

STEM Academy

16-19 academy

Inspection dates		27–30 January 2015
Overall effectiveness	This inspection:	Inadequate-4
	Previous inspection:	Not previously inspected
Outcomes for learners		Inadequate-4
Quality of teaching, learning and assessment		Inadequate-4
Effectiveness of leadership and management		Inadequate-4

Summary of key findings for learners

This provider is inadequate because:

- too few learners achieve the qualifications they start; very few of those who achieve their qualifications gain high grades
- performance management is inadequate; managers' evaluation of the impact of teaching on learners' progress is not accurate and, as a result, too much teaching, learning and assessment require improvement or are inadequate
- teachers do not plan learning that takes account of learners' individual needs, so learners make insufficient progress and those who need extra help are not always given sufficient support
- learners have insufficient opportunity to develop their skills for employment through work experience placements; managers and teachers have not established enough links with local employers
- learners are not given accurate and appropriate advice and guidance about suitable courses when they join the academy
- self-assessment is not sufficiently critical and it does not accurately identify the impact that poor teaching, learning and assessment and inadequate leadership and management have on learners' progress and attainment
- governors have not ensured that senior managers have sufficient time or support to ensure that learners receive good teaching, learning and assessment and make good progress
- teachers do not do enough to develop learners' understanding of the diverse nature of their local community to prepare learners for living in modern Britain.

This provider has the following strengths:

- learners develop their self-confidence and self-esteem very well as a result of the welcoming atmosphere of the academy
- learners who are on work-related qualifications make good progress
- the curriculum is generating local demand for qualifications in science, technology, engineering and mathematics (STEM) subjects and, as a result, the number of applications has almost doubled.

Full report

What does the provider need to do to improve further?

- Take rapid action to improve the quality of teaching, learning and assessment so that learners find lessons interesting and challenging, make good progress with their courses and achieve their qualifications with grades that match their capabilities.
- Ensure that learners who need extra help with their studies receive suitable support to enable them to make better progress.
- Improve the accuracy of judgements on the quality and impact of teaching and learning so that senior managers can identify and meet teachers' training and development needs. Share good practice in teaching, learning and assessment effectively within the academy.
- Take rapid action to improve teachers' skills in monitoring learners' progress and target setting, so that learners know precisely what they need to do to make good progress and achieve or exceed their target grades. Improve the frequency of learners' progress review meetings with their tutors.
- Develop partnerships with local and regional STEM employers to give learners relevant and meaningful work experience placements in these subjects.
- Make rapid improvements to self-assessment, so that managers accurately reflect the impact that poor teaching, learning and assessment have on learners' progress and attainment.
- Swiftly develop teachers' ability and confidence in improving learners' understanding of the diverse communities in which learners live, so that they are better prepared for life in modern Britain. Develop and implement an action plan for the 'Prevent' agenda to improve learners' knowledge and understanding of how to protect themselves from extremism and radicalisation.
- Governors must ensure that there are sufficient senior leaders and managers and that they have support and time to manage the academy to enable learners to make good progress in their qualifications and achieve or exceed the grades indicated by their prior attainment.

Inspection judgements

Outcomes for learners	Inadequate
<ul style="list-style-type: none"> ▪ STEM Academy offers study programmes for 16- to 18-year-olds at levels 2 and 3. The vast majority of learners study at level 3. Approximately one fifth of learners study work-related courses. Most learners study science, mathematics or technology-related subjects. ▪ Outcomes for learners are inadequate as too few learners achieve the qualifications they start or make the progress that they should. In 2013/14, slightly over half of the learners who started AS-level courses complete them successfully and a very small minority achieved their qualifications with high grades. ▪ The majority of learners studying for GCSEs in English were successful in improving their grade to a C or above. Learners studying for GCSEs in mathematics were less successful; approximately one third achieved a grade C, or improved their grade where they already had a grade C. ▪ Managers have taken insufficient action to tackle gaps in achievement between different groups of learners. Although based on relatively low numbers, data indicate moderate achievement gaps; female learners are more successful than their male counterparts, and learners from minority ethnic heritages do not achieve as well as those from White British backgrounds. ▪ Learners on AS- and A-level courses make insufficient progress. Teachers and managers set target grades for learners at the start of each year and monitor learners' progress frequently, but too few learners are working at, or above, their target grades. 	

- In subjects such as engineering and information and communication technology (ICT), learners on work-related qualifications make much better progress than their peers on AS- and A-level qualifications. Most are working at or above their target grade.
- Learners' development of English skills requires improvement. Learners make good oral use of vocational language and subject vocabulary, but the standard of their written work is low. Teachers do not do enough to help learners to improve their spelling, punctuation and grammar. In a small minority of cases, learners' poor understanding of English language hinders their progress as learners do not understand examination questions or assessment tasks well enough.
- Learners improve their mathematics skills well in lessons. Learners are confident about applying their improved skills, for example when doing chemical calculations on bond dissociation energies.
- Attendance requires improvement. In a minority of subjects, learners do not attend all of their lessons. Attendance at lessons in GCSE English and mathematics is inadequate.
- Learners develop good practical skills in subjects such as computing. They make good use of industry-standard software to develop applications and produce animations. However, in subjects such as design and technology, learners have a narrow range of resources available to them and their practical skills require improvement.
- Opportunities for work experience as part of a learner's study programme are inadequate. Teachers and managers encourage learners to complete work experience to help improve their practical and employment skills, but they have not fully integrated this opportunity into study programmes. Very few learners took the opportunity for work experience in 2013/14. Links with employers have led to valuable experiences for a few learners. For example, a city bank has helped learners with curriculum vitae writing and finding out about working in financial services.
- Learners develop good personal and social skills. Many of them improve in confidence and self-esteem as a result of the friendly, welcoming and supportive environment in which they learn. Learners value highly the help and encouragement they get from their tutors to help them improve their confidence.
- Teachers expect all learners to progress to employment or study at a higher level. The academy has not been open for sufficient time for learners to have progressed to higher education, but many of those who have applied to university have been offered places. Those learners not aspiring to higher education are given good advice by staff to help them investigate the range of employment and training options available, including apprenticeships. A few learners have already been successful in their applications for employment on completion of their course.

The quality of teaching, learning and assessment	Inadequate
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- The academy's aim is to provide a range of academic and work-related courses in STEM subjects for 16- to 18-year-old learners, to enable them to progress to higher education or employment in the fields of science, technology, engineering or mathematics. Inspectors evaluated study programmes for learners aged 16 to 18. Two subject areas were selected for inspection as a representative sample of the academy's most significant provision and were reported and graded individually. The academy's remaining subject areas were inspected and judgements on these contributed to judgements on the quality of provision as a whole.
- Teaching, learning and assessment are inadequate, which is reflected in poor success rates in 2013/14 and the slow progress that most learners make on their courses. Because they achieved low grades in their 2013/14 examinations, a minority of learners are repeating their GCSE and AS subjects. In-year data show that the majority of these learners are not making significantly better progress this year.
- Teachers do not plan learning that enables learners to make consistently good progress, either in lessons or with their qualifications. In-year data suggest that, on too many courses, the majority of learners are not making good enough progress to achieve their target grades. Teachers' target grades for learners are not aspirational or aimed at achieving high grades, even

when learners' prior attainment suggests these are feasible. Many learners' target grades are lowered during the year, reflecting learners' slow progress.

- Teachers' planning of learners' assessment is inadequate on AS- and A-level courses. Teachers' assessment of learners' work is accurate, but the feedback to learners about their progress varies considerably in quality and effectiveness. In a few cases, teachers do not identify what learners need to do to improve their incorrect spelling, punctuation and grammar.
- Teachers do not set or agree short-term targets for improvement with learners frequently enough for learners to make good progress. Too many targets are set by learners and not agreed or reviewed with their teachers. These targets are not sufficiently precise or focused on what learners need to do to improve and make better progress.
- Teachers make inadequate use of technology to enable or enliven learning. Very few teachers use the virtual learning environment (VLE) well to enable learners to access further learning to help them improve their progress and study skills. A few teachers use online video clips in lessons, but very few use the interactive whiteboards or mobile technology effectively when it would help make learning more meaningful and interesting.
- Few learners have the opportunity to improve their skills for employment or develop their practical skills further through completing a work experience placement. Teachers and managers do not have a sufficient number of links with local and regional employers to enable more than a small minority of learners to undertake work experience. Teachers do not make good use of local employers to access specialist equipment or facilities to enrich teaching, especially where resources are not available in classrooms and workshops.
- The information, advice and guidance that learners receive from teachers at the start of their course are inadequate. Too many learners are on courses that their GCSE grades indicate they will not achieve. A minority of teachers are not sufficiently trained or knowledgeable to ensure all learners are enrolled on a study programme that best meets their ability and career aims.
- Support for those learners who have a learning difficulty or disability is inadequate. They get insufficient help in lessons. As a result, these learners are unable to complete tasks successfully and make slow progress. Teachers are not skilled in supporting the very high proportion of learners who do not have English as a first language.
- Teachers do not do enough to help learners develop their understanding of different cultures and faiths well. Where it is a part of the subject studied, teachers develop learners' understanding effectively. An ICT teacher successfully developed learners' knowledge of appropriate communication by highlighting the pitfalls of using colloquial slang language and inappropriate body gestures. However, good practice is not effectively shared among teachers and all do not have sufficient skill or confidence to prepare learners well for living in modern Britain.
- Teaching is more effective on work-related courses. Learners on these courses make good progress and the large majority achieve high grades in assignments. These lessons are characterised by enthusiastic and knowledgeable teachers who plan learning well to develop learners' knowledge, understanding and practical skills. They use activities which the more able learners find challenging and stimulating, and give effective support to those learners who are struggling.
- In most subject lessons, teachers' development of learners' mathematics skills is good. For example, in GCSE science, teachers make effective use of calculations on percentage yields in chemical reactions to reinforce mathematics skills. In an engineering lesson, the learning activities enabled level 3 learners to work at distinction level, using calculus confidently to calculate the relationship between speed and time, while those learners who needed help were supported effectively by the teacher and their peers.

Science and mathematics**16-19 study programmes**

Inadequate

Teaching and learning in science and mathematics are inadequate because:

- teachers do not take sufficient account of learners' existing level of knowledge, ability or support requirements to plan learning and teach lessons which will enable them to make good progress; this is reflected in the low proportion of learners who achieve their AS-level qualifications
- in too many lessons learners, especially the more able, find the work too easy; too frequently additional tasks lack challenge and require learners to do more of the same task
- attendance at lessons requires improvement
- teachers do not use the available online resources in mathematics well to help learners learn; the VLE has too few resources in science; learners do not have access to alternative learning materials and additional resources which would help them learn on their own
- not all teachers use consistent and timely assessment well to check that learners have understood concepts; teachers make insufficient use of regularly set homework to identify learners who are struggling
- teachers make insufficient use of work experience to develop learners' skills for employment; teachers do not plan work experience adequately and very few learners have been on a placement
- teachers give learners insufficient information, advice and guidance when they apply to the academy and do not offer a broad spectrum of opportunities and options; for example, several learners on GCSE mathematics or science already have a grade C or higher in the subject
- too few learners progress from AS- to A-level courses in science and mathematics.

In science and mathematics the provider has the following strengths:

- learners on work-related science courses make good progress and the majority are on target to achieve their predicted grade
- teachers develop learners' use of terminology, communication and presentation skills well; in a physics lesson, learners working in pairs prepared notes or a mind-map about the properties and uses of radioisotopes, and then had to make a short presentation to the rest of the class
- teachers encourage learners well, both in lessons and in private study time; they offer regular additional workshops in all subjects and learners, especially those taking mathematics, are starting to make better progress
- in a few lessons, teachers are highly effective at developing learners' learning and thinking skills; learners find this challenging and it prepares them well for university; for example, in psychology, learners research the meaning of terms such as 'induction' or 'deduction', make their own notes and explain the topic to other learners.

ICT for practitioners**16-19 study programmes**

Inadequate

Teaching, learning and assessment in ICT are inadequate because:

- too many learners do not achieve their qualifications and make poor progress on AS-level courses; very few learners achieve high grades and too few learners progress from AS- to A-level courses

- teachers have detailed information about their learners, but they do not use this to plan lessons which enable all learners to make good progress; teachers focus too much on completing tasks, rather than enabling learners to develop their knowledge and understanding; a minority of learners make very slow progress and the more able find the work too easy
- teachers' directed questioning requires improvement; teachers give learners too little time to develop their answers fully to extend learning and not all learners have the opportunity to answer questions
- teachers' pre-course guidance is inadequate and has not been effective in ensuring that learners are on the right course; too many learners are enrolled on to AS-level courses despite achievements at GCSE that do not adequately prepare them for A-level study and with insufficient support to enable them to make better progress in their studies
- links with employers require improvement; too few learners have had the opportunity of significant work experience with local employers and their employment skills are insufficiently developed
- teachers and tutors do not monitor learners' progress effectively; teachers do not provide enough feedback on in-year assessments to help learners achieve their target grades
- tutors' progress reviews and target setting for learners are inadequate; teachers are not effective in helping learners understand how they are performing and what they need to do to improve
- learners enjoy a range of interesting and stimulating practical activities in ICT, but too often teachers do not link theoretical content and practical activities successfully to help learners understand key concepts
- teachers' comments on learners' work in academic subjects do not provide learners with detailed or specific information about how well they are performing or what they need to do to improve
- teachers do not always correct learners' spelling and grammar in written work or give learners guidance on how to improve
- a significant majority of learners have poor organisational skills; teachers do not check learners' files often enough to ensure their notes are correct and well ordered to help learners revise effectively.

In ICT the provider has the following strengths:

- learners' progress on work-related courses is good and learners often achieve high grades in their assignments
- teachers make good use of discussions in class to help learners develop their technical language skills well
- teachers on work-related courses give most learners useful comments on their assignments to help learners improve the standard of their work
- learners' practical work is often of a good standard; learners develop industry-standard skills, particularly in programming and control systems, for example creating applications for distribution on 'Google Play' using 'ActionScript' and creating robotic arms using a three-dimensional printer
- staff respond well to the challenging problems faced by learners in their everyday lives and give learners good support to help overcome these
- staff and learners are ambitious and a high proportion of learners have received offers of university places, including a few at prestigious universities.

- Leadership and management are inadequate. In 2013/14, senior managers did not ensure that learners were taught well, made good progress and achieved their planned qualifications, particularly in AS-level subjects. Too many learners were enrolled on AS-level courses that were beyond their ability, and with inadequate support to help them succeed. Problems with resources have adversely affected learning; for example, some laboratories were not open until late in the year and noisy building work disrupted lessons. In 2013/14, additional learning support and support for learners with learning difficulties and disabilities were not available for those who needed it.
- The acting principal joined the college as deputy principal in September 2014 and had been acting principal for three weeks at the time of the inspection. Governors, managers and teachers have confidence in her leadership because she has made a positive start to improving systems and changing the culture of the academy. She is tackling problems that affected outcomes in 2013/14, so that learners are getting a better experience this year. However, there has not been time to implement all the necessary changes and it is too early to judge the impact of changes that have been made.
- Governors and managers have a clear vision of the difference the academy can make to the prospects of many young people in the local area who might not otherwise consider STEM courses. They have an empathy with learners and a passion to improve their chances of employment or higher education. Governors have a good range of relevant skills and experience. However, their understanding of the varied reasons for the poor results is inadequate. At the time of inspection the college does not have a stable management team, an effective organisation structure, or adequate management capacity in terms of staff and time. This has hampered progress.
- Performance management is inadequate. Managers carry out sufficient lesson observations, but their reports contain too little evaluation of the impact of teaching on learners' progress. Managers over estimate the standard of teaching. Appraisals are inadequate. Most three- and six-month reviews are incomplete, often missing comments by the appraiser or the appraised. They contain insufficient information to indicate how teachers can improve their teaching skills. Lesson observation and appraisal are not formally linked to professional development. However, managers have recently begun to produce action plans for each teacher based on lesson observation findings. Managers have provided significant in-house and external professional development focused on improving teaching in 2014/15, but the impact of this is not fully evident.
- Self-assessment requires improvement. Managers and course leaders know the strengths and weakness. They have identified numerous areas for improvement. However, grades in course, department and college reports are unrealistic. Views gathered from learners and parents are not reflected in the reports. Action plans are not precise enough in setting out what managers and teachers need to change to secure improvements. Many teachers have insufficient awareness of their course action plans. Managers' monitoring of course action plans is weak. Departmental and college plans include relevant key issues and a few actions in departmental plans are focused on improving teaching, but often actions are expressed in terms of intentions rather than specific actions to tackle identified issues.
- Managers offer an appropriate range of subjects for a STEM academy, designed to meet the needs of learners who progress to A levels. However, the curriculum is not sufficiently flexible to meet the needs of individual learners who only need to re-sit one subject. For example, learners who fail a subject must re-take the whole course alongside learners taking the course for the first time.
- Safeguarding requires improvement because, although learners are protected well and are safe at the academy, managers have not done enough, particularly with regard to the 'Prevent' agenda to counter extremism and radicalisation, to make learners aware of potential risks and issues outside the academy, in the local area. The building is very secure, and learners are very aware that they must not lend their passes to others. The internal learner survey does not ask

sufficient questions about safeguarding, but learners feel safe in college. The very few incidents that have required action were managed well.

Record of Main Findings (RMF)

STEM Academy

Inspection grades are based on a provider's performance: 1: Outstanding 2: Good 3: Requires improvement 4: Inadequate	Overall	14-16 part-time provision	14-16 full-time provision	16-19 study programmes	Traineeships	19+ learning programmes	Apprenticeships	Employability	Community learning
Overall effectiveness	4	-	-	4	-	-	-	-	-
Outcomes for learners	4	-	-	4	-	-	-	-	-
The quality of teaching, learning and assessment	4	-	-	4	-	-	-	-	-
The effectiveness of leadership and management	4	-	-	4	-	-	-	-	-

Subject areas graded for the quality of teaching, learning and assessment	Grade
Science	4
Mathematics and statistics	4
ICT for practitioners	4

Type of provider	16-19 academy							
Age range of learners	16-18							
Approximate number of all learners over the previous full contract year	150							
Principal/CEO	Dr Bolatito Ariyo							
Date of previous inspection	Not previously inspected							
Website address	www.stemacademy.ac.uk							
Provider information at the time of the inspection								
Main course or learning programme level	Level 1 or below		Level 2		Level 3		Level 4 and above	
Total number of learners (excluding apprenticeships)	16-18	19+	16-18	19+	16-18	19+	16-18	19+
	-	-	24	-	278	25	-	-
Number of apprentices by Apprenticeship level and age	Intermediate		Advanced		Higher			
	16-18	19+	16-18	19+	16-18		19+	
	-	-	-	-	-		-	
Number of traineeships	16-19		19+		Total			
	-		-		-			
Number of learners aged 14-16								
Full-time	N/A							
Part-time	N/A							
Number of community learners	N/A							
Number of employability learners	N/A							
Funding received from	Education Funding Agency (EFA)							
At the time of inspection the provider contracts with the following main subcontractors:	None							

Contextual information

STEM Academy, who appointed the acting principal in January 2015, opened in September 2013 in the London Borough of Islington, to provide opportunities for young people who might not otherwise have access to teaching in science, technology, engineering and mathematics. Levels of unemployment in the local area are slightly higher than the national rate and similar to the rate for London. Three quarters of the local population are qualified to level 2. About three quarters of the local population come from minority ethnic heritages. Although a relatively prosperous area, there are pockets of deprivation in the local community, reflecting the proportion of learners at the academy who receive some form of financial support to attend the academy.

Information about this inspection

Lead inspector

Richard Pemble HMI

One of Her Majesty's Inspectors (HMI) and four additional inspectors, assisted by the acting principal as nominee, carried out the inspection with short notice. Inspectors took account of the provider's most recent self-assessment report and development plans. Inspectors also used data on learners' achievements over the previous year to help them make judgements. Inspectors used group and individual interviews, telephone calls and online questionnaires to gather the views of learners, parents and employers; these views are reflected throughout the report. They observed learning sessions, assessments and progress reviews. The inspection took into account all relevant provision at the provider. Inspectors looked at the quality of teaching, learning and assessment across all of the provision and graded the sector subject areas listed in the report above.

What inspection judgements mean

Grade	Judgement
Grade 1	Outstanding
Grade 2	Good
Grade 3	Requires improvement
Grade 4	Inadequate

Detailed grade characteristics can be viewed in the *Handbook for the inspection of further education and skills 2012*, Part 2:

www.gov.uk/government/publications/handbook-for-the-inspection-of-further-education-and-skills-from-september-2012

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