Recruiting and retaining STEM teachers

The Guardian Jobs guide to science, technology, engineering and maths education roles

The Guardian Jobs

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About this guide

This guide, compiled with the help of industry experts and insiders will allow school leaders to better understand the increasing number of STEM (science, technology, engineering and maths) teaching vacancies across the UK.

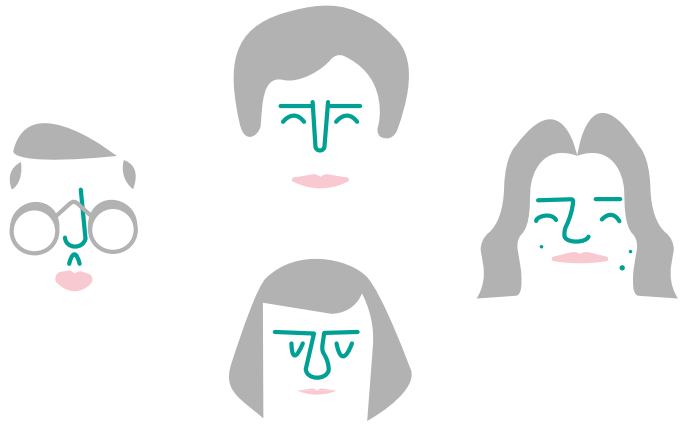
We've looked at the data, spoken to STEM teachers at various stages of experience, interviewed school leaders and pulled together three elements which will help you not only respond to your recruitment, but also provide a practical guide to attracting new teachers and retaining the best of those who are currently in post.

The STEM crisis in numbers

Why are teachers leaving the profession?

Over the last five years across the UK, teachers have been leaving the profession in record numbers to seek careers elsewhere. According to a recent government report, the main reasons teachers cite for leaving are increasing workload and the volume of government initiatives and policy changes.

87% said workload was an important reason for leaving



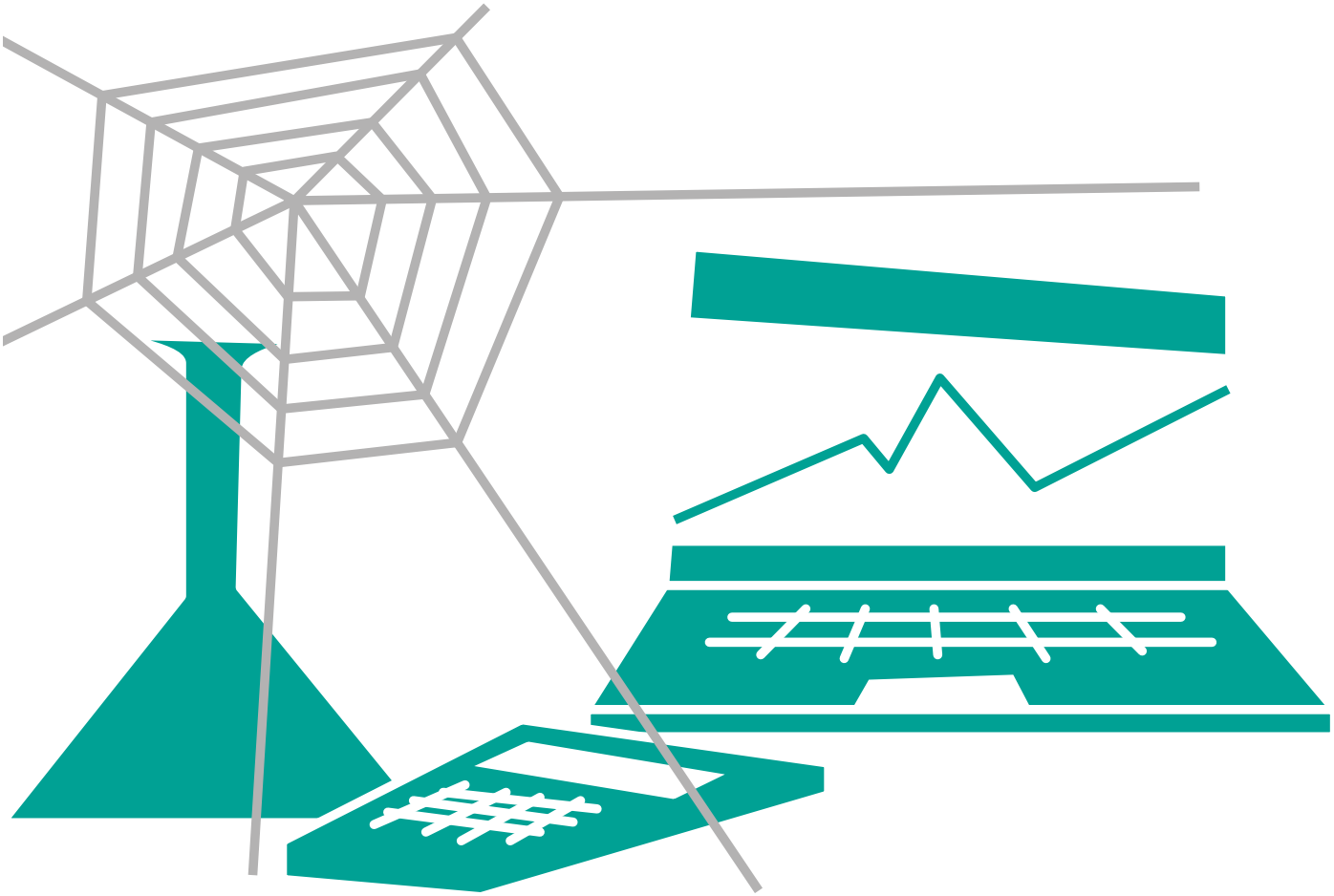
76% said changing government policy was an important reason for leaving

Around a quarter of teachers surveyed in England between June 2015 and May 2016 said they were considering leaving teaching. Secondary school teachers and science teachers were significantly more likely to be considering leaving the profession.

Source: Analysis of school and teacher level factors relating to teacher supply: https://www.gov.uk/government/statistics/teachers-analysis-compendium-2
Source: Engaging Teachers: NFER Analysis of Teacher Retention https://www.nfer.ac.uk/publications/LFSB01/

The number of STEM job vacancies is increasing dramatically

According to government statistics, since 2011 the number of vacancies for STEM teachers in England has increased year on year.

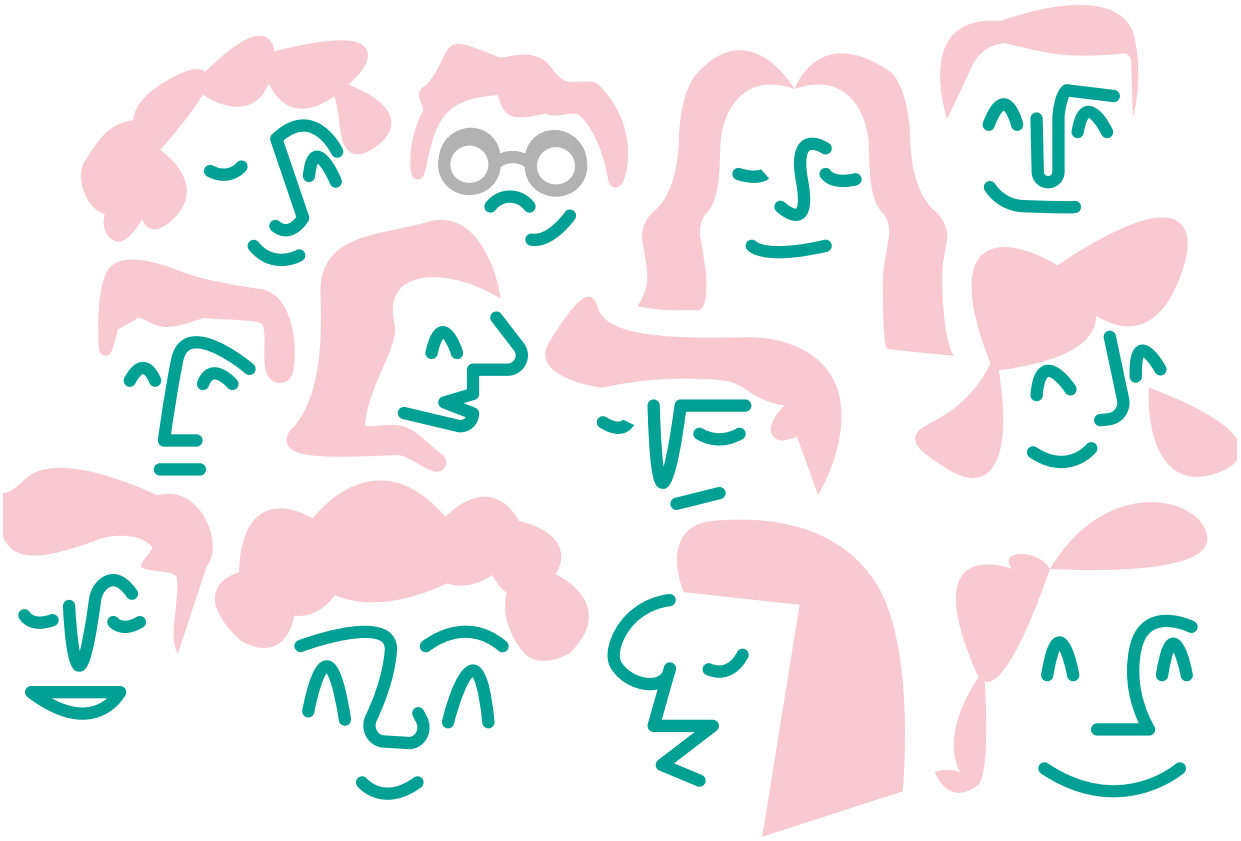


In design and technology, the number of vacancies has increased by nearly 10 times and in maths by two-and-a-half times. Across STEM roles as a whole, the number of vacancies has quadrupled.

Source: https://www.gov.uk/government/statistics/school-workforce-in-england-november-2016

Pupil numbers are rising, which will make the recruitment crisis in STEM even bigger

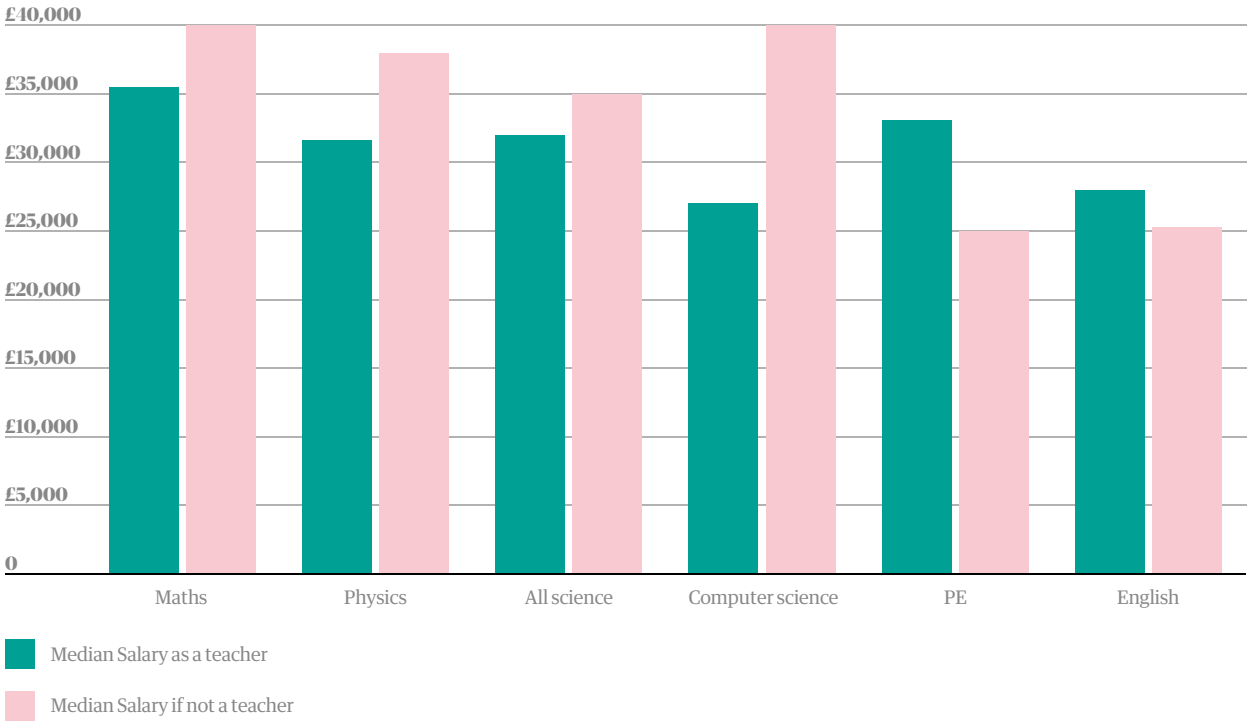
If student numbers continue to follow current trends, it is anticipated that within the next six years, secondary schools in England will have 400,000 more pupils, an increase of 15%. The number of secondary-school maths teachers has risen, but not fast enough to keep pace. Schools and the government will have to do more to recruit the right number of teachers.



Source: https://www.gov.uk/government/statistics/school-workforce-in-england-november-2016

The salary gap is bigger for STEM subjects, and it's getting bigger

The Migration Advisory Committee looked at how much graduates might earn by subject area if they went into teaching compared with other professions. Their analysis shows the pay differential in physics is around £6,400 and, although not statistically significant, their data suggested a pay differential in computer science of around £13,000.

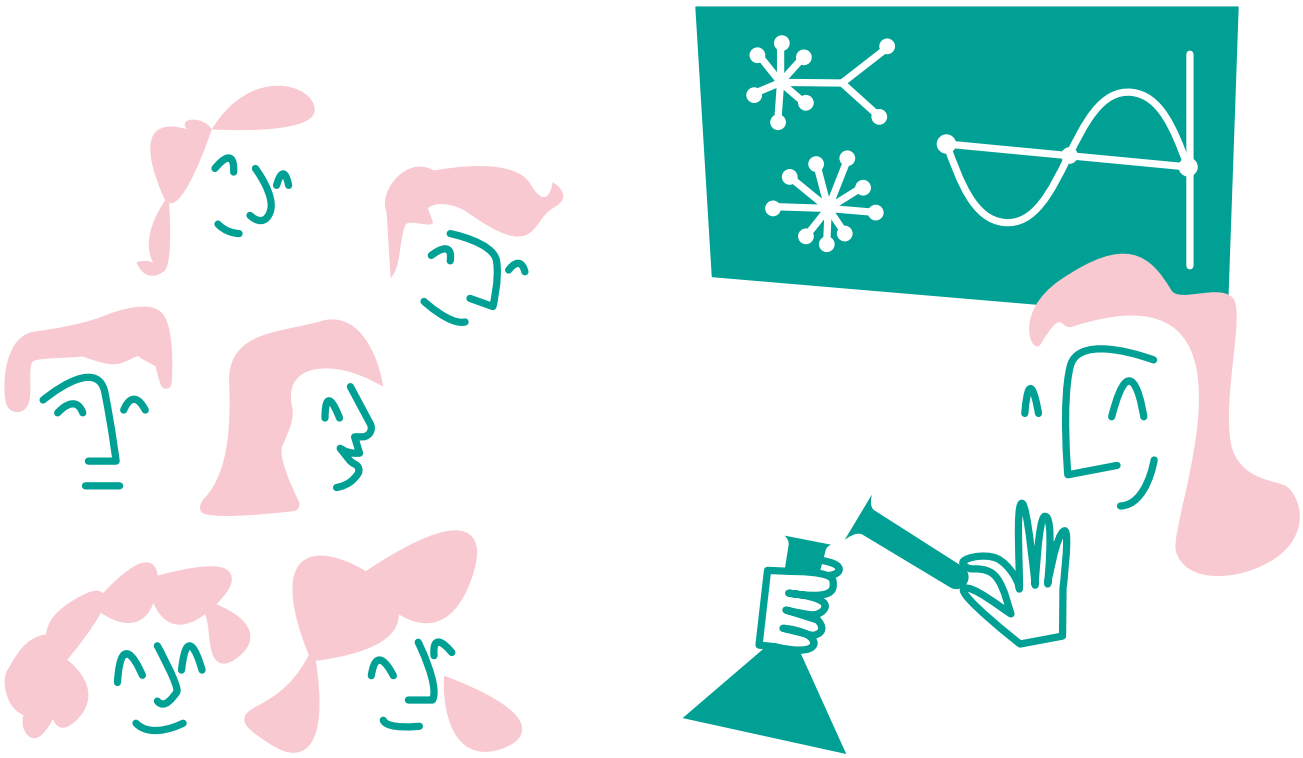


Teachers who graduated in maths and computer science tend to earn significantly less than peers who chose an alternative profession as a result. These pay differentials may help to explain the particular shortages in these subjects.

Source: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/585998/2017_01_26_MAC_report_teachers_SOL.pdf

The view from the classroom

We meet the STEM graduates and professionals who work in the classroom instead of the lab.



When Amy Blackwood finished her undergraduate degree in biomedical sciences, she put her knowledge and skills to use in the pharmaceutical industry. But after five years as a quality assurance analyst, she felt her career was stagnating. It was while working as a training officer during that time that she discovered her vocation as a teacher.

"I was helping new starters and apprentices at the company and I enjoyed passing on my skills to other people," she explains. After a quick online search, she came across Teach First. She had the qualifications, so applied for the scheme's teacher training and started her first position in a school within three weeks.

A passion for education is essential for any aspiring teacher, but for many graduates and professionals with science, technology, engineering and maths (STEM) backgrounds, a simple love of teaching is often not enough to lure them from the more lucrative private sector.

The chronic shortage of STEM teachers in the UK has led the Department for Education to offer tax-free bursaries of up to £30,000 for new teachers in priority subjects, including maths and physics. But Blackwood – a newly

qualified teacher (NQT) teaching science at a secondary in Peterborough – believes that teaching offers more than just attractive starting salaries.

One big plus is better options for career progression, she says. "Many people in the pharmaceutical industry have jobs for life and it is very difficult to move up into leadership roles. In education the high number of teachers leaving the profession has created more opportunities for those who remain."

Emphasising the creative element of teaching would also inspire more STEM graduates, she believes. People with science backgrounds, for example, are often disappointed to discover the reality of working in a lab. "Now I get to look a problem in a more creative way. I have to think, how can I make this more engaging for young people? And I really like that."

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However, Blackwood admits that many people with STEM backgrounds miss the technical side and can struggle to solve problems in a team after years of working autonomously. At the same time, she loves passing on technical skills to her students.

There is also the issue of workload. While it is a challenge faced by all teachers, Blackwood claims the pressure is particularly high in science subjects where the curriculum is very broad: teachers are required to cover literacy and numeracy, as well trying to teach basic science. "Science teachers could do with a bit more time and preparation, because we are a practical subject as well," she says.

Science teacher Alice McEnnerney is in her third year of the job and believes that in order to recruit STEM teachers who are committed, the profession needs to attract people who are resilient and hard working, rather than those who perceive the job as an easy option with six-week holidays and a 3.30pm finish.

"It is hard work – you lose your evenings and weekends, and work in the holidays," she says. "It is worth it but you need to get the people in who are happy to do that."

McEnnerney, who quit a veterinary degree to teach and currently works at Our Lady's Catholic High School in Preston, claims that some trainees who have done placements at her school saw teaching as a career stopgap. "They were unsure what they wanted to do, so did teaching because they believed it paid well."

> If you have to use money as an incentive, you're not getting the right people into classrooms.

The assistant head of year eight, who also teaches key stage three maths, says the bursary system is partly responsible for new teachers joining for the wrong reasons. "If you have to use money as an incentive, you are not getting the right people into classrooms. You want the people who care about children, not the people who want money out of it."

Mel Muldowney teaches maths to children aged from 11 to 16 at Colmers School in Birmingham. She is sad that so many good teachers are leaving, and also points to the heavy workload. From marking to admin, she claims the amount of time spent on tasks away from the classroom has exploded in the 10 years since she left a successful business career to become a teacher at the age of 36.

Nevertheless, she insists the rewards of the job still outweigh the challenges. With maths, it is helping children who think they can't do it, work to their ability level and find that sense of achievement in solving a seemingly impossible problem.

She adds, "Someone will ask my pupils, when they are older, who made a difference in their lives. I want at least one of those kids to say me."

Three tips to recruit and retain STEM teachers

1 Design a specialised recruitment process for STEM

It is important to recognise that you may need to use a specialised recruitment process to attract and retain STEM talent: where candidate numbers are low, your rates of conversion are vitally important.

Ask yourself what you might change or improve about the existing recruitment process to make it more effective at converting and retaining STEM teachers.

Here are our suggestions for ways to show STEM candidates that you're serious about their professional needs.

- Create a dedicated page on your website specifically for STEM teachers, highlighting relevant key information, such as classroom technology and resources.
- Include current STEM teachers in the recruitment process to ensure it feels right from a candidate's perspective.
- Stay in touch with candidates after they apply, and be prepared to send them additional information about STEM at your school, and any special information they may find helpful.
- Introduce applicants to current teachers who have already successfully followed a similar route: this is especially useful for career-changers.

2 Advertise opportunities at your school properly

Many schools are pessimistic about attracting talent from outside their region, but The Guardian Jobs research shows 66% would consider re-locating (UK and/or overseas) for the right opportunity.

When you have roles to fill, make sure you advertise them as widely as possible, to broaden your pool of candidates. The following strategies may prove useful.

- Use national as well as local job boards and publications to advertise your vacancies to ensure you get the quantity of applications that you need.
- Look abroad to countries such as Canada, Australia and New Zealand, which currently have a healthy number of STEM teachers who may be interested in a move to the UK.
- Build good relationships with local and national teacher training schemes, as they can help to get good teachers into schools, and they can do it quickly.
- Talk about your schools USPs and benefits packages. Why is your school worth the relocation? Why is it a desirable place to work?
- Don't limit your reach to those actively looking for new roles. Talented teachers may not currently be using job sites but they can be receptive to new job opportunities and interested in reading about employers.
- Consider using behavioural targeting to position yourself in front of a wider audience of talented teachers.

Source: Guardian Connecting Professionals Research 2016

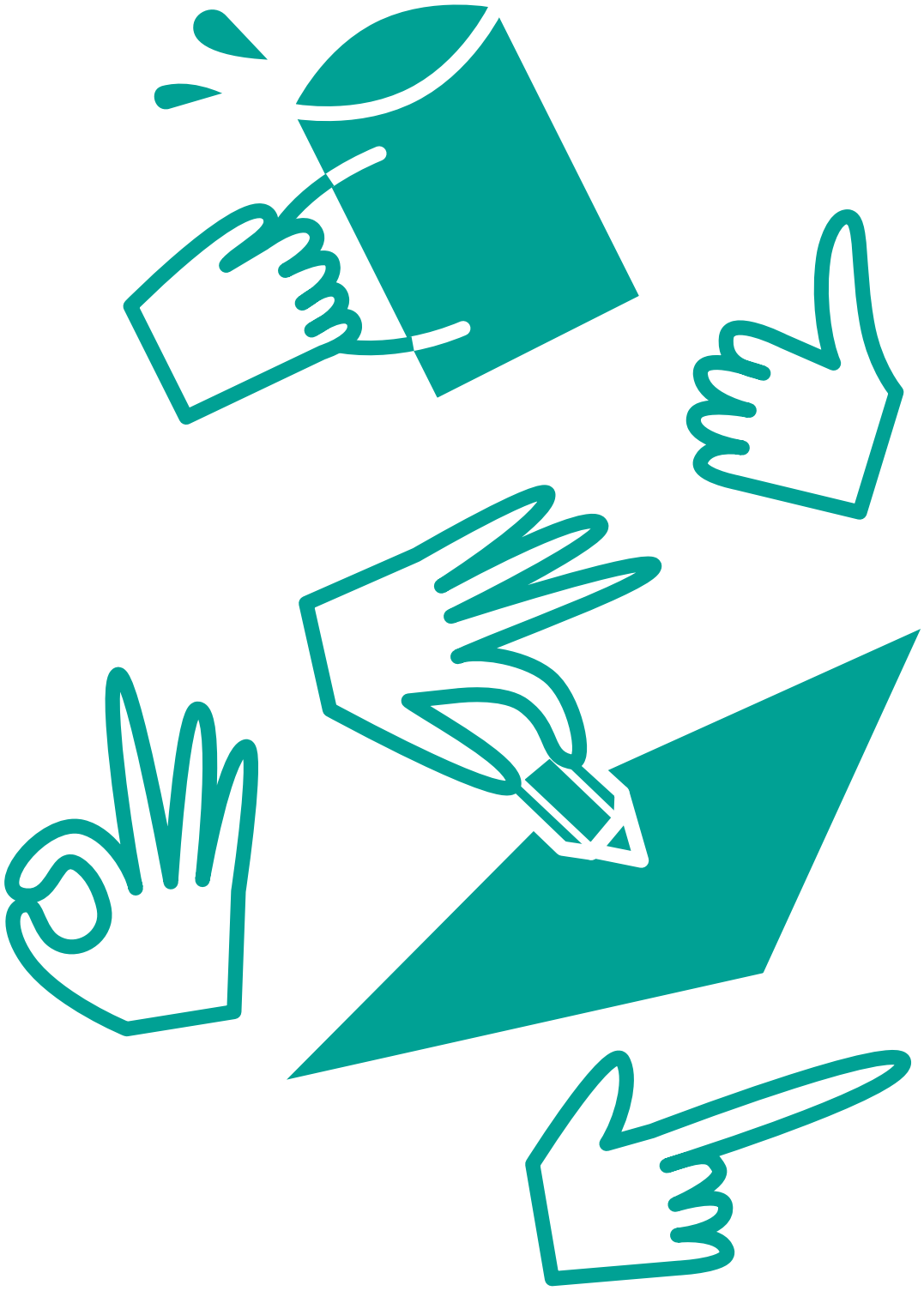
3 Ensure teachers feel supported in their career development

Clear opportunities for career progression are often a great incentive for people moving out of the private sector and into teaching.

This should be highlighted in job advertisements and communications with candidates, as it is likely to be high on their list of priorities – especially if there are potential leadership roles available.

It is also important to support progression for teachers in-post. Make sure that all of your STEM teachers have clear progression plans in place and feel supported in their path. Here are three key suggestions.

- Offer your STEM teachers professional development opportunities such as courses to practise or improve technical and practical skills.
- Create a professional community for your STEM teachers, and consider inviting those from other schools to share ideas with your own.
- Find ways to give your STEM teachers the autonomy to develop ideas and try new projects (both with and without students).



The essential guide to building the perfect job advert

The Guardian Jobs

At The Guardian Jobs we are commited to matching the perfect candidate with their ideal role. Our latest research identified the key benefits that attract STEM professionals to teaching positions.

This guide provides useful tips to help you write the perfect job advert for your STEM teaching vacancies to guarantee you attract the right talent.

Job title

Use keywords and job titles that candidates are searching for. Avoid 'internal' job titles that make it harder for candidates to find your advert.

Example:

Teacher of science KS3 & KS4

One-line summary

This is your first opportunity to initially engage candidates and sell the role. Make it punchy, impactful and attractive. **Remember: STEM professionals often move into teaching positions looking for clear career paths and progression.**

Example:

We're recruiting ambitious science teachers looking for rapid growth and progression.

About your school

Focus on the key aspects that directly impact teachers such as modern staff facilities.

Example:

A very good co-educational school which prides itself on providing a diverse learning environment for its pupils. In its most recent Ofsted report, the school was rated to be a 'good' school. A well-funded department with recently refurbished labs, the Science Department is incredibly enthusiastic, driven and collaborative.

Key benefits & opportunities

Describe the most appealing aspects of the role. Focus on the prospect of exciting challenges and career progression opportunities. If relevant, cite examples of teachers at your school that have progressed.

Example:

There will be ample opportunity to develop your teaching styles and learn leadership skills within our highly supportive Induction or NQT programmes. This role is part of a very settled department, and has arisen due to an existing member of staff accepting a promoted post.

You will be someone who has a passion for their subject and who can inspire their students to achieve their best.

Rewards and perks

As well as salary, list other attractive benefits such as work pension schemes and guaranteed places for staff children within the school. **Focus on perks that directly speak to STEM professionals such as supportive environment.**

Example:

The school has high standards of pupil behaviour and students achieve well academically. The school has a fantastic reputation for science and engineering and has excellent facilities which have benefitted all areas of the curriculum. A stunning new building in which to teach and learn. The school does not offer GCSEs or A Levels and is free from the pressures of the national curriculum.

Roles and responsibilities

Avoid anything true of all roles. Be honest and clear about expectations and challenges for the role. **Highlight things that make the role interesting or different, such as the ability to be creative with their teaching approach.**

Example:

Our school offers a can-do, enterprising culture, combining the traditional values of discipline, respect and good behaviour with contemporary best practice in teaching and technology. The successful candidate will be fully aware of the demanding nature of working in a relatively small school that is still in the pioneering stages of its development. Although the main vacancy is for mathematics, there are opportunities to teach other subjects.

Person specification

Be clear about what the essentials and the desirable skills are as well as qualifications. List any values you would like your candidates to demonstrate.

Example:

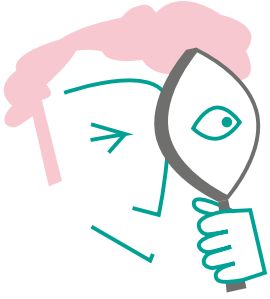
The appointed candidate will be comfortable teaching general science to key stage 4, and the ability to teach a specialism to key stage 5 is advantageous, although not essential. We want to appoint staff who will make a difference to the school during this exciting and challenging time. You will have some experience in the UK, must be able to teach from an understanding of what is developmentally appropriate for children at different ages.

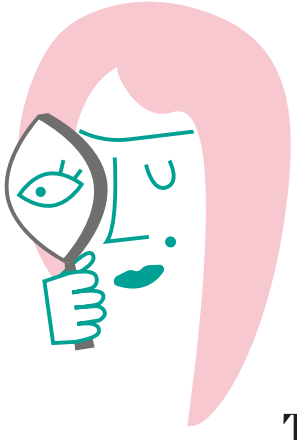
Values

List your school's core values to ensure you get the right applicants. **To attract STEM candidates, make sure to include how your school supports teachers in their role.**

Example:

We have built our business and reputation on the cores values of honesty, integrity and excellence. Incredibly switched on headteacher. The successful candidate can expect to work in an atmosphere of mutual support and co-operation.





Location

Many candidates are prepared to relocate or travel for the right job, but be clear about location to rule out the wrong candidates. Briefly highlight aspects of your location and surrounding community that might attracts candidates.

Example:

This school has gone from strength to strength since becoming an academy a decade ago and now boasts an extremely strong academic record. Understandably this school is now oversubscribed and is a key component of the local community.

Reiterate Benefits and Opportunities

Reiterate the top benefits of the job in a sentence or two to encourage applications.

Example:

You will have the ability, drive and enthusiasm to make a difference to students and young people from the school and the surrounding area, and to help build on the academy's outstanding sets of GCSE results.

Next steps in the process

Highlight what the next steps of the application process are. Keeping candidates informed and comfortable with the process will make them more likely to stay engaged.

Example:

Successful candidates will be called for an interview in the next 30 days.