

The National Mathematics and Science College

No 2 The Oaks, Westwood Way, Westwood Business Park, Coventry CV4 8JB

Inspection dates

1–3 May 2018

Overall effectiveness	Requires improvement
Effectiveness of leadership and management	Requires improvement
Quality of teaching, learning and assessment	Good
Personal development, behaviour and welfare	Good
Outcomes for students	Good
Sixth form provision	Good
Overall experiences and progress of children and young people in the boarding provision	Good
Overall effectiveness at previous inspection	Not previously inspected

Summary of key findings for parents and students

This is a school that requires improvement

- The school does not meet all of the national minimum standards for boarding schools.
- The proprietor has not ensured that the college is operating within its registration. At the time of inspection, one student exceed the registered age range.
- Staff changes have negatively affected the delivery of economics. As a result, students have not made good progress in this area of the curriculum.
- Until recently, a management board oversaw the college. This board did not routinely check the work of the college. Students' admissions, for example, were not completed in line with DfE guidance.
- A few staff do not implement the school's assessment policy consistently. As a result, some teachers do not provide students with clear information on how they can improve their work.

The school has the following strengths

- In a short space of time, the new principal has demonstrated the capacity, expertise and commitment to improve the college's work.
- Attendance is good for all students. Students arrive on time and are fully prepared for their learning.
- Teaching and learning are good. Teachers use the information about students' prior learning and their specialist subject knowledge to plan and deliver engaging lessons. As a result, students make good progress from their starting points.
- Leaders have ensured that all independent school standards are met.
- Students' behaviour is outstanding. Students' consistently positive attitudes have a strong impact on the good progress they make.
- Students learn how to keep themselves safe and students say that they feel safe.
- Students learn about different cultures and faiths through a wide range of well-planned activities. As a result, they show respect for different beliefs.

Compliance with regulatory requirements and national minimum standards for boarding schools

The school must take action to meet the requirements of the schedule to the national minimum standards for boarding schools and associated requirements. The details are listed in the full report.

Full report

What does the school need to do to improve further?

- Further develop leadership and management at all levels, including governance, by:
 - making sure that the proprietor checks that policies and procedures, including in the boarding provision, are implemented consistently by all staff and that suitable action is taken when they are not
 - further developing the leadership team to make sure that all leaders understand their roles and responsibilities in order to carry out their roles effectively, particularly with regard to the boarding provision
 - making sure that all teaching staff consistently apply the assessment policy
 - ensuring that students are able to make consistently good progress across the curriculum
 - establishing more rigorous checking and monitoring systems, including the recording of the storage and administration of medication in the boarding provision and processes for admissions, to ensure that the college complies with its registration.
- The college must take action to meet the requirements of the following national minimum standards for boarding schools and associated requirements:
 - All medication is safely, and securely stored and proper records are kept of its administration. Prescribed medicines are given only to the boarders to whom they are prescribed. Boarders allowed to self-medicate are assessed as sufficiently responsible to do so. (NMS 3.4)
 - Boarding accommodation is reserved for the use of those children designated to use it and is protected from access by unauthorised persons. Any use of school facilities by individuals or groups does not allow members of the public (including members of organised groups using school facilities) substantial and unsupervised access to pupils, or to boarding accommodation while occupied by pupils. (NMS 5.7)
 - The school's governing body and/or proprietor monitors the effectiveness of the leadership, management and delivery of the boarding and welfare provision in the school and takes appropriate action where necessary. (NMS 13.1)
 - Any staff member or volunteer employed or volunteering in a position working with boarders has a job description reflecting their duties, receives induction training in boarding when newly appointed, and receives regular reviews of their boarding practice, with opportunities for training and continual professional development in boarding. (NMS 15.1)
 - The staff supervising boarders outside teaching time are sufficient in number, training and experience for the age, number and needs of boarders, and the locations and activities involved. (NMS 15.3)

Inspection judgements

Effectiveness of leadership and management	Requires improvement
The effectiveness of leaders and managers in the boarding provision	Requires improvement
How well children and young people are helped and protected in the boarding provision	Good

- The proprietors have not ensured that the national minimum standards for boarding schools are met in full. For example, processes for the safe and secure storage of medicines are not fully implemented and understood by all staff.
- Students are accommodated in multi-storey student accommodation. Arrangements for access to the boarding provision and recreation areas do not fully ensure the students' safety as students have opportunities to mix with students from other establishments. Leaders have reduced the level of risk through increased vigilance and the introduction of closed-circuit television. However, there remains a slight risk that other students could gain unauthorised access to the storey on which the college students reside. Leaders had begun to address these minor issues during this inspection.
- At the point of inspection, arrangements for the admission of students to the college had not been checked sufficiently. As a result, a small number of students exceeded the registered age range during this academic year. Although the college has taken immediate action to rectify this, the processes for checking the admission of students have not been rigorous enough over time.
- Leaders have not ensured that current practice reflects the systems detailed in the boarding policies. As a result, leaders cannot be sure that staff are carrying out their roles and responsibilities in line with the college's procedures.
- There have been recent changes to the leadership team. The new principal has taken swift action to improve the college, including the implementation of new systems for recording and monitoring students' progress and improving reporting to parents. As a result, parents are well informed on the progress of their children.
- Staff in the boarding facility receive induction training in a range of areas. However, there is no ongoing training plan to keep staff up to date with current practice. The lack of staff reviews means that staff do not continue to develop and improve their practice.
- A rigorous system has been introduced for the appraisal of teachers' performance. The system takes into account teacher observations and students' progress over time and identifies areas for improvement. As a result, teachers have a clear understanding of how to develop their practice to influence students' outcomes positively. The vast majority of staff say that leaders use training to encourage and challenge them so that they improve their practice.
- Systems for checking the quality of teaching and learning are robust. As a result, leaders have an accurate view of the quality of teaching, learning and assessment and know where improvements need to be made. Consequently, leaders are quick to challenge performance that does not meet their high expectations.
- The number of students who have special educational needs (SEN) and/or disabilities is

extremely low. Those who fall behind are quickly and effectively identified and supported. Most of the students require language support to enable them to fully understand the work when they first join the college. The work in students' books shows they have been able to catch up and make good progress as a result of highly effective additional support.

- Rigorous checks on pupils' progress enable staff and leaders to identify students who are struggling to grasp advanced concepts. The college has successfully developed a foundation year in mathematics and science to cover key knowledge, develop critical study skills and to fill gaps in students' learning. The college's information shows that students are making good progress in these subject areas. The work in students' books supports this.
- Staff are highly positive about the recent changes in leadership. They say that leaders have created a climate in which teachers are trusted to take risks and innovate in ways that are right for the students. As a result, all staff say that the school is well led and managed.
- The curriculum is broad and balanced. There is a high focus on English, mathematics and science. However, students also study personal, social, health and economic (PSHE) education, careers education and economics. Consequently, students develop personal and social skills that prepare them for the wider world and for their next stage in education or employment and training.
- The college provides rich opportunities for students to develop spiritually, morally, socially and culturally. Students learn about British history through educational visits, including to Bletchley Park and the Houses of Parliament. Students enjoy these experiences and say 'it is truly fascinating'. There are regular opportunities to learn about other students' cultures. For example, a recent 'cook off' enabled students to prepare and sample dishes from their own and other countries including Russia and China. Staff make sure that students understand and appreciate the differences between life in their home country and Great Britain, for example in relation to public institutions. As a result, students are well prepared for life in modern Britain.

Governance

- The college was established by a board of directors who have a clear vision for excellence for all students. They are highly ambitious for all students. There is a strong focus on developing the college further through overseas relationships to support recruitment into the college. All directors and governors share the vision 'to become world class'.
- The board has evolved to include personnel with educational and professional backgrounds to provide additional support, challenge and scrutiny. Prior to this, the monitoring of some systems had not been routinely carried out. Although the principal shows a strong awareness of the way that boarding provision works, the governors and trustees do not robustly monitor the effectiveness of the leadership, management and delivery of boarding provision in order to identify and address areas for improvement.

Safeguarding

- The arrangements for safeguarding are effective particularly in the educational provision. The college has a detailed policy that meets current legislation. The policy is available online. Access arrangements are also in place for speakers of other languages.

- The college has two designated safeguarding leaders that have a clear understanding of their roles and responsibilities. Staff are trained in all aspects of child protection. They are highly vigilant and know how to recognise the signs of neglect and abuse. Staff have also been trained in recognising the signs and symptoms of female genital mutilation and child sexual exploitation.
- Staff are clear on processes for reporting and recording concerns, including responding to incidents of children who go missing. Incidents are extremely rare.
- Staff are highly vigilant. Although the majority of students are post-16 learners, staff supervise students well when they attend the college. They accompany students to lunch and have secure processes around arrival and departure times.
- Students learn how to keep themselves safe. As a result of carefully planned sessions, students know about online dangers and the risks associated with sexual exploitation and radicalisation. Students say that they feel safe in the college and in the boarding accommodation.

Quality of teaching, learning and assessment

Good

- The quality of teaching, learning and assessment is good. Students make consistently good progress in English, mathematics and science. There has been some turbulence in the delivery of economics that has resulted in a small number of students not making good progress from their starting points. Leaders have recognised this and have taken action to help students to catch up. It is too early to see the effect of this intervention.
- The vast majority of teachers use highly effective questioning to deepen students' conceptual understanding further. Where this is most effective, teachers include all students in this questioning so that misconceptions are quickly identified and challenged, and all students make strong progress. Where this is less effective, teachers use questions that do not meet the needs and aptitudes of all students. As a result, a small number of students are not challenged or supported sufficiently.
- Teachers are highly specialised in their subject areas. They are deeply passionate about the subjects they teach. Consequently, the majority of students are focused on and highly committed to their learning.
- Teachers know their students well. They use information about their students' prior learning to plan and deliver lessons that meet their needs and challenge their thinking. Appropriate challenge is provided for the most able students. Staff provide effective additional support for those who fall behind. This has a positive effect on the vast majority of students' progress.
- There is a strong culture of learning and achievement both in and outside structured lesson times. The college has introduced break-out areas that are provided with highly challenging mathematical and scientific problems and moral dilemmas. Students work through these tasks during breaktimes, where they support and challenge one another to solve problems. As a result, they are developing resilience and the ability to work with others.
- The vast majority of students arrive at the college with limited English language skills. Throughout the college there is a strong focus on immersion into English language. Staff develop students' language and communication skills effectively throughout the

curriculum. Students engage in frequent debates and discussions to help practice linguistic skills. The college promotes 'English only' areas where students further develop their speaking and listening skills. The work in students' books shows improvements in written English over time through increased fluency and wider use of language.

- In mathematics, the level of challenge is appropriate to all students. Similarly, those who are at risk of falling behind are quickly identified and supported. Teachers plan learning opportunities that foster new mathematical concepts and methods. As a result, students develop critical problem-solving skills. They demonstrate resilience and think for themselves when beginning new learning or when attempting to solve mathematical problems.
- In science, students engage enthusiastically in practical experiments. They make valuable links to previous learning to make accurate predictions and to consider the impact of variables. As a result, they master scientific enquiry skills and deepen their knowledge and understanding.
- Relationships between staff and students are highly positive. These interactions underpin students' learning. Teachers use learning tasks that encourage the vast majority of students to think for themselves. Students are welcomed into college life through a strong social emphasis on learning. As a result, they engage well, are motivated and value their teachers.

Personal development, behaviour and welfare

Good

Personal development and welfare

- The college's work to promote students' personal development and welfare is good. The vast majority of students arrive at the college with clear future plans and many have chosen their preferred universities. Destinations information for the current students is extremely positive, with some students receiving offers for universities including Oxford and Cambridge. The college supports students well in setting aspirational targets to meet entry requirements. There is a strong focus on preparation for higher education. As a result, students are well informed and know what is expected of them to be successful in their next phase of learning.
- Careers advice and guidance is effective. Students have regular opportunities to visit universities and share their experiences with their peers. Regular visitors attend the college to talk to students about career opportunities not only in mathematical and scientific industries, but other sectors including information and communication technology. As a result, students are able to make informed choices about the next phases of their education.
- Students in the boarding provision have access to independent advocates if they wish to use them. They understand how to raise concerns if they feel the need. As a result, students say that they feel listened to and well supported.
- Leaders have implemented a thematic approach to form time. Themes are drawn from historical events, social and moral topics and cultural occasions. Students talk about these sessions with excitement. They reflect on learning about British and world history including the Holocaust, the civil rights movement and genocide. Students also learn about and discuss controversial issues such as cloning and artificial intelligence. These

wider experiences underpin and strengthen the curriculum. As a result, students are thoughtful and display reflective and caring attitudes. Their understanding of the world around them prepares them well for life in wider society.

- Medication arrangements in the boarding provision are basic. No secure storage is in place for medication. Recording does not clearly show the medication that has come into boarding and if it has been administered. New documentation regarding medication and health plans is in place but not yet fully implemented.

Behaviour

- The behaviour of students is outstanding. The college has a behaviour policy based on high expectations. This is implemented consistently by all staff and as a result, students demonstrate high levels of respect for staff and their peers.
- Behaviour management arrangements in the boarding provision are appropriately organised and poor behaviours are responded to appropriately, although incidences are extremely rare.
- Students listen to and value the ideas and opinions of others through regular discussion and debates. Their excellent attitudes to all aspects of their learning are consistently positive and have a strong bearing on the progress they are able to make.
- Students are polite and welcoming during both lessons and unstructured times. They are proud of their college and of their achievements. They take pride in their appearance and show respect for their surroundings. As a result, the college is an orderly environment where lessons flow smoothly and without interruption. Students are self-disciplined, and incidences of low-level disruption are extremely rare.
- Students value their education, they enjoy school and rarely miss a day. They arrive on time and are well prepared for their lessons. They recognise how education prepares them for the future. As a result, attendance is well above average.
- Students take pride in their work. Presentation in books is exemplary, with attention paid to detail and teachers' feedback. As a result, students learn from mistakes and develop good organisational skills.
- The use of derogatory or offensive language is extremely rare. Students who spoke with inspectors said that they had not witnessed any bullying or inappropriate behaviour. They are confident that staff would resolve problems should any occur.

Outcomes for pupils

Good

- Outcomes for students are good. The vast majority of pupils have made good progress from their individual starting points in English, mathematics and science.
- In 2017, attainment in mathematics at iGCSE and AS level was well above national average. All students entered for these examinations achieved A and A* grades.
- Progress in economics has been hindered by changes in teaching staff. The college has firm plans to address this. It is too early to see the effect on results for current students in this area of the curriculum.
- Teachers use assessments to establish students' starting points. The vast majority of

students arrive with limited language skills, resulting in lower starting points than those typical for their age. This has an impact on their ability to access the wider curriculum and grasp key concepts. There is a highly effective approach to developing language skills through immersion in language, learning pronunciation and having opportunities to practise communication skills. Students also have regular opportunities to read aloud. They enjoy poetry and historical accounts. This has resulted in significant improvements in both written and spoken communication. As a result, the vast majority of students develop fluency in language and make progress across the wider curriculum from their starting points.

- Teachers assess students frequently in all subject areas. Leaders have developed a thorough reporting system to track and monitor students' progress. Assessment draws on what students already know and can do across the curriculum. The college's information shows that the vast majority of students make good progress from their starting points in most subjects. The work in students' books supports this.
- The work in students' books shows good progress from starting points. Tasks increase in challenge over time and resilience is developed, evidenced by students' approaches to solving problems. In English, students' written communication shows gains in fluency and sophistication. As a result of immersion into language and regular opportunities to practise their skills, their language and vocabulary widens.
- Leaders are highly ambitious for all pupils. As a result, the vast majority of pupils participated in the annual Olympiad competitions in mathematics, chemistry, biology and physics. A high number of these students entered the competition a year early. Students are extremely proud that most students were awarded gold and silver medals.

Sixth form provision

Good

- Leaders have ensured that all of the independent school standards in relation to the sixth form are met. The curriculum, therefore is appropriately matched to the ages, needs and aptitudes of students.
- Teaching and learning in the sixth form provision are good. Teachers use prior information to plan lessons that engage and motivate students. The most able are challenged appropriately and those who fall behind are supported effectively. The college's information shows that the vast majority of students make good progress.
- Leaders are quick to identify those who are at risk of falling behind through the rigorous monitoring of assessment information and students' work. As a result, effective intervention strategies are in place to ensure that they are able to catch up and close any gaps in learning.
- Programmes of study in the sixth form are individualised based on students' prior attainment. Teaching takes into account students' aspirations and their chosen study path. Their targets are based on the entry requirements of their chosen universities, ensuring that they are well prepared for the next phase of the education or employment and training. Students make applications through Universities and Colleges Admissions Service (UCAS) and are fully supported by staff in preparing strong personal statements. The college's information shows that the vast majority of students are on track to meet their aspirational targets and to achieve entry to their planned destinations.

- Students are highly committed to their learning. Attendance is well above average, pupils arrive on time and are well prepared for their lessons. Academic subjects are taught alongside PSHE and enhanced with rich opportunities to visit historical and cultural places. As a result, students develop personal, social and employability skills relevant to their needs.
- Careers guidance is provided by the college through a range of visits from external employers and visits to chosen universities. Leaders have recognised that careers education needs further development to ensure that students have better access to impartial support. Students speak enthusiastically about these visits. They say that speaking with people from their chosen industries helps them to understand the skills they need to be successful.
- Safeguarding in the sixth form is effective. Students' behaviour supports the high expectations of the college. They say that there are no cases of bullying. They are taught how to keep themselves safe and are aware of online risks and dangers. Students in the sixth form feel safe and they are safe.

Overall experiences and progress of children and young people in the boarding provision **Good**

- Relationships between staff and students are consistently positive. Students told inspectors that staff made them feel welcome and helped them to settle into the boarding facility. Similarly, students said their induction to college was a positive experience.
- Within the home stay, students comment on the improvements in their cooking and language skills. They have also had some experiences that have improved their awareness of the United Kingdom and developed their self-esteem, such as learning to ride a bike, experiencing growing plants in a garden, and enjoying snow for the first time. Consequently, students make both social and academic progress throughout their time at the school.
- Host families are positive about the way they have supported cultural identities, for example decorating their front door for Chinese New Year. Students are treated with dignity and respect.
- Students are well supported by staff who work both in the college and in the boarding facility. Students who spoke with inspectors said that staff helped them to learn to develop independence.
- Parents are kept up to date with how boarding is going. Parents' views are collected and considered using a survey about the boarding provision. Students' views are similarly sought and responded to, with regular school council meetings and assemblies taking place that relate to boarding. Young people state that they feel listened to.

School details

Unique reference number	143105
Social care unique reference number	1267134
DfE registration number	331/6004
Inspection number	10033590

This inspection was carried out under section 109(1) and (2) of the Education and Skills Act 2008, the purpose of which is to advise the Secretary of State for Education about the school's suitability for continued registration as an independent school.

The inspection of boarding provision was carried out under the Children Act 1989, as amended by the Care Standards Act 2000, having regard to the national minimum standards for boarding schools.

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Type of school	Other independent school
School category	Independent boarding school
Age range of students	15 to 19
Gender of students	Mixed
Gender of students in the sixth form	Mixed
Number of students on the school roll	37
Of which, number on roll in sixth form	30
Number of part-time students	0
Number of boarders on roll	34
Proprietor	Dr E Macfarlane, L Kong, G Robinson, BM Price
Chair	G Robinson
Headteacher	Antonia Giovanazzi
Annual fees (day students)	£29,500
Annual fees (boarders)	£14,800
Telephone number	0247 5092950

Website	https://natmatsci.ac.uk/
Email address	info@natmatsci.ac.uk
Date of previous inspection	Not previously inspected

Information about this school

- The college was opened in October 2016 following the pre-registration inspection in June 2016. The college was originally registered as Warwick International College Ltd. The proprietor made a request to the Department for Education to change its name to The National Mathematics and Science College in September 2016, prior to admission of the first students. This is the school's first full inspection.
- The college is currently operating outside of its registration. The college is registered as a sixth form for 200 mixed-gender students aged between 15 (Year 11) and 19. There are currently 37 students on roll, a small number of whom have been admitted above the registered age range.
- The college offers places to international students as well as students from the United Kingdom through a scholarship scheme. Currently, students from China, Latvia, Dubai, Russia and the United States of America attend the college.
- The college offers boarding accommodation through a mix of guardianship home stay organised by Sutherland Education and within its own boarding accommodation. The college has plans to further develop its own boarding facility in the future.
- The college aims to be a sixth-form college specialising in science and mathematics to prepare students for entry into 'world-leading universities' both in the United Kingdom and Europe.
- The college is situated four miles from Coventry city centre. It is housed in a modern two-story former government building. The building has undergone extensive refurbishment to make it fit for purpose as an educational setting. The college has an adequate number of spacious classroom areas as well as a large number of well-resourced specialist laboratories.
- There has been a recent change in leadership at the college. The current principal was appointed in January 2018. Prior to this appointment, she was in post as vice-principal.
- The college employs eight teaching staff with a range of specialisms. There are plans to grow the staff team as the number of students increases.
- The proportion of students who have SEN and/or disabilities is extremely low.
- The college does not make use of any alternative providers.
- Students use physical education and dining facilities at nearby Westwood Academy.

Information about this inspection

- The inspection was integrated with an inspection of the boarding provision and was carried out with one day's notice.
- The inspectors met with a number of key staff including the principal, senior leaders, the proprietor, residential wardens and those responsible for governance.
- Inspectors toured the premises accompanied by members of the senior management team. Inspectors also visited the boarding facility and a number of home stay families. Inspectors also observed lunchtime arrangements at a local secondary school.
- Inspectors met with groups of students and considered the views of a small number of parents expressed via Parent View and other sources of information collated by the college. Inspectors also took account of seven responses to the staff questionnaire.
- The inspectors observed teaching in all year groups across a range of subjects including English, mathematics, chemistry, biology and physics.
- Inspectors reviewed the work in students' books and scrutinised the college's assessment information.
- Inspectors examined a number of key policies including safeguarding, behaviour, admissions, attendance, anti-bullying and the curriculum. The checks made on staff's suitability to work with children were evaluated.

Inspection team

Melanie Callaghan-Lewis, lead inspector	Ofsted Inspector
Bev Petch	Ofsted Inspector
Andy Hewston	Social Care Regulatory Inspector

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