true.'

Classes sizes are an average of eight and a maximum of 12. The day is split into six hourly lessons following 8.20am registration, though the college is currently exploring whether a later start might be better suited to the circadian rhythms of teenagers. 'There's a lot of testing – at least once a week, but we don't mind as it's helpful,' said a student. 'But there could be more focus on careers advice,' reckoned a few parents.



LEARNING SUPPORT AND SEN

Mild SEN catered for, though only one formal diagnosis when we visited. All support so far has been in class – ‘Classes are small so teachers flex teaching accordingly, although we would organise one-to-one support if required,’ says principal.

A SENCo oversees all support via regular meetings and support plans where necessary. Many students, particularly those on the autistic spectrum, are undiagnosed (often due to the stigma that remains in some countries, thinks principal) and they have access to a small group providing informal support.

EAL is more common than not here due to the majority coming from overseas. These students are tested on arrival and placed in small classes based on ability where they follow Cambridge English (KEY, PET, B2 First, CAE) and IELTS courses depending on the year group. Students who need further support attend extra one-to-one lessons to develop both academic and informal language. If a student gains their IELTS certificate early, they attend advanced lessons to hone their interview skills and develop critical thinking skills about global events.



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STUDENT

Given the college's name, you could be forgiven for thinking drama wouldn't be high on the agenda. But you'd be wrong. Every Saturday morning, students are expected to drag themselves out of bed at 10am (the unpopular bit) to attend a drama programme at the Belgrade Theatre in Coventry (or onsite during Covid) for compulsory drama lessons leading up to a production in the summer term (the popular bit). 'It's good for our confidence and public speaking, as well as bringing us together as a group,' said a student.

The Steinway grand piano in reception suggests music isn't side-lined either – students told us that this, as well as the guitars (and soon to be electronic drums) in the common room, are regularly played for pleasure (including by self-formed bands) and a bunch of peripatetic teachers comes in for instrumental lessons. The college choir attracts decent numbers and performs a range of modern and classical pieces at events across the year.



THE ARTS AND EXTRACURRICULAR



The only art is via art club and house art, of which we saw evidence on a small gallery wall. Other house competitions include cookery, talent shows and coding – just before our visit the house competition was to write some code in python to calculate as many digits of Pi as possible in 60 seconds, with the winning house getting a lemon meringue pie baked by the head of maths!

Where extracurricular really comes into its own is via the societies programme – again, on curriculum (two lessons a week). These bright young things can't resist these opportunities ranging from the targeted and practical such as PATSoc (preparation for the Physics Assessment Test), MedSoc, ChemSoc, NatureSoc or MathsSoc to the more esoteric such as PhiloSoc, CodeSoc, PySoc and TechSoc (which looks at programming and robotics). There's also JournoSoc who write the college magazine (The Coventry Comet), MUN and debating, while more social activities include ChessSoc, ArtSoc and GameSoc. One student we met had set up a crocheting and knitting society, which had made 40 hats for premature babies in a local hospital. Trips range from the curricular (university lectures and workshops, science fairs, Bletchley Park etc) to cultural (including Oxford, Stratford-upon-Avon and London) and sport (eg ski trips).





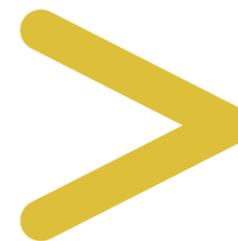
"An exciting community where bright and like-minded students have a whale of a time challenging both themselves and each other and are privy to some of the best STEM centred teaching around!"

> *SPORT*



'I came here for the sport,' aren't words you'll hear uttered here – even the principal uses the word 'afterthought.' But despite the college's small size and unapologetically academic bent, it does offer free access to the local sports centre with gym, pool, courts and exercise classes, all just a three-minute (possibly nearer five for those who use it the least) walk away.

Warwick University's climbing wall, one of the best in Europe, is also on the doorstep – made good use of by the college's climbing society. There's American football, ultimate frisbee, basketball and football if enough interest can be drummed up – these also get played in the one-and-a-half hours per week that's given over to sport (all self- managed, not taught). The inter house sports competitions go down well too, with table tennis the most keenly fought.



Almost everyone boards or (for under 16s) lives with local homestay families – 42 were in the halls of residence when we visited and 14 lived with families, with two students learning online due to Covid. Boarding is full-time only, so no mass exodus at the weekends although students do occasionally have the odd weekend away with all the relevant permissions. Those who stay have the option to get involved in activities such as go-karting, Alton Towers and escape rooms. During weekdays, there's (the not universally popular, it has to be said) two hour study time from 7-9pm following dinner, after which it's 'quiet time.' 'The boarding staff are excellent,' a parent told us – 'the students are very well cared for in a warm and friendly atmosphere.'

In September 2022, the college will open its own purpose-built boarding house immediately behind the teaching block, allowing them to increase the number of boarders to 140. Until then, they share one of private halls of residence used by the University of Warwick, handily located just to the side of the college, taking up three floors of rooms (all single, all ensuite) each with a communal kitchen space shared between every seven to eight rooms. Modern, clean and almost hotel like (bar the odd fridge etiquette notice and tell-tale jars of chocolate spread and white loaves by the toasters), we would have happily laid our heads here for the night (and believe us, we don't say that about too many student digs). The rooftop terrace even has an interior private dining room you can hire out for when family come to visit, while the downstairs communal areas have stunning breakout areas including gaming and pool tables.

No need to fear the thought of drunken undergraduates either as most of the other residents are PhD students and in any case there's little or no mixing with them.



"A college, yes, but somehow it's so much more, with this meeting and stretching of brilliant minds almost certainly sowing the seeds of some of tomorrow's greatest scientific and mathematical innovations."

BOARDERS



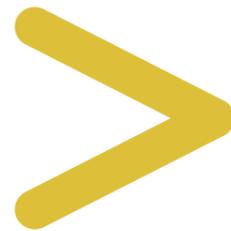
ETHOS AND HERITAGE

In 2011, the college's founders Dr Martin Stephen (former head of MGS, St Paul's and The Perse) and Geoffrey Robinson (former MP for Coventry) decided there was a need for a specialist STEM college. Their idea was to prepare the world's best students for reading maths, science, medicine and other STEM disciplines at top universities. Following several years of planning, the college opened its doors in 2016 to around 20 students. Numbers are now in the 50s (with a 60:40 gender split of boys to girls and 50:50 among teaching staff), with the longer-term aim to reach around 150.

Our drive to the college took us right through Warwick University - not a bad way to get the scholarly juices flowing ready for a visit to this most academic of hubs. The college is located just where you head out of the university campus and into a business park. Once a vast open plan office for local government ombudsmen, it has been cleverly repurposed with a mixture of glass (to give the feeling of space) and partitioned (so they can easily removed or added to flex to changing student numbers and needs) walls.

The result is a contemporary space befitting these most modern of students who will not doubt be shaping our tomorrows. Think black Barcelona chairs, corridors of wall-to-wall shiny white lockers ('300 of the things - we only need half that!' laughs the principal) and minimalist classrooms downstairs, with more practical spaces for the sciences upstairs. Getting from A to B can be time consuming - in a good way - thanks to the whiteboards of regularly updated maths problems that students race to be the first to solve, plus the walk-through library where you'll never hear 'Shhhh... don't talk' but are likely to hear, 'Oh, what are you reading?' (there's a separate space for quiet study). The biggest facilities challenge is the lack of canteen, though the new boarding premises will solve this problem - until then, the large common room doubles up.

There's a cerebral, professional and mature vibe throughout. Not for these students the jeans and hoodie look of most sixth form colleges - instead, they are suited and booted to look their Sunday best; ditto for the staff. Smart and sharp, right to the core.



Parents enthuse about a distinct family feel, undoubtedly helped by the small size - this is a place where everybody knows everybody. Student wellbeing is a priority, with small tutor groups that meet regularly, and there's a visiting counsellor. Unusually for a college, there's a compulsory PSHE programme delivered by specialists - students were tackling the timely issue of consent when we visited. With such a self-motivated bunch, disciplinary issues are practically non-existent, occasional lateness or oversleeping are the biggest behavioural issues they have to contend with. Student council suggest tweaks mainly related to sport and food, the latter having improved dramatically in recent weeks as our deconstructed chicken pie testified. No cliques to speak of, say students.



PASTORAL CARE, INCLUSIVITY AND DISCIPLINE

PUPILS AND PARENTS

Truly a rainbow of nations, with students coming from all over the world – usually around a quarter from China, a quarter from Russia and the rest from eg America, Belarus, Iran, South Korea, Latvia, Malaysia, Malta, Thailand, Uganda, Ukraine, Uzbekistan and Vietnam, though this list changes year on year. Just one student from the UK when we visited, though the college would like to see more.

Most are self-confessed nerds, relieved to have found kindred spirits; the ones we met were reserved, uber polite and highly ambitious. In most cases, it's they who discovered the college, with their parents – usually middle-class and highly aspirational for their children – having had minimal input. Pre- Covid, even parents' evenings were with the students only, though the college is now inviting parents to join by video.

MONEY MATTERS

Day fees average for the area; boarding fees at the more expensive end, reflected in the quality of boarding accommodation. All fees inclusive of EAL provision where required. Around a quarter of students are on some sort of academic scholarship – these cover anything from a nominal sum to up to 50 per cent of fees and, in some means-tested cases, 100 per cent.



“One of the most selective sixth form colleges in the country..”

THE LAST WORD

An exciting community where bright and like-minded students have a whale of a time challenging both themselves and each other and are privy to some of the best STEM centred teaching around. A college, yes, but somehow it's so much more, with this meeting and stretching of brilliant minds almost certainly sowing the seeds of some of tomorrow's greatest scientific and mathematical innovations. 'Psychologically, my son immediately felt comfortable in this environment – it's as if it was made for him,' said one mother.



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