



Securing technical talent for your business:

How T Level Science can deliver the
skilled workforce your business needs

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INTRODUCTION

This resource is for science employers like you. It tells you how you can secure and develop your technical talent pipeline by providing industry placements for T Level Science students. The benefits and practicalities of placements are clearly explained through the real-life experiences of other science employers and the tailored guidance we provide here.

We have brought together and summarised essential information about industry placements specifically for science employers, so you do not have to navigate the sea of general information available. We also signpost to key official websites that will help you.

The content is based on the experiences, views and concerns shared with us by science employers through interviews, surveys and meetings. We thank all those who generously gave their time to help us develop the evidence base for this resource. Special thanks go to the employers who have already hosted placements and whose valuable insights informed this advice.

This resource was developed collaboratively by:



WHAT ARE T LEVELS?

T Levels are a technical qualification for 16 to 19 year olds in England. These two-year courses are an alternative to A Levels and Level 3 apprenticeships.¹ One T Level is equivalent to three A Levels. They can be delivered by colleges, schools and other post-16 providers. The course includes classroom learning (80%) and an industry placement (20%).

Technical qualifications are essential for developing the talent that businesses need to be able to thrive and T Level Science prepares young people to enter skilled occupations in the science sector. Because T Levels have been developed in partnership with employers, they address the challenges employers face in recruiting skilled and committed technical staff.

Course content: T Level Science teaches the core knowledge and skills needed for entry into a career in science. The concepts covered are applicable to all scientific occupations. Students also complete an occupational specialism in one of the following:

- laboratory sciences
- food sciences
- metrology sciences

Students also develop their maths, English and digital skills.

Industry placements: A key component of T Levels is the industry placement. It gives students hands-on experience of working in the sector and the chance to put the knowledge and skills they learn in the classroom to practical use. The placement must be at least 315 hours (approximately 45 days) and can be with one employer or split across two if needed.

“[The industry placement has been] my favourite part of the course so far, to use my academic knowledge and apply it in an actual workplace feels very rewarding ... the practical work I do and the knowledge I gain at placement sticks in my head way more than just sitting down in a classroom learning from a board or a book”.

Milton Keynes College student during an industry placement with a scientific equipment company

Placement models: The format of placements can vary. They can be completed in a single block, on a day-release basis or any other arrangement agreed by the employer, school and student.

“[Our] placement is two days a week ... with the types of projects our technical staff work on, the two days give continuity of experience and that has worked out really well”.

Janet Marshall, Senior Talent and Development Business Partner at Cranfield University

¹ Qualifications in England are assigned levels. For example, GCSEs are Level 2, A Levels are Level 3 and a BSc is a Level 6 qualification.

“As a leading UK food producer, we believe it is really important to grow our future talent pipeline. Qualifications with work-based placements like T Levels can help to source committed and engaged future staff with the skills our business needs”.

Sam Foster, Group Talent Acquisition Officer, Cranswick Plc.

Progression: After completing a T Level in science, students can:

- enter employment in a science-related field
- start an apprenticeship
- progress to higher education, such as a degree or Higher Technical Qualification

For more information see the UK government web resources:

[Industry placement models for Health and Science](#)
[T Level in science: the progression profile](#)

Student working on a gut model in a food science laboratory



Robin Leaper, Institute of Food Science and Technology, 2023

BENEFITS OF INDUSTRY PLACEMENTS

We spoke to science employers who have already hosted industry placements. They highlighted multiple benefits.

Talent spotting for future roles: Industry placements create a pool of potential future staff who are already familiar with your company's culture and operations.

"It's like they've just been with us for years, they've been brilliant. They've captured the culture of our business".

Amy Read, HR Manager at Ocean Ecology

Clear route into technician roles: Offering the placements creates a pathway for students to pursue technician roles. It reduces recruitment costs and turnover by attracting motivated and appropriately qualified local candidates.

"It's remarkably difficult to recruit technicians when we have vacancies ... there wasn't really a satisfactory technical route ... we were able to reach out to [our student] immediately ... whereas ordinarily it could have easily taken us 3-4 months to actually find somebody that we thought was suitable".

Simon Foster, Laboratory Manager at the Sainsbury Laboratory

Developing existing staff: Mentoring placement students gives your staff an opportunity to develop their leadership and managerial skills. It enhances their professional growth and benefits their teams.

"The day-to-day mentorship is done by a degree apprentice, so they also feel that they learned something, and it adds to their apprenticeship programme and the T Level student has got somebody they can go to".

Leigh Maxfield, Employment and Skills Partner at Thames Water

Demonstrating commitment to the community: Providing placements shows your commitment to investing in local talent and it strengthens your corporate social responsibility profile. The closer relationships with schools and colleges that come from working with them on placements also provide access to a local talent pool, benefiting both the community and your business.

"I think the students gained so much out of it ... They may not get that experience at college [or even] at university".

Samantha Keller, Analytical Operations Manager at Kent Scientific Services

Recruitment onto apprenticeship programmes: Hosting a T Level Science student means you can assess if they would be suited to an apprenticeship in the future.

"We could give the T Level students some experience in our labs and also it might be a kind of feeder into our apprentice scheme if we found any suitable candidates".

Mark Goodwin, Manager Analytical Science Laboratories at Innospec

Additional support and resources: T Level Science students can help your teams complete tasks more efficiently. They can contribute to daily operations, projects or research and ease the workload for your staff.

"I think they feel as if they were doing something that actually has some value because they were doing a piece of work that we had struggled to resource in the past".

Mark Goodwin, Manager Analytical Science Laboratories at Innospec

Benefiting from specific skills and knowledge: Students bring fresh perspectives and up-to-date technical skills, which can invigorate your team and contribute to innovation.

"He's bringing in a bit of new life and a bit of the new generation into the team. So, I think they're learning from that as much as he's learning from them".

Janet Marshall, Senior Talent and Development Business Partner at Cranfield University

Students doing practical demonstrations in a food science laboratory



University of Reading, 2018

OVERCOMING CONCERNS

Some employers told us they had concerns about aspects of hosting an industry placement. Most of these are easily addressed with access to the right guidance and support and by taking a few practical actions.

Under-18s are not allowed to work in our laboratory or workplace setting.

There are very few legal restrictions on what young people can do in the workplace and they are mainly about exposure to harmful agents, such as radiation or toxic substances. Treat your placement student the same as a new staff member and provide them with health and safety training. You need to carry out a risk assessment for young people at work. The Health and Safety Executive (HSE) provides really helpful guidance on [*young people at work*](#).

“They went through the exact same training that a new member of staff would have in terms of all the safety aspects”.

Jacqueline Reid, Research Manager at Innospec

We would need to take out extra insurance.

If the student's work is part of normal business practice and you have employer liability insurance with a member of the Association of British Insurers or Lloyds, the student is treated as an employee for insurance purposes. If you are not sure, ask your insurance company. You will need to tell your insurer about the placement because it lasts longer than two weeks.

We don't have enough time to constantly supervise a student.

Tasks that need some supervision at first can quickly become independently managed. So students actually boost workforce capacity.

“He's been shown what to do once or twice and then he's just flown with it and he's picked it up ... he has been an extra pair of hands”.

Janet Marshall, Senior Talent and Development Business Partner at Cranfield University

Safeguarding is a problem. We would have to get all our staff DBS checked.

Schools and colleges are responsible for the safeguarding and welfare of students on industry placements – but you do need to work with them. You do not need to get all your staff DBS checked. The school or college will guide you through any safeguarding requirements, and if one or two key staff members need to be checked, ask your provider about whether DBS funding is available.

We are concerned about confidential or commercially sensitive material.

Companies who carry out commercially sensitive or confidential work are already making placements work. They do it by picking tasks for their students that limit their contact with sensitive information. Some have their students sign a confidentiality agreement, just as they do with all new staff. Your student's mentor or supervisor can check their logbook to make sure there are no confidentiality breaches.

Will we teach the right things for the students to pass?

This is not an issue. There are no mandatory learning outcomes for placements and you do not have to give them experience of everything covered on their course. The placement is about practical experience and skills development. Students are assessed through employer feedback, logbooks and showing that they can apply the skills and knowledge they are learning. They need to progress towards achieving their individual objectives, which are developed with your business in mind.

For further information see the government web page [**Legal compliance for industry placements**](#)

Engineers at a wastewater treatment site collecting a test sample



Thames Water, November 2022

A STEP-BY-STEP GUIDE TO FINDING THE RIGHT STUDENT

1. Find a school or college

- Visit the government's [T Levels and industry placement support for employers](#) web page to find a local provider of T Level Science.

2. Agree the details of the placement

- Talk with the school or college about your business's everyday activities to ensure you get suitable students and discuss the sorts of tasks they could undertake. See [Placement tasks](#) for examples of tasks that employers and students told us their placement included.
- Decide when the placement will take place and the model of placement, for example, five days a week or one day a week. The school or college will work with you to map out an approach that works for everyone involved.

3. Select a student

- Every school or college will match students to placements differently. You will work with the school or college to design your selection approach. Options to consider include:
 - Do you want to mirror your usual approach to recruitment with an advert, applications and an interview?
 - Would you like the school or college to select students on your behalf?
- If you choose to conduct interviews, the school or college can help you design the questions. Example questions are included on the government web page [Selecting students for industry placements](#).

“We were sent CVs from the students and then offered the students the opportunity to go through an interview, short assessment and tour of the workplace. It was slightly more informal than a usual interview process but it gave both the students and us a valuable experience ... MK College Group were brilliant, really supportive”.

Janet Marshall, Senior Talent and Development Business Partner at Cranfield University

4. Understanding the student's stage of study

Students will learn basic laboratory practice knowledge, including health and safety, risk assessments and standard operating procedures, early in their course.

Schools and colleges arrange their teaching schedules to suit their context but typically cover core content in the first year and assess the occupational specialism in the second year. Coordinate with the school or college to outline any skills and knowledge that the student will need before the placement. Your organisation-specific practices and regulations will then help the student build on this during the industry placement.

COURSE CONTENT

This table shows some of the topics included in the T Level Science course. For full details please speak to your local T Level Science provider.

Core component (studied by all students, normally in the first year)		
The health and science sector	Science concepts	Core skills
<ul style="list-style-type: none"> • health, safety and environmental regulations including: <ul style="list-style-type: none"> - risk assessment - COSHH - following standard operating procedures • application of health, safety and environmental regulations in the workplace • managing information and data • data handling and processing • ethics • good scientific and clinical practice • scientific methodology • experimental equipment and techniques including: <ul style="list-style-type: none"> - performing a range of microbiological techniques while maintaining an aseptic environment - using a multimeter - applying containment controls e.g. using a fume cupboard when producing any chlorine 	<ul style="list-style-type: none"> • Biology concepts including: <ul style="list-style-type: none"> - biological molecules - genetics - microbiology - immunology - cell cycle - cellular respiration - pathogens • Chemistry concepts including: <ul style="list-style-type: none"> - structure of materials and chemical properties - acids/bases and chemical change - rates of reaction and energy changes - analytical techniques • Physics concepts including: <ul style="list-style-type: none"> - electricity - magnetism and electromagnetism - waves - particles and radiation - pressure/fluid/viscosity 	<ul style="list-style-type: none"> • project management • researching • working with others • creativity and innovation • problem-solving • communication • reflective evaluation

Occupational specialism (normally assessed in the second year) Students study just <u>one</u> of either laboratory sciences, food sciences or metrology sciences		
Laboratory sciences	Food sciences	Metrology sciences
<ul style="list-style-type: none"> • perform a range of appropriate scientific techniques to collect experimental data in a laboratory setting, complying with regulations and requirements • plan, review, implement and suggest improvements to scientific tasks relevant to a laboratory setting • identify and resolve issues with scientific equipment or data errors 	<ul style="list-style-type: none"> • perform appropriate activities to support the food supply chain complying with regulatory requirements • develop new food and food-related products to support the food supply chain • identify and resolve issues in the food supply chain • collect, analyse and interpret food production data 	<ul style="list-style-type: none"> • plan appropriate scientific measurement for any measurand to comply with regulatory requirements • perform scientific measurement tasks using the most appropriate measurement for a measurand to ensure accuracy • collect, analyse and interpret data from measurement tasks • identify and resolve issues with measurement tools and equipment

ROLES AND RESPONSIBILITIES

You may be pleasantly surprised at how straightforward it is to organise and support T Level Science placements. The school or college will guide you through the process and will be with you every step of the way.

“The T Levels guidance was much easier for us as an employer because the main responsibility for the student lies with the provider ... MK College Group were brilliant, really supportive”.

Janet Marshall, Senior Talent and Development Business Partner at Cranfield University

What your school or college will do	What you need to do
<p>Before the placement:</p> <ul style="list-style-type: none"> carry out the required health and safety checks make sure necessary safeguarding checks and procedures are in place check the right insurance is in place work with you to draw up a formal plan with the detail of the placement, including the learning goals and objectives for the student discuss how to support any students with special educational needs or disabilities 	<p>Before the placement:</p> <ul style="list-style-type: none"> assign a willing and capable supervisor(s) for the student, see also Supervision and mentoring identify necessary equipment and IT access prepare a workplace induction, including health and safety procedures, company policies and team introductions, similar to a new employee induction review the legal and policy requirements that need to be in place, including health and safety, safeguarding and insurance agree what happens when the student starts their placement and what your expectations of the placement are, these will be shared with the student before the placement starts
<p>During the placement:</p> <ul style="list-style-type: none"> monitor the placement by visiting or calling you and the student at agreed times conduct regular reviews with the student and their supervisor to monitor their progress and address any concerns carry out formal mid-placement and end-of-placement reviews to capture the student's learning and provide feedback to the student be available to address any questions or concerns 	<p>During the placement:</p> <ul style="list-style-type: none"> give the student a variety of tasks to support them to achieve their placement objectives consider supporting the student with a mentor or other member of staff provide regular feedback so that the student can improve give the student time to update their placement logbook check and sign-off student timesheets and logbooks weekly contribute to student review meetings tell the school or college about any successes or concerns so that they can provide support look after the health, safety and wellbeing of the student and ensure compliance with the Equalities Act 2010, in the same way you would for all employees

For more information see the government web pages:

[**Working with the right school, college or other provider**](#)
[**Your industry placement responsibilities**](#)

SETTING UP THE PLACEMENT

FORMS AND DOCUMENTS

The school or college will supply and help you to complete the few documents needed for the placement. Most of the documents are available on the government web page [**T Level industry placements delivery guidance**](#).

At the start:

- complete and sign the [**employer due diligence checklist**](#)
- sign the [**industry placement agreement**](#) with the school or college and the student

During the placement:

- the student will keep a logbook and timesheet which you should review and sign weekly

At the end:

- complete the [**end-of-placement review with the student**](#)
- sign the student [**completion declaration form**](#) to confirm satisfactory completion

SUPERVISION AND MENTORING

The student must have a supervisor. It is their role to provide training and give direction on tasks, offer feedback and help the student to develop practical job-related skills. Some organisations have a single supervisor for the student, while others share the role, which can help provide cover for different shift patterns, holidays or absences.

“We assigned supervisors in my area ... we treated them like a new member of staff ... they just needed a little bit more support”.

Jacqueline Reid, Research Manager at Innospec

You may also want to assign a mentor who can support the student during the placement. It is not mandatory, but a mentor can provide helpful advice and guidance on workplace culture, professional conduct and managing the practicalities of working life, helping the student to adapt and thrive while on placement. See the [**web pages on page 12**](#) for more information.

POSSIBLE INITIAL ACTIVITIES

There should be a clear plan of what the student will be doing during the placement, particularly in the early stages. Some activities to consider are:

Introduction and orientation:

- welcome meeting with the supervisor and mentor
- introduction to key colleagues and their roles
- overview of the organisation and its role in the sector
- site tour, including workspaces, canteens, toilets and emergency exits
- team lunch

Administrative set-up:

- issue and test ID/security badges
- provide and test computer logins and necessary software access
- set up a workspace with required resources and PPE

Health and safety:

- review health and safety policies
- introduction to emergency contacts and first aid procedures
- fire drill procedure and muster point locations
- accident/incident reporting procedures

Policy and procedure training:

- overview of confidentiality and GDPR compliance
- mobile phone and social media use policies
- dress code, start and finish times, break times and absence reporting

Professionalism and conduct:

- email etiquette and professional communication
- interaction with colleagues and customers
- workplace behaviour and language

Task and project introduction:

- overview of initial tasks and projects
- training on specific processes, systems or software
- shadowing sessions with experienced staff

Regular check-ins:

- schedule check-ins for the student with the supervisor or mentor
- allocate time for the student to update their placement logbook

For further information see the government web pages:

[T Levels and industry placement support for employers: Day 1 induction checklist](#)

[T Level industry placements employer guide](#)

[Managing young people who are new to the workplace](#)

For support with mentoring see:

[Effective mentoring for industry placement students](#)

[Support for industry placement mentors](#) by the Gatsby Foundation

PLACEMENT TASKS

There is no one-size-fits-all solution to placement tasks. Routine tasks can offer valuable experience, but students are also successfully completing less-routine tasks in a variety of organisations. This table includes some of the tasks employers and students told us their placement included.

“They go through how to use and calibrate a balance, how to do pipetting. They start on the classical bench methods, and then once they’ve done a couple of weeks doing that, they’re then moved on to more technical tasks”.

Kent Scientific Services

“He has been involved in setting up some of the experiments and equipment, maintained and ordered stock and been involved in a variety of biology-based experiments. He works with a range of experienced technicians, so he’s not just learnt technical skills but also workplace skills and how to communicate with peers. He’s also got involved in low-risk activities including the bottle wash and clearing up”.

Cranfield University

Students at Innospec carried out **literature reviews**, working through **risk assessments** and thinking about how specified molecules could be synthesised before moving on to complete practical tasks, such as **weighing, pipetting, mixing and heating samples**. In the analytical lab, they used some sophisticated techniques, including **gas chromatography and mass spectrometry**, as they analysed different molecules.

“They started in reception doing all the booking in of the different samples and then they went to blood science, assisting the staff to put samples through the analysers and reading the results”.

County Durham and Darlington NHS Foundation Trust

“... taking apart mechanical pipettes, cleaning them, replacing parts if necessary, putting them back together and then calibrating them ... to use my academic knowledge and apply it into an actual workplace industry feels very rewarding”.

Student on placement with laboratory equipment company

“... when samples come off the vessels, they have to be sieved down to a certain extraction ... then they go into the lab ready to be analysed”.

Ocean Ecology

Pipetting, weighing materials, adding solutions, mixing them together, checking their pH levels, washing equipment and steam sterilisation were common tasks for students at the Sainsbury Laboratory. Students also spent some time in the **plant tissue culture** laboratory and learnt about all the processes involved in making genetically modified plants.

A student on placement with a food manufacturer used **aseptic techniques** for **food hygiene monitoring** and performing raw ingredient checks as part of the company's quality assurance procedures.

CASE STUDY

Laboratory technicians are in short supply, so when the Sainsbury Laboratory were asked to host T Level Science industry placements, they recognised their potential as a way to recruit new staff. Simon Foster, the Laboratory Manager, sees T Level Science as a pipeline for new talent. He says:

“It’s remarkably difficult to recruit technicians when we have vacancies ... so that really encouraged us to look at the T Levels ... we saw it as a way of getting people through at an early age to get them into the technical stream and help them build up the skills that they need”.

City College Norwich worked with the Sainsbury Laboratory to set up placement opportunities. They arranged interviews to ensure prospective students were a good fit for the workplace. From the outset, the students were treated much like any new staff member. They completed the same induction process and complied with the same health and safety requirements as anybody going into the laboratory environment.

Block placements were used, because they gave students an immersive and realistic experience that included a variety of work and gave a good understanding of the purpose of different tasks.

Supervisory responsibilities were shared by staff, who found the students quickly developed the skills needed to work independently. These extra pairs of hands became very useful, with the students picking up responsibilities for key tasks and taking the pressure off staff. Simon says:

“... it’s been invaluable, actually ... once they are used to the work tasks, it really does help the rest of the team”.

Key tasks included pipetting, weighing materials, adding and mixing solutions, checking pH levels, washing equipment and steam sterilisation. Students also spent time in the plant tissue culture laboratory and were involved in the company’s sustainability initiatives.

The students not only developed skills, but they also gained valuable insight into the realities of working in a scientific laboratory. Existing staff benefited from the placements because it gave them the opportunity to manage new staff members and they enjoyed taking the young people under their wings.

The company continues to offer placements. They have also recruited former-student Francis Aclan to a full-time laboratory technician position. Francis was part of their first cohort of student placements, making this a great outcome for everybody involved. Simon explains:

“That was a huge benefit for us ... We knew that Francis had finished his course. He was looking for a position. We were able to reach out to him immediately – ordinarily it could have easily taken us 3-4 months”.

Francis has now been a laboratory technician for more than a year. He quickly got up to speed with the demands of the role, drawing on the experience and skills he gained during his placement. He says:

“I think it is the practical experience which is really useful ... it’s something that employers really value”.

The placement directly equipped a young person with the skills they needed to be recruited. The placement was also directly responsible for the Sainsbury Laboratory being able to quickly fill a vacancy with someone who already understood their workplace. With science technicians in demand, the T Level Science route is a promising piece of the supply jigsaw.

Francis Aclan at work in the Sainsbury Laboratory



Stephen Bornemann, The Sainsbury Laboratory, 2023

NEXT STEPS

To maximise the benefits of hosting a T Level Science industry placement for both the student and your business, there are several steps you can take. Here are some suggestions:

Explore immediate opportunities:

- Consider extending the placement if it suits you and the student.
- Offer the student part-time or holiday work while they are studying.

Consider long-term recruitment:

- Evaluate the possibility of offering the student a permanent role after they complete their education. This could be straight after their T Level course if you have a suitable vacancy.
- Explore the possibility of offering the student an apprenticeship to support their progression in your workforce.

Work with the school or college:

- Review the placement experience to identify what went well and what could be improved for future placements.
- Consider offering placements for the next cohort of T Level Science students.

“The student's gone to university, and so we're keeping in contact. They're part of our alumni, so we keep in contact with them until they're ready to join ... In university, they can come to us as a summer intern and once they've finished, they can come to us as a graduate, potentially”.

Leigh Maxwell, Employment and Skills Partner at Thames Water

“Just give it a go – it's a beneficial way to support your early career talent pipelines and particularly the sustainability of technical skills in the laboratory environment ... it's a really good way of enthusing young people to consider technical careers ... Just do it!”

Janet Marshall, Senior Talent and Development Business Partner at Cranfield University

HOW YOU CAN GET INVOLVED

The government website to support employers with industry placements has all the information you need to take the next step.

You can:

- enter your organisation's postcode to find a local school or college to work with
- download a list of all T Level providers if you need to see schools and colleges in multiple locations
- invite schools and colleges to contact you by registering your interest

Visit the government website [**T Levels and industry placement support for employers**](#) to take the next step.

To find the details of the project team visit the Science Council's [**T Level employers**](#) page.

Not ready to commit to an industry placement? Consider speaking to your local T Level Science provider about giving a talk about your organisation or hosting a site visit. This is valuable to students and gives you an insight into their skills and coursework with minimal commitment.

Scientist using a microscope



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