The University of Manchester
Manchester Institute of Education

Secondary PGCE

Science PGCE Mentor Handbook 2023-2024

Contents

1. Welcome to the UoM PGCE Science Course

The University of Manchester Science PGCE Course is designed to ensure our trainees are fully prepared to begin their careers in education and to allow them to enter the profession as an Early Career Teacher (ECT). Throughout the course trainees will learn how to apply subject and curriculum knowledge, pedagogy, and assessment techniques to ensure that the students they teach make progress and develop an interest in the subject. During the course trainees will be asked to engage in wider debates around education which will broaden their understanding from sociological and political position, allowing them to adapt their practice to a variety of school settings.

Science Tutors

There are three University tutors and two associate tutors, all of whom are qualified and experienced teachers:

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2. Aims and overview of the PGCE Science course

The PGCE Science draws on a range of expertise from the UoM Tutor team, teachers within partnership schools, and a range of experts within the field of education. Trainees will gain experience teaching KS3, KS4 and KS5 Science and are awarded the 11-19 PGCE at the end of the course. The PGCE Science course focuses on many diverse aspects of Science teaching; a broad overview is given below, although a more comprehensive overview of our curriculum content and its implementation can be found in our UoM Science PGCE Curriculum document.

- Understanding the importance of Science, and its different specialisms, and its place in the secondary school curriculum
- Developing subject and curriculum knowledge in Science
- Developing planning and pedagogy in the Science classroom
- Understanding how students learn in Science
- How to become an engaging and creative Science teacher
- Assessing progress in Science: how can we check what students know, think and understand?
- Inclusive teaching which represents all learners and addresses their needs
- Understanding how to address barriers to learning in Science
- Securing your first job as a Science teacher.

Trainees will spend around 125 days in your placement schools, guided by trained mentors who will support their progress and give advice on all aspects of the role. All our PGCE courses aim to provide contrasting placements in order to give trainees a rich and diverse experience.

All trainees will gain experience teaching KS3, KS4 and KS5 Science while working towards achieving Qualified Teacher Status (QTS). If successful, they will be awarded a Post Graduate Certificate in Education which will enable them to teach students aged from 11 to 18. The Science PGCE course follows the University of Manchester ITE Curriculum, which incorporates the Core Curriculum Framework (CCF), and is delivered in conjunction between the University and our partner schools. The aim is to provide a balance between the theoretical and practical elements of teaching Science and will equip trainees to address all areas of the Teacher's Standards.

The Department for Education believes, and we agree, that 'the quality of teaching is the single most important in-school factor in improving outcomes for pupils- and that is particularly important for pupils from disadvantaged backgrounds' (Department for Education 2019). The Initial Teacher Training (ITT) Core Content Framework sets out a minimum expectation in the curriculum that trainee teachers should experience:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/974307/ITT_core_content_framework_.pdf

The University of Manchester PGCE course has been carefully structured so that all trainees can experience the activities detailed in ITT Core Content Framework in sequence that will support them to succeed in the classroom. Trainees will experience the ITT Core Content Framework requirements in university sessions, in school practice, during University EPS sessions, and through academic assignments. The UoM Science PGCE will go well beyond the minimum expectation of the ITT Core Content Framework, and provides a curriculum that encourages research, criticality of theory, and demonstrates expert practice in teaching.

3. The University of Manchester PGCE Curriculum

The Science subject team have structured a curriculum that allows trainees to experience many aspects of teaching both within and outside their specialisms. Through dialogue with subject mentors and observational visits, our science curriculum has been grounded in the needs of schools. The key to the curriculum is that trainees learn through observation, rehearsal, practice, and critical discussion.

Learning will take place in both university and the placement school settings; classroom practice will be complemented by independent study tasks and the completion of academic assignments. At university, trainees will experience a wide variety of sessions led by UoM tutors. They will also have opportunities to work with teachers from within our partnership schools, attend lectures/workshops from experts in various fields of science education, and will connect with a variety of researchers and specialists from within UoM. While on placement, alongside their teaching and the feedback they will receive on this, trainees will also develop through formal mentor meetings, observations of other teachers, and formal and informal meetings with colleagues. Importantly, trainees will be encouraged to reflect on their progress with their peers; something we find is invaluable.

Science Curriculum intent, implementation, and impact

The intention of the University of Manchester Science PGCE courses are to train teachers who can provide a high-quality science education to pupils in a range of school settings. Trainees will develop their understanding of the importance of the science subjects in educational contexts, how the National Curriculum is used to guide students' learning, and how to interpret exam specifications to deliver creative, engaging, and relevant lessons. Trainees will understand the sciences are broad and diverse subjects, each with their own demands in terms of subject knowledge and practical skills. Science trainees will reflect on their teaching and learning experiences to make informed choices on how best to teach science. They will be able to demonstrate sound assessment practices to ensure they are informed as to how their pupils have made progress in an activity, lesson, scheme of work, or phase of learning. Most importantly, trainees will learn from their practice and academic study that the sciences are subjects suitable for all pupils, no matter their need or background, and they will create a teaching culture that fosters inclusion and progress for all.

Intensive Training and Practice (ITAP)

Starting from the 2024/25 academic year, all initial teacher training (ITT) programmes in England must include an Intensive Training and Practice (ITAP) component. Intensive Training and Practice (ITAP) is designed to increase coherence between theory and practice and allow trainees to reflect on how research can inform practice. ITAP is part of the university component of the course and does not have to take place in a school; however, where it does, it must be additional to the placement itself.

During ITAP, trainees observe and reflect upon expert practice. The design of the experience should support trainees to understand what it is that makes such practice effective and to reflect on how it could be embedded in their own practice. Trainees should then have the opportunity to apply what they have learned through, for example, rehearsal and/or live practice, receiving constructive feedback from expert colleagues.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1079080/ITT_Reform_Accompanying_Document.pdf

The UoM five ITAP day themes reflect areas within our curriculum (and the CCF).

- Behaviour for learning (core area 1.2)
- Subject and curriculum knowledge (core area 2)
- How pupils learn (core area 3.2)
- Adaptive teaching (core area 3.3)
- Assessment (core area 4)

Following the ITAP days trainees will be encouraged to log their experiences reflections in their RoAD.

Science Curriculum Structure

Our Science curriculum is structured around a series of 'Core Questions' for trainees to reflect upon during each university/placement block of your PGCE (see Appendix 1). The full Science curriculum document details what our intentions are for trainees to learn at each stage of the course, and how

this intent relates to our core questions. The curriculum document also shows how trainees will demonstrate the impact of their learning and how it links to the CCF. While we appreciate this is a large and complex document, we encourage subject mentors to familiarise themselves with it. University tutors are always happy to elaborate on this. An example of the curriculum structure is shown:

Overarching Intention of our UoM curriculum for U1/P1 – Standard across all subjects	**Link to UoM Science intention U1/P1.** It is our intention that trainees in Science:	**How is this addressed in Science University 1 (U1)?** These intentions will be realised as Science trainees address the following Science key questions, and through related Intensive Teacher and Practice (ITAP) days.	**How is impact developed in Science Placement 1 (P1)?** The impact of the curriculum will be developed as the Science trainee critically engages with the key questions and ITAP themes in the context of their placement 1 school or college.
Core Area 1. Teacher Expectations 1.1.1 Communicate a belief in the academic potential of all pupils	appreciate the value of Science and begin to demonstrate this to their students. understand how classroom routines and positive behaviour management promotes high expectations and student progress. identify in planning and practice how committed Science teachers can make the subject relevant and engaging to pupils.	Why do students learn Science? How do Science teachers model enthusiasm for the subject? Comparing pedagogy in Biology, Chemistry, and Physics. Why are they different? Where are they the same? **(ITAP 4&5)** How do we teach KS3/4 Chemistry? Parts 1&2 **(ITAP 8)** How do you plan an effective science lesson?	How do teachers set high expectations and inspire students to learn science? Observe the lessons, routines (start and end), transitions, engaging activities, students as active learners, questions being posed. **(ITAP 4&5) Observe expert colleagues:** - managing a practical lesson, particularly set up and clearing away - how they teach aspects of Chemistry with which you are familiar. **Together with an expert colleague:** - practice and deconstruct management of pupils and apparatus in a lab environment **(ITAP 8)** Observe how expert colleagues: - Introduce and launch tasks with a class, including elements of modelling Together with an expert colleague: - Teach a short episode, setting pupils a task, including modelling. - Reflect and seek feedback.

4. Education Professional Studies (EPS)

Alongside subject-based university sessions, trainees also follow the Education and Professional Studies Curriculum (EPS). EPS is a carefully constructed course within the PGCE, taught in mixed groups comprising trainees from all the PGCE subject areas, and linking to sessions in schools. EPS addresses critical issues for all teachers such as inclusion, diversity and equality, safeguarding, special

educational needs, relationships and sex education, and education and disadvantage.

5. The National Teachers' Standards

The Teachers' Standards outline the core competences, skills, and behaviours expected of all teachers. In order to gain QTS, trainees will need to gather evidence to show that they meet or exceed each of the Teachers' Standards and they will be assessed against them at the end of the course. Trainees will gain increasing familiarity with the Teachers' Standards over the course of the year by engaging with the Progress Matrix in their RoAD file. The Progress Matrix is designed in a way such that trainees are asked to reflect on and provide evidence for each of the Teachers' Standards.

Both school-based mentors and UoM tutors will provide trainees with feedback throughout the course to allow them to understand the context of these standards, how this can look in the classroom, and how to maximise progress. At the end of each PGCE placement, trainees will be assessed as to whether they are 'on-track' to meet the standards. To be awarded the PGCE (the academic qualification) trainees will also complete three academic assignments.

6. Assessment of Trainee Progress

Throughout the programme, your trainee will be assessed formatively in accordance with the University of Manchester curriculum through their Record of Achievement and Development (RoAD), incorporating their School Experience Folders. At the end of the PGCE programme, your trainee will be assessed against the Teachers' Standards.

The Record of Achievement and Development (RoAD)

The RoAD is the central record of your trainee's achievements and progress towards QTS, and is available on the Mentor Resource Site. The RoAD is electronic and should contain:

- Lesson observation notes for each lesson observed
- Notes on meetings with you
- University Tutor observation notes
- An end-of-placement Progress Report from you
- A completed Progress Matrix for each placement (completed by the trainee)
- The ITAP Log

The School Experience Folders (SEF)

Your trainee will keep an electronic SEF for each placement and share it with both you and their University Tutor. The SEF forms an important record of many aspects of a trainee's placement experience and activity, and will be referenced by them in their Progress Matrix. As such, you should check that your trainee is keeping the online file up-to-date. Your trainee's SEF should contain:

- Schemes of learning for each class or topic taught.
- A lesson plan for each lesson taught.
- A record of work assessed, including a mark book where applicable.
- Examples of pupils' work including evidence of formative assessment.

- Background information about the school or college.
- Copies of key policy documents.
- Background information about your department.
- Notes from school/college-based professional studies sessions.
- Details of pastoral responsibilities.
- Details of extracurricular activities.

7. University-based roles and responsibilities

We are committed to a reciprocal and collaborative partnership with partnership schools and this is built upon clear systems and communication. This is essential in ensuring trainees receive the best support, training and outcomes as they enter the profession. The course directors and partnership lead will maintain a broad overview of trainees' progress and the course impact as a whole.

Who?	Key roles
Programme Director	Oversee the trainee cohort and ensure that all course compliance aspects are adhered to in order for trainees to be complete the course and be recommended for QTS. Meet with trainees who are experiencing significant difficulties or are at risk of not completing the course or school placement using the warning system where necessary. Liaise with SLOs, Professional Mentors and Tutors to address issues emerging from specific trainees, schools or mentors.
School Liaison Officer (SLO Team)	Oversee the partnership as a whole and support the current cohort of trainees to meet the school placement and course requirements. Monitor and QA the partnership, report back to programme director, advisory boards and, where necessary, specific school partners. Contribute to Partnership Committee in order to share appropriate updates and developments with partner schools in order to maintain the collaborative partnership. Support schools, professional tutors, mentors, and trainees to resolve any issues that may be a barrier to a trainee making successful progress.
Subject Tutor	To be the main point of contact for their trainees and their placement schools and be involved with the placing of trainees to ensure they meet the placement requirements. Support schools, mentor, and trainees during school placements including regular visits, moderation observations, file checks, and meetings with mentors/trainees. Support trainees and/or mentors experiencing difficulty or barriers to progress in order to resolve issues and improve trainee outcomes, through setting up and agreeing action plans, Oversee the assessment of trainees in line with the UoM curriculum, leading towards meeting the QTS standards at the end of the

	programme. Provide pastoral support where needed.
Trainee *	Meet the expectations outlined in the Secondary handbook and subject handbook, in terms of professionalism, teaching, and record keeping, To be responsive to feedback and open to being mentored in order to improve their professional skills. Represent the university and the meet course and placement expectations.
Professional Support Staff	Support trainees in all compliance and registration checks. Communicate notices from The University of Manchester to trainees such Blackboard notifications and changes to deadlines. Deal with day-to-day trainee enquiries . Help with assignment submissions. The PS staff are a vital component of the successful running of this course.

8. Expectations of PGCE Science trainees

We expect all our trainees to act responsibly and to maintain high standards of professional conduct throughout the course. This aspect of trainees' practice is hugely important and underpins their ability to meet Teachers' Standard 8 and part 2 of the Teachers' Standards. Fulfilling both is fundamental to gaining Qualified Teacher Status (QTS). Trainee teachers are expected to maintain high standards of attendance and punctuality, and to treat fellow students, staff, and pupils with dignity and respect. Trainees are expected to follow school policies and procedures rigorously. We tell them the following: "You should…

- Attend all University seminars and lectures, informing your University Tutor of unavoidable absence.
- Make constructive contributions to all University sessions.
- Arrive punctually.
- Respect and maintain school/college policies.
- Remember that, when in school/college, your behaviour and dress should be informed by your role both as a representative of the University and a role model for pupils.
- Be adequately prepared to teach lessons which demonstrate that you have reflected critically on the pupils' needs, on the issues raised in University sessions, and with your Subject Mentor in school/college.
- Demonstrate your competence as a teacher both through your performance in the classroom and through undertaking tasks and assignments set by the University.
- Demonstrate the principles of good planning through producing detailed schemes of work and lesson plans.
- Independently develop your subject knowledge in aspects of the Science you teach.
- Provide evidence that you have met all the Teachers' Standards by the end of the course."

9. The Subject Mentor's Role and Responsibilities

We recognise that you are incredibly busy and value your commitment in working with a trainee. As Subject Mentor, you will support and guide your trainee on a day-to-day basis, acting as a critical friend from their first teaching episode through to the end of their placement, whilst maintaining oversight of the pupils in your own and your colleagues' classes. As such, your role is one of the most important factors for your trainee having a positive school experience and becoming an effective and committed ECT.

Weekly Mentor Meeting

You should have a protected timetabled weekly meeting with your trainee that lasts approximately one hour, this allows quality time to focus on your trainee's individual development. The meeting should take place in confidence; the staffroom or during form time are not appropriate places if the discussion can be overheard. Experience shows that the mentoring process works best when the meeting has a structure that is set out or agreed at the outset, including discussion of key themes, feedback from lessons, reviewing previous targets, and target-setting for the next week. Your trainee's Progress Matrix (in the RoAD) can usefully form the basis of discussions to help you and your trainee to co-construct targets for development. An important question your trainee should continually be asking is, "What can I learn in general from my experiences and how can I apply this across all of my teaching?" During the first weekly meeting of Placements 2 and 3, time should be devoted to reviewing your trainee's RoAD, previous placement experiences, and Progress Report targets. You will also need to give particular support in areas where your trainee may be at risk of not meeting any of the Teachers' Standards at the end of Placement 3. The RoAD contains a section, 'Record of weekly Subject Mentor/trainee meetings', where the main aspects of the weekly meeting are noted. Your trainee should complete this during the meeting and you should sign it off. Your trainee may also seek support with University assignments and other tasks which form the basis of discussion during University seminars. You may need to help them to contact colleagues such as the SENCO or Designated Safeguarding Lead, as part of their work for the University's Independent Study Packs (ISPs).

Planning

Although your trainee needs to develop important skills of resource creation, we don't expect them to create everything from scratch. There is a balance to be struck between ensuring that your trainee meets the teaching aims and objectives of the school/college's Schemes of Work, and allowing them to try out their own ideas and plans (with support if necessary), and teach topics in ways that may not be those usually adopted in your department. We ask you to allow them to access departmental resources, support them in evaluating resources already created, and allow them to adapt these resources for their classes.

We make it clear in university that existing resources cannot be used with little or no thought and that even the most comprehensive set of resources will require thorough planning to ensure they are implemented appropriately and with purpose. In the early stages of the course, it can be very useful to plan lessons jointly with your trainee so they begin to understand the process of designing and structuring a lesson.

Lesson plans

Your trainee must produce a clear, comprehensive lesson plan for each lesson taught using the UoM lesson plan template for the specific placement. Particularly in the early days, and at the start of Placement 2, your trainee will need support with planning to ensure that the plans are sensibly pitched, have appropriate timings, and are supported by effective learning resources. Your trainee will benefit enormously from feedback on lesson plans, and this might constitute the focus of discussion at your weekly meetings. Please ensure that lesson plans (and associated resources) are submitted to the class teacher at least 48 hours in advance of each lesson (working days only), to allow time for feedback to be given and acted upon. Seeing draft lesson plans in advance allows you to check them for appropriateness of content and encourages your trainee to get into the habit of planning in advance. Many trainees, even those with outstanding potential, can easily fall into the trap of planning lessons the night before, a habit which they cannot sustain as their timetable increases. If your trainee experiences difficulty with planning, it is a good idea to arrange for them to give you outline lesson plans a week in advance, such as on Monday mornings. Expectations for planning may be reduced in Placement 3 unless this is a target for development.

Lesson evaluations

Trainee should be evaluating every lesson taught shortly after teaching it. Their evaluation should be of substance and should show evidence of reflection; whilst one-word comments such as 'none' or 'everything' should be discouraged; however, your trainee is not obliged to write in full sentences and note form will suffice. It is good practice to discuss your trainee's evaluations and to be aware of how they have acted upon their reflections and ideas for improvement. During Placement 3, this requirement may be relaxed to allow trainees to reflect more deeply on critical incidents or changes they have attempted.

Schemes of Work

Trainees are increasingly encouraged to consider how lessons sit together in a Scheme of Work. As they progress through placements 2 and 3, trainees will be required to evidence their medium-term planning; hence, involving them in the development, or review and evaluation of Schemes of Work will support them with this.

Teaching in laboratories

Where trainees are teaching in laboratories, they should not be left unsupervised and it is important that a qualified teacher is directly available to be called upon if needed. Caution must be used in relation to practical activities, because significant responsibility for the health and safety of young people and staff always remains with the qualified teacher. Policies and practices relating to lab safety should be very clear to all trainees, for example your trainee should know how to deal with an emergency (e.g., a child being sick, an incident such as spillage of a hazardous substance, a breakage, classroom behaviour becoming problematic, a fire alarm), and how to access support in such instances. Your trainee should not be treated as a supply teacher/cover supervisor.

Team teaching

It is advisable for your trainee to begin their placement by team teaching with you or the class teacher. Trainees learn a great deal about good teaching from team teaching, and it allows your trainee to build their confidence while giving you an insight into their strengths and areas for

development, and how best to target your support. This is particularly important in Placements 1 and 2 when your trainee is new to the school/college.

Use of ICT in teaching

ICT has a high profile in all ITE courses, and your trainee will need the opportunity to use ICT both within their teaching and to support their professional work. You will need to facilitate this use of ICT by enabling your trainee to teach in rooms where ICT equipment available, and arranging for training to be provided on how to use your school/college's interactive whiteboards and software. Where possible your trainee should have access to email and the school's VLE in the same way as any other member of staff.

Marking and assessment

Please guide your trainee on the school/college's Assessment Policy and ensure they are assessing their pupils and marking pupils' work regularly and in line with departmental policy. Ideally, your trainee should be involved with examination and other statutory assessment exercises, such as moderation and writing reports. However, if this is not possible, please discuss the assessment procedures and allow them to see examples of past assessed work.

Lesson observations

During the early stages of the Placement 1, it is expected that most of your trainee's lessons will be observed, either by you, the class teacher, or the Professional Mentor. Please ensure that your trainee is observed teaching several times each week throughout each placement, as the notes that arise provide a focus for discussion of your trainee's development as a teacher. At least one lesson each week must be observed formally and recorded on the university's Lesson Observation Report, which can be downloaded electronically from our Mentor Resource Site. This observation can be done by the Subject Mentor, Professional Mentor, or regular class teacher. The Lesson Observation Report focuses on the areas that trainees need to meet to achieve Qualified Teacher Status and lists in the margin some of the key aspects for focus during the lesson. Trainees benefit enormously from constructive feedback, so please give as much written feedback as you can. Your notes don't need to be strictly chronological, however it is sometimes helpful to make a note of the time a new activity is introduced to give the trainee an idea of the pace of the lesson. You may also wish to annotate the trainee's lesson plan. Please finalise your Lesson Observation Report and give it to your trainee as soon as possible after the feedback session. Retain a copy for yourself, as the information recorded will be useful in informing your end-of-placement Progress Report.

Giving feedback

Immediate feedback, however brief, after the lesson is always appreciated and may reduce your trainee's anxiety. As we are encouraging our trainees to become reflective practitioners, it is good practice to invite them to articulate their own feelings about the lesson, before you contribute your own thoughts. The feedback might, therefore, begin with a question like *"What were you happy with in the lesson?"* and go on to *"Did you achieve your aims, and what evidence do you have?", "How do you know that your pupils made progress?"* and then *"What would you change if you taught the lesson again?"*. Most trainee teachers are embarking on a very steep learning curve and will, understandably, make what you consider to be very basic mistakes in their teaching. Highlighting such mistakes should not dominate your post-observation feedback, as trainee teachers' confidence

suffers badly when they are subjected to what they perceive to be exclusively negative comments or when minor errors are a constant focus. Many trainees are highly critical of themselves, and for some it may also be the first time they have received negative comments about their performance in an academic or a work setting. Whilst it will be important to consider what your trainee can do to improve weaker aspects of their teaching, please ensure your feedback is constructive, highlight positive aspects of the lesson, and praise strong aspects of your trainee's teaching. Comments such as, 'You should have…' and 'I would have….' are less helpful. You may find these questions helpful to focus your lesson observation and your feedback. Did your trainee:

- Enable pupils to achieve the lesson objectives and outcomes?
- Enable pupils to learn something new?
- Enable pupils to use a range of skills i.e., listening, speaking, writing?
- Demonstrate good subject knowledge e.g., use key terms correctly, address misconceptions?
- Model activities and give clear instructions using success criteria?
- Support pupils of different attainment levels? Provide enough support and challenge?
- Support pupils in committing content to long-term memory and not overloading working memory?
- Check pupils' learning and progress regularly? Address any gaps in knowledge?
- Create a supportive and encouraging environment? Use rewards to encourage engagement and learning?
- Build on their pupils' prior knowledge?
- Provide appropriate, interesting, and engaging activities which enabled all pupils to make progress?
- Enable all pupils to participate actively in the lesson? Provide opportunities for paired and group work?
- Prepare pupils for the next lesson?

Target-setting

Co-constructing tightly focussed and achievable targets together with your trainee is fundamental to the training process; to promote self-efficacy it is essential that your trainee has the opportunity to reflect on their progress towards their weekly targets. Please ensure that your trainee understand what the targets mean and give them clear examples of what it may look like in the classroom. Often, when trainees are not making the progress we would expect, they have simply not understood how to translate their targets to actions in the classroom.

Progress Reports

At the end of the placement, you will complete an electronic Progress Report, commenting on your trainee's achievements and areas for development in the following areas: Subject and curriculum knowledge, Planning and teaching, Assessment, Wider professional responsibilities, Professionalism. The Progress Report template can be downloaded from the Mentor Resource Site, and you will receive an electronic copy you towards the end of the placement. Please ensure that your Progress Report is completed and discussed with your trainee during the final week of the placement, as much of its value will be lost if it is completed later. Please address the Progress Report to your trainee (e.g., use phrases such as, "*You have developed a good working relationship with all members of the*

department…"). In order to support both your trainee and the Subject Mentor in the next placement (or induction year), please be as detailed, honest, and constructive as possible, indicating any areas for development and doubts you may have, as well as strengths of their practice. Please give three crucial targets for the next placement, relating to work they have done during the placement rather than things which they have not experienced. For example, please avoid targets like *"Have experience of Key Stage 4/5 teaching"*, which could be written within the body of the report. To support your trainee and the next Subject Mentor/ECT Induction Tutor, please make the targets as specific as possible, suggesting strategies that will allow the trainee to meet the targets e.g., rather than *"Behaviour"*, please write *"Use sanctions and rewards policies more consistently in order to support effective behaviour management"*. It is perfectly acceptable to make a personal comment, such as *"We look forward to having you back in Placement 3".*

10. Guidance for School-based Placements

The trainee's school experience is the most important phase of the programme. They will use what you have learnt in University sessions and apply them to different school settings. During secondary school/college placements, trainees will gain experience of teaching Key Stage 3 and Key Stage 4 classes. Key stage 5 experience will be gained either whilst on placement, or if this has not been possible by attending a short separate placement at a school or a Sixth Form college to provide experience of A-level planning, teaching, and assessment. All UoM PGCE Science trainees will qualify with the 11-19 track for QTS.

Placements and School Experience

Practical teaching experience is provided through three teaching placements which typically take place in two institutions. The first of these (Placement 1) takes place during Term 1 and will normally be in an 11-16 or 11-18 school. Placement 2 will be completed in a contrasting school or college; this could be contrasting in terms of geographical location, school intake, department structure, Ofsted rating, or curriculum model. Depending on each trainees' professional needs, they will normally return to their first placement institution for Placement 3.

School Timetables

There will be a gradual build-up of teaching load which should start with some team teaching. There should be provision for trainees to observe lessons throughout the placement both within Science and in other curriculum areas. In Placement 1 trainees should be teaching 8-10 hours per week. In Placement 2 this increases to 10-12 hours per week and in placement 3 to 12-14 hours per week. This teaching experience should be across all key stages taught in your institution. There can be a gradual build-up of teaching load and some paired or team teaching; however, you are advised to get to your trainee up to their required teaching load as soon as you can (use your judgement and discuss this with your trainee). Trainees are expected to observe teaching in areas other than Science; watching high-quality practice in other subject areas is an excellent way of improving their repertoire of strategies and approaches.

Absence Procedure

If your trainee is absent during a school placement, they must email both you and their University Tutor, and complete the absence survey on Blackboard. Your trainee must set cover work if they are

well enough do so. When your trainee is ready to return, they should contact you to discuss when they can resume teaching and what to teach. Please keep a record of your trainee's absences and any late arrivals. If your trainee is late or absent for inadequate reasons, or too frequently, please inform their University Tutor as a matter of urgency. At a minimum, absence or lateness may provide early warning of a trainee who is in difficulties. At worst, a trainee with a poor record of attendance across the three placements (excluding interview and University days) will need to undertake additional teaching.

Addressing Problems

The University of Manchester PGCE is a collegiate course but sometimes problems and differences in opinion do occur. If school/college-based problems arise, the first points of contact are the Professional Mentor and your trainee's University Tutor. If you are concerned about any aspect of your trainee's progress, please raise this sooner rather than later so that timely intervention can be put in place to alleviate the immediate stress, as well as helping your trainee to address the issues where appropriate. Additional support can be offered through our Widening Access and Participation Project (WAPP) if appropriate. The WAPP scheme entails a designated member of the support team visiting a trainee on placement and using coaching strategies to help your trainee to reflect on their working targets and strengths. This provides additional opportunity for professional dialogue with an experienced tutor and teacher who is not involved with the direct training and aims to help your trainee to challenge their own assumptions and perceptions. Problems of all kinds are minimised if they are diagnosed and tackled early.

Concerns around trainee professionalism

Although rare, a trainee may act in way that is considered of a serious nature and go against professional expectations. This should be communicated quickly to your schools' Professional Mentor and your trainee's University Tutor. Failure to meet professional and personal standards, and extreme absences will trigger a concern and possibly a warning letter. We work hard with you to prevent trainees from receiving multiple warning letters, which would result in your trainee failing or being dismissed from the course.

Appendix 1: The UoM Science PGCE Curriculum Core Questions

Science Curriculum Intent U1/P1	Science Curriculum Intent U2/P2	Science Curriculum Intent U3/P3
Why do students learn Science? How do Science teachers model enthusiasm for the subject?	How do you communicate the importance of Science to students? What should a diverse and inclusive Science curriculum look like? Decolonising the curriculum and gender in science.	How do you communicate the relevance of Science to all of our students and their lived experiences? CA1.2
How do you foster a positive classroom environment? What is behaviour for learning?	How can you better understand equity in Science education? (Gender and diversity).	How can you build a more inclusive Science classroom through listening and responding to our pupils?
How do you know the content you are required to teach?	What is a medium-term Science curriculum? How do you sequence lessons to deliver a topic?	How can you integrate your medium-term planning into an efficient and effective planning cycle to enhance your ECT practice?
How do you apply your subject knowledge to the KS3 and KS4 curriculum and its assessments?	How do you manage subject knowledge and its application in post-16 teaching?	How will you continue to develop your subject knowledge with a view to your first teaching post?
What are Learning Outcomes? How do they guide planning in Science?	How can Science teaching develop students' awareness of climate justice?	How can you as a Science teacher develop your students' agency when expressing views on societal issues?
Comparing pedagogy in Biology, Chemistry, and Physics. Why are they different? Where are they the same?	How can you develop our subject specific pedagogy? How can you apply these across science subject specialisms? How can specialist subject bodies support your teaching and students' learning?	How can you develop subject-specific pedagogy through the use of practical work/required practicals?
How is practical work used to support the development of knowledge and skills?	Why are demonstrations important? How can you engage students to connect observations to theory? Lab-based (Jan day)	What do minds-on practicals mean in practice?
What is Assessment for Learning? How can you implement it in the classroom? How can you use questioning to explore students' thinking?	What is student data? How can it support your teaching?	How can you integrate student data and AfL to inform your planning and teaching?
What are misconceptions in Science? Why is understanding them important?	What is dialogic teaching? How can it support students being proactive learners?	How can you bring the Science curriculum to life and relate it to your students' lived experience.
How do you manage a laboratory environment? How do you keep your students safe?		How can you employ pupil groupings to enhance the effectiveness of practical work?
How do you model abstract concepts in Science?		How you promote learning outside of the classroom and illustrate the application of theory in the real world?
How do you adapt your teaching to support the needs of	How do you adapt your teaching to support the needs of	How do you adapt your teaching to support the needs

different students (intro)?	different students (empathy for all learners)?	of different students?
	As a Science teacher, what does inclusive educational practice mean to you?	As a Science teacher, what does inclusive educational practice mean to you?
How can you find support for developing reflective practice in Science?	How can you describe your professional identity? Securing your first role.	How can you identify your individual strengths? How do you share these with colleagues and peers?
How do students learn to be learners? (Theories of Learning) How can cognitive science techniques support our teaching?	How do you implement theories of learning in the Science classroom?	How do communicate research findings to an audience of education professionals?
What is enquiry-based learning? What is its significance in Science lessons?		How can you plan and implement enquiry-based learning into your practice both within and across lessons?
How can you work effectively with colleagues in the Science department?	How can you develop effective ways of collaborating with colleagues and establish a collegial working environment?	What is the focus of your development going forward. How will you prepare for your ECT years and beyond?