# School of Education and Social Work

## Mathematics 2016-17

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Acknowledgements

This handbook has been devised to meet the new Teachers’ Standards (DfE, 2012). I would like to thank partnership colleagues for their input in developing sections of this handbook. I should also like to acknowledge suggestions of good practice from colleagues at AMET, Anglia Ruskin University, and in particular Bob Vertes (St Mary’s University College), Diane Cochrane (University of Wolverhampton) and of course my colleagues in the School of Education and Social Work here at the University of Sussex.

Karen Gladwin
and The Sussex ITE Maths Team
1. Introduction

Welcome to the School of Education and Social Work (ESW) at the University of Sussex, and to the teaching profession!

The course that you are about to become involved in is one of the most well-established initial teacher education (ITE) courses in the UK, and one which has a well-deserved reputation for developing successful mathematics teachers with many mathematics departments in local schools. Many of the Mentors who will look after you in school have themselves trained to teach mathematics here at Sussex. The commitment of many local mathematics teachers and professional tutors to this course has done a great deal to ensure its high quality over the years, and this dedicated involvement is greatly appreciated by trainees and by the university based curriculum tutors.

We are very pleased that over two-thirds of our beginning teachers choose to remain in Sussex at the end of the year, gaining teaching posts in the local area while the remainder are successful in gaining posts in other areas of the country. This indicates a mutual recognition between our schools and trainees of the quality of education that each provides and we have a developing teacher research network across Sussex with some ex-trainees choosing to return to Sussex to study for the Masters in Education.

The purpose of this handbook is to provide you with a guide for the curriculum based elements of the course. You should read this closely as it provides you with essential information that you will need for successful completion of your training. You will however need to read this book in conjunction with the Course Handbook which gives you detailed information about your school placements and other important elements of the course. When taken together, these two guides will support your professional learning and development throughout this year. Although we respond to individual needs as much as we possibly can, these course guides provide a common starting point for your continuing professional development throughout this training year and gives subject specific guidance to trainees and Mentors and where relevant makes reference to the Teachers’ Standards (DfE, 2012).

This course recognises that effective mathematics teaching is about enabling minds and our central aim is to develop committed, resilient, thoughtful and creative maths teachers who will encourage pupils to think for themselves. The university pedagogy of mathematics based element of the course, outlined in this handbook, will support you so that you can prepare for and reflect on your practical teaching in schools. It will also help you to develop a deeper understanding of the complex nature of mathematics as a subject and consider the contribution that this makes to young people’s education. The teaching of mathematics has a long and established tradition in schools, with specialist staff, specialist resources and an approach to teaching and learning, underpinned by years of experience and research. However, mathematics is currently in the middle of some political debates, with major changes happening at GCSE; the shift of grades to 1-9, the loss of levels, the development of functionality and change of school leaving age to mention a few. Many people outside education will have strong views about mathematics and the ‘modern’ ways of working. Many teachers and schools are still developing their responses to the demise of the National Strategy and the rewriting of the National Curriculum. This means decisions about staffing, resources, curriculum planning and teaching and learning activities are still being made. It certainly presents a challenge, but also opens up some exciting opportunities for newcomers to the profession to shape practice and develop expertise. Our aim is that you should develop practical teaching skills and critical awareness of relevant issues in education. We seek to equip you with the fundamental information, perspectives, insights and skills that you will require to be an effective mathematics teacher.

The course will provide you with a detailed understanding of mathematics. Building on this thorough understanding, you will be able to establish a clear appreciation of the different skill areas. Your assignments will provide an opportunity to devise lesson plans and focus on key areas of debate, and ensure that your emerging ideas are clear, realistic and practical. Although the content you need to cover in the coming weeks may seem a little daunting, the course is not just crammed with lectures and note taking. The Curriculum Studies module is taught through a
variety of teaching methods that require your participation. Trainee presentations, group work, micro
teaching, directed activities outside of workshops, site visits, use of multi media and focused reflection
and sharing of experiences are all essential elements of a successful course and will demonstrate the
principles of effective teaching and learning.

The ITE courses at Sussex each consist of several key elements, we have done our best to make sure
that these elements blend into a coherent course for you.

The Reading List included in this handbook should be considered as a starting point for your reading, a
guide for developing your own research and preparation for workshops, this will be added to as the
course develops. **We would suggest that each of you build up an individual organic bibliography
as you read and work through your assignments. We have provided you with an example of a
form (found on pg. 51) to record details of each article/book you read.**

**Please make sure you read through this handbook carefully and make a note of key dates** – the
first term is filled with short tasks you need to complete most weeks and most ‘holidays’ are soon filled
with work often building towards your major assignments.

The information you need for the mathematics part of your course should be here or on the VLE but if
you have any questions about the course that are not answered please get in touch with your tutor.

We all wish you a stimulating, satisfying and successful year and look forward to working with you.

Karen Gladwin and ‘The Sussex Mathematics ITE Team’
2. Rationale and Aims

The idea of working together in partnership underpins all aspects of the Maths ITE here at Sussex. The course is run by a partnership between the University of Sussex and many local schools: **The Sussex Consortium for Teacher Education and Research**. All the partners in the Consortium share responsibility for planning, evaluating and successfully running the course, and remain closely in touch throughout the ‘training year’. Planning for the course is carried out jointly by mentors and the curriculum tutors at a series of mentor meetings. Monitoring and evaluation takes place in these meetings as well; and a continual process of informal feedback takes place whenever mentors and tutors discuss issues related to the course. Trainees are also encouraged to give regular feedback about their experiences and suggest ideas to improve provision, and these suggestions are generally incorporated into future planning. University and school experiences are mutually dependent – what is learnt in one context is applied and reflected upon in the other.

Therefore work in the university and schools is:

**Complementary and reinforcing:**

- Mentor sessions are, wherever practically appropriate, linked to university sessions to cover similar aspects of the Teachers’ Standards: see the recommended calendar mentor sessions.
- Courses are delivered in partnership with mentors and tutors leading sessions in and out of practice settings.
- Beginning teachers, mentors and university tutors share the same subject-specific guidelines for discussion in mentor sessions, target setting, review and assessment purposes.
- Course developments are agreed in mentor meetings and there is opportunity for regular review and evaluation of trainees’ experiences.
- Trainees are given tasks to complete in school which are discussed in both mentor and curriculum sessions.

**Structured so that trainee progress is regularly monitored and that training needs are differentiated:**

- Trainees start to work on subject gaps, prior to the course usually through Subject knowledge Enhancement courses and these feed into directed tasks and the subject audit, which are regularly reviewed throughout the course by mentors and curriculum tutors
- Mentors are provided with trainees’ initial audit information to plan a suitable timetable and training programme
- Mentors review trainee progress weekly and more formally at the end of each period of practice, prior to completion of the Professional Practice Profile (PPP). Mentors use the calendar of mentor training sessions to structure their training, but tailor this to the particular needs of their trainees. The PPP is completed at the end of professional practice and is passed to other mentors and professional tutors, who use it to plan a suitable timetable and mentor programme, ensuring that the trainees’ needs are met so that they can aim to exceed the Standards. The professional tutor and mentor complete this document at the end of the training, reviewing all the accumulated evidence, in consultation with the trainee.
- Trainees keep records of their school based training focusing on both strengths and targets to provide an on-going record of their progress in meeting targets and make these available to mentors and curriculum tutors via our tracking document.
Practically and theoretically driven to develop effective and reflective mathematics teachers;

- encouraging discussion to develop a personal philosophy towards the importance of mathematics and different approaches to teaching topics
- planning of lessons and sequence of lessons that engage pupils and challenge them and that are evaluated critically using feedback from experienced teachers and personal views, underpinned by reading;
- justifying the selection of teaching strategies appropriate to different pupils’ needs;
- sharing knowledge of current developments within education and how they can be utilised for mathematics;
- preparing assignments that make links between theory and practice in maths teaching;
- working creatively and professionally with curriculum/professional tutors and mentors to enhance your understanding of teaching and in particular the demands of teaching mathematics.

And enhanced by recognising wider professional and subject opportunities

- Cross-curricular sessions with other trainees;
- Subject development seminars;
- Organised field trips to local and national sites and events with a twin focus on pedagogy and subject knowledge developments;
- Training sessions led by visiting mentors and other experts, e.g. Mike Ollerton author of The Mathematics Teachers Handbook and Getting the Buggers to Add Up.
- Visits to other educational settings, e.g. Special Schools, A Level classes
- Involvement in wider school activities

Through these activities and approaches we anticipate that beginning teachers from Sussex will establish themselves within a national community of mathematics teachers and take pride in the following mathematics specific and generic knowledge, skills and understanding:

Generic skills in the context of teaching Mathematics

- Be able to monitor and guide pupils to a successful completion of assigned activities, in which they communicate their knowledge and understanding, whether this is structured questions, narrative, essay, role play, PowerPoint presentation, or visual display.
- Be able to present ideas, materials and activities that are within the grasp of all pupils, supporting their specific educational needs, including those recognised as ‘gifted and talented’.
- Be able to make appropriate use of ICT within one’s teaching.
- Employ a wide variety of activities in order to motivate and cater for a range of learning styles e.g. drama, simulation, role play, card sorts, hot seating, ‘mind mapping’, paired and group work.
- Exploit all reasonable opportunities to develop pupils’ literacy skills.
- Be able to lead pupils in reflecting in plenary what they may have learned from a lesson activity.
- Understand and apply the principles of Assessment for Learning, showing pupils how to review their own progress and set targets for improvement.
3. Expectations and Professionalism

As a beginning teacher, you will be regarded as a professional colleague by staff in the university and school, and should be treated as a member of staff by pupils in your school. There is thus a requirement that you behave in a proper and professional manner at all times. You are on a professional course so punctuality, full attendance and completion of all tasks no matter how trivial you see them are essential on all aspects of the school and university components. This includes not only formal written assignments and presentations, but also readings, lesson observations, preparation of lessons, shared VLE tasks and so on. It is also essential that you take responsibility for maintaining your teaching files in order and up to date. Failure to meet any of these requirements may put your progress on the course in jeopardy.

Please ensure that you understand your school’s policy on reporting absence in induction week, in the event of illness: whom to contact, by which time in the morning and at which point a doctor’s certificate would be required. It is essential that you do not just communicate absence by text or e-mail as your lessons need to be covered, so it is your responsibility to ensure that key teachers have this information early in the morning. You should always set work or give the school some idea of the content of the lesson, so that cover for your lesson can be arranged. As a beginning teacher, you will also broadly follow school holidays, although please note that half-terms are ‘directed study weeks’, allowing you to focus on assignments and school preparation and that you are sometimes required to attend university during this time. School holidays are long, compared with those of other professions, and so non-urgent dentist or other appointments should be arranged in these.

There is limited time for curriculum or mentor sessions and missing one will mean that something vital is missed that will not be repeated. Please contact your curriculum tutor by email or telephone if you are unable to attend a professional studies or curriculum session. If you have advance warning of an absence, then you should seek permission from the university or school. In either case, you should find out what you have missed, complete the relevant paperwork and fill any gaps in your learning. Of course, illness and extreme personal difficulties afflict us all from time to time, and your Curriculum tutors and Mentors will be sympathetic and supportive in the event of personal need. Tutors, however, must be kept informed of all situations.
4. Mathematics Curriculum Studies

4.1 Curriculum Seminars

Each seminar tackles a specific topic through a variety of teaching styles and resources, emphasising interactive activities and practical teaching strategies. Sessions include a focus on teaching and learning theory, pedagogic demands, assessment, differentiation, course/exam requirements and ICT. They will also consolidate generic skills such as lesson planning, questioning, whole class teaching and classroom organisation in the context of mathematics classrooms. Additionally there will be opportunities for peer teaching, progress reviews and bespoke discussions of emerging classroom issues.

University curriculum sessions are mainly delivered on Fridays. Times, venues and rooms may be changed on occasion but this will be notified via the VLE. During induction, the rooms we are in change so please check the schedule for where you should be. From the 26th September, most mathematics curriculum sessions will either be held in Fulton 203 or at a partnership school. Session timings may vary but usually follow these established timings (for induction, please refer to induction timetable):

Induction & Autumn Term

08.45-10.00: Professional Studies lecture: compulsory (see VLE for details)
10.00-13.00: Curriculum Studies (including break)
13.00-14.00: Lunch
14.00-16.00: Curriculum Studies
16.00-17.00: Sign-ups: a range of Professional Studies optional sign-up seminars held in this slot. Or use this time to get into the library to do some research. Or perhaps join your colleagues to talk over the day.

Appropriate breaks will be provided throughout the day, timings of these breaks will vary to ensure that sessions can be flexible and offer sufficient opportunities for extended discussion.

Maths curriculum sessions are likely to cover topics such as:

- 'A' Levels
- EAL
- Planning with spider diagrams
- APP & AFL
- Differentiation
- Lesson Planning
- Misconceptions and Errors
- Group Work
- Current GCSE pathways
- Meeting the Standards
- Working with TAs
- SEND + Inclusion
- Questioning
- Choices at post-16
- Games & stimulations

They will be presented by a variety of personnel such as Curriculum Tutors, ex-trainees, Mentors, and guest speakers from the wider maths community at a variety of venues including partnership schools.

The full programme for Professional Studies will be posted on the VLE; reminders and key information relating to this will appear each week on the VLE.

Amendments to the maths curriculum studies sessions details and dates may be made according to circumstances. You will be informed in advance of any changes. For those trainees working in School Direct partnerships please ensure you check out any specific course variations. Now go and get your diary and populate it with all of the key dates! Do it RIGHT NOW!
4.2 - The Mathematics Curriculum Module & the Teachers’ Standards

The Curriculum module – including and especially the linked work in schools, the school based assignments and set readings all prepare you to meet many of the Teachers’ Standards (DfE, 2012). The programme (available on the VLE) planned for you identifies specific sessions where links are made to specific Teachers’ Standards – by attending these sessions however you are not meeting these standards – rather you are presented with the opportunity to engage with their expectations and begin to think about how you might address them. The Teachers’ Standards are there to uphold a minimum common standard for entry to the profession across the country. They are not a “syllabus” to be covered nor do they describe the lengthy and complex learning process that will lead to them. In terms of your learning, many of these are addressed implicitly or explicitly in virtually every curriculum session and will be tackled with your Mentor in school nearly every week. You cannot learn to frame lesson objectives, assess pupil learning or evaluate your teaching, for example, in a one off session, nor in a one off school based task. Rather, these are underpinned by reflection on curriculum issues and pupils’ learning over time.

4.3 – Curriculum Studies Support Through Study Direct

Study Direct is a Web-based Virtual Learning Environment (VLE). It allows you to access course materials and support facilities on-line. Over the year it will contain course documentation, resources and support materials. It will also be used to send reminders and announcements and to host discussion forums. You will be set a number of tasks using Study Direct throughout the year. Study Direct plays a vital part in facilitating and supporting your learning both in the university and in school, it will also be an important way to keep in contact with your peers. It is essential that you login in to Study Direct regularly, particularly when you are on professional practice. You will be expected to make weekly uploads of your key documentation each week.

You will automatically be registered with Study Direct. Study Direct can be used from any University networked PC as well as most PCs connected to the Internet. In the browser address field type the following address: www.sussex.ac.uk/students. Study Direct Login is located on the top right hand corner of the screen - enter your standard university computer username and password. On logging in the first screen to appear is your Study Direct home page. You will see a list of Course Sites click on Mathematics 16/17 you will then be able to access electronic versions of forms, course hand-outs, etc.

4.4 - Information Communication Technology (ICT)

All teachers are required to know how to use ICT effectively in teaching their subject and in supporting their wider professional role. For those whose ICT skills and confidence require development ICT support is provided in the University in the form of ICT supported self-study, and support from tutors and technical staff. You will work throughout the year on developing your ICT capabilities keeping evidence of your progress.

University sessions will develop the pedagogic use of ICT in the teaching of mathematics as an integral part of the course. You will be expected to use ICT within your school placements for research, administration, resource preparation and work with pupils. It is expected that all assignments and submissions to the university course will be presented using ICT. Lists of web sites to visit to support all aspects of your work and to familiarise yourself with current practices and issues in education and mathematics education are available on Study Direct and in your reading list.

Opportunities to use ICT will vary considerably between schools. Some will have given pupils and staff members i-pads, some may only have projectors for PowerPoint or be using IWBs. You must take full advantage of any opportunities for working with ICT that you and your pupils are offered in schools. If you get the chance, we suggest planning elements of ICT in at least one of your main units of work.
To help you consider the role of ICT, both for your own personal subject knowledge and using it in the classroom, we have provided you with some questions to consider in the table below.

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<td><strong>PLANNING AND PREPARATION</strong></td>
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<tr>
<td>1. How are ICT skills developed across the curriculum and what role does your subject have to play within this?</td>
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<td>2. How will you integrate pupil use of ICT into your teaching plans, long and short term?</td>
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<td>3. How, precisely, can ICT contribute to your learning and teaching objectives in your subject lessons?</td>
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<td><strong>MONITORING, ASSESSING AND EVALUATING</strong></td>
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<td>4. How will you evaluate whether ICT has been effective in achieving your learning/teaching objectives?</td>
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<td>5. How will you assess pupil progress in using ICT within those areas that are of relevance to teaching my subjects?</td>
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<td>6. How confident are you in being able to model good practice as an ICT user?</td>
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<td>7. Hwhat criteria will you use to evaluate subject-specific software and other ICT tools used in your subject teaching?</td>
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<td><strong>TEACHING</strong></td>
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<td>8. How will you organise the classroom when using ICT?</td>
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<td>9. How will you explain ICT activities to pupils using correct terminology?</td>
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<td>10. How competent are you in dealing with everyday problems that arise in using ICT?</td>
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<td><strong>PLUS: PERSONAL / PROFESSIONAL USE OF ICT</strong></td>
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<td>11. How will you make use of ICT (word processing, DTP, spreadsheets, databases, the Internet) to assist you in planning lessons and preparing materials.</td>
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<td>12. What legal, ethical, health and safety issues do you need to be aware of in using ICT?</td>
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<td>13. How will you make use of ICT to assist you in carrying out general admin. tasks?</td>
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<td>14. How will you use ICT as a tool for your own professional development?</td>
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5. Professional Practice: Success, Enjoyment and Don’t Panic!

This is what you signed up for after all - excitement and challenge await. All the procedures, requirements etc. for Professional Practice are set out in the main Course Handbook and you should study them carefully. The following guidance is offered to help you get the best from your time in schools.

5.1 - Schools as driving partners in teacher education

The schools that you will be placed with are partners with the university in your teacher education and have agreed to support you in your development as a beginning teacher. In effect, during your time in schools they will be responsible for your training experience. The university will continue to be involved in monitoring your progress but schools lead in designing, implementing your training and assessing your progress. As well as organising your mathematics teaching experience in the classroom, the schools also deliver their own Professional Studies programmes.

There are a number of key people in a partner school:

The Professional Tutor – oversees your experience and has a key administrative role; they are likely to be a senior teacher in the school, he/she may also be a Mentor but not necessarily in your subject.

Your Mentor – he/she has an oversight of your professional development in mathematics.

There are other key people too: the secretarial staff, the site manager, the reprographics manager, SEN co-ordinator, librarian and the ICT technician. For your own survival it is essential that you very quickly form good working relationships with these people and show that you respect them for the vital roles that they play in making the school tick.

In school, do remember that teachers are constantly busy and work under immense pressure. Though your Mentor is committed to your training and you can expect every support in accordance with the course requirements, do remember the obvious: choose appropriate moments to ask for help, always express thanks to colleagues, be helpful in the department and try to smile even when you are under pressure. Always thank teachers whose lessons you are observing and make a positive comment/s about a particularly effective or interesting aspect of the lesson: all of us find being observed a somewhat daunting experience!

Other members of the department will play a part in your training. They will share classes, observe and give feedback and discuss aspects of Mathematics teaching with you. Much of this inevitably happens in teachers’ ‘free time’ and you can repay this goodwill in a number of ways. Always be ready to discuss whatever is on the agenda for a lesson or meetings, have lesson plans prepared in advance (you should have each lesson plan ready to be checked by your Mentor and teachers two school working days in advance of the lesson) and display initiative in researching new topics and preparing resources that you can share with the department. You can also help spread good practice – you are in a fortunate position as you will be having input from a variety of sources about Mathematics education and may experience some new elements of practice that some teachers may not have had access to, so be prepared to share your insights with your colleagues.
5.2 - Joining a school community

A school is an established community which has established a way of working for all of its members. Outsiders will be welcomed as temporary visitors, but this can make for tricky situations for beginning teachers. So:

- In your enthusiasm for newly discovered teaching approaches don’t give the impression that you know more than the teaching staff!
- Make sure you don’t disturb the established relationships between staff and pupils. They will have to pick up the pieces when you have gone.
- Don’t use somebody else’s coffee, tea etc! In fact take in extra provisions to share and say thanks.
- Adopt the ethos and protocols of the school during your placement.

5.3 - Being professional with colleagues

This is a tricky issue to broach, as everybody means to do the right thing. However, there are some pitfalls for the unwary, so it is worth mentioning:

- If you have a serious issue with a member of staff consult your Professional Tutor or Mentor. Don’t discuss the matter with other members of staff or within hearing of other members of staff. For general moaning your Curriculum Tutor will never mind listening.
- Please never, by word, look or gesture, support a pupil in his/her grievance with a teacher. Sadly this does happen and is undermining for colleagues.
- Play your part in enforcing the school rules even if you don’t agree with them.
- Always get to school in good time, don’t leave the premises during the day without agreement with the school, and don’t leave as soon as the final bell goes. It gives a poor impression, but in professional terms many issues arise and have to be dealt with after school (e.g. who looks after the pupils whose bus has broken down?).
- We expect you to attend whole staff meetings as well as departmental meetings. Alongside any INSET and Parent/Open evenings that might occur during your placement.
- When you finish your school experience, make sure you have all your marking up to date and return any books or resources you have borrowed.

5.4 - Being professional with pupils

Always be professional in your dealings with pupils.

- Be firm, fair and consistent with them, and make your expectations clear from the start.
- Never be sarcastic or derogatory to pupils, regardless of their behaviour and try to treat each lesson as a blank sheet, in terms of your expectations, welcoming and smiling at the class to start in a positive mode.
• Praise pupils whenever possible, but of course balance this by applying school sanctions for behaviour management, as appropriate.

• Ensure that you are fully prepared to teach pupils, with well-planned lessons and appropriate resources.

• Equally, it is very important that pupils receive feedback on any work you set them as soon as possible. Discuss timings for returning pupils’ work with your Mentor, but work should not usually be kept by you for longer than a fortnight at the most.

• Think very carefully about how you present yourself publically outside of teaching. Everyone has a right to a private life but all teachers are challenged to consider the appropriateness of comments or images on accessible social networking sites. Please ensure that such information is never shared with pupils.

5.5 - How get the Best from Pupils

Children and young adults often thrive on routines in their lives. You need to make sure that you are watching carefully for the routines of your classroom teachers and try to match them. This is often a strain for trainee teachers as the teachers may have variations in their routines. However, the main school procedures should be common in all the classrooms.

Get to know them – look at their data. Who struggles with reading, writing, or hearing? How will you modify your lessons for these pupils? Who likes gaming? Who rides their bike to school? Who has a dog? Who is shy or extraverted? Who struggles with friendships? Think about them as people, not a class. They are mostly teenagers that you are teaching and as you well remember this is a painful time – try to empathise with their plight.

Start well – greet the pupils at the door; let them know that they are welcome in YOUR space. Smile at them and say hello. Praise the ones that are in uniform and politely ask the ones who are not to wait and get themselves together before they come in. Ask them how their weekend was if it is Monday etc. Engage with them. DO NOT be fiddling with ICT at the front of the class and ignore them as they come in – it will not do you any good! Give them time to get organised at the start of the lesson. They need a few minutes to set up their tables with planners and pens etc.

Use positive language. If a pupil gives you a wrong or off-base answer say well done for trying and open it up to the rest of the class to see if they can build on the answer. Never say ‘wrong’ or ‘no’. It crushes them. If a child has been naughty the lesson before do not start the lesson by reminding them of it; leave it in the past. It is up to you as the adult in the room to build the bridges with the pupils and mend what has happened.

Do not be scared to animate – use excitable language like “fabulous” and “stunning”. If you need a thesaurus for this then do so and have these words flashing up on the white board when someone gets something right or has a go.

Do not be scared to be dramatic and theatrical. This cannot happen every lesson, however try using music while they are entering the room or completing a task, dress up, offer them a taste from the past. Engage their senses, elicit emotional responses; to help them remember.

Prepare and plan carefully – you cannot possibly expect all your pupils to make adequate progress in your lessons if you have not planned for them. You need to attempt to plan for each and every one of them and anticipate where some of them may struggle or excel and plan activities with this in mind. Plan ahead and make sure that you are building in a variety of activities in the lessons to ensure that all
the pupils can engage in learning that they enjoy. As a teacher we may have a preferred method of
teaching, this is irrelevant, it is what the pupils require that matters.

**Help them take pride in their work** – display their work. Show them that it is valued. Give them time
before a marking session to make it all nice and tidy.

**Help them with their behaviour** – this starts with your behaviour. Be positive with them; use praise as
often as is comfortable. Quite often, you can steer a slightly more challenging pupil by praising their
friend for what they are not doing. Stick to the school policy whenever possible, this will help you with
consistency.

**Never give whole class detentions** – this is simply not fair. It will damage your relationship with the
class. As a trainee teacher there is no way that hand on heart, you can say that the behaviour of an
entire class is their fault. It is most definitely your fault if every child is not behaving and getting their
work done.

**Do not get side tracked** – some pupils see this as a form of sport. They ask this charming and
friendly new teacher an interesting question and they notice that they do not have to do any real
learning for about 20 minutes. Praise them for their fabulous question and move the lesson on.

### 5.6 Curriculum Tutor School Visits

A trainee will normally expect curriculum tutors to visit them in school twice during the year, once
before the winter break and again before the main period of professional practice ends. The focus of
these school visits is to moderate and review trainee progress through a **joint** lesson observation with
the Mentor or class teacher. Evaluative feedback will be given in a tripartite for all trainees. While a
review of school based files and the PKfS portfolio will be undertaken by the visiting tutor. Additional
visits can be arranged if necessary at the request of either trainees or Mentors. The purpose of a
curriculum tutor visit is to provide the trainee with feedback on their progress, to identify strengths and
to develop strategies for improving practice and moderate school based training. Curriculum tutor visits
are therefore nearly always exclusively formative and should not be viewed as a kind of formal
assessment of classroom practice.

The curriculum tutor asks trainees to identify suitable visit dates from a list circulated in the autumn
term. Once the date and time have been decided, the trainee is expected to notify the Mentor and the
Professional tutor in school. Please note - trainees will not be visited without notice. On most school
visits the curriculum tutor will observe the trainee teach a lesson. In preparation for this visit trainees
should prepare a lesson plan (using the mathematics pro-forma), identify a suitable focus (linked to
Teachers’ Standards) and arrange for the curriculum tutor to be guided to the teaching room on arrival.
Ideally it is helpful if there is time before the lesson to discuss this focus. Following the observation, the
lesson will be reviewed by the trainee, Mentor and curriculum tutor and trainee’s files are checked. In
the interests of moderation and professional development it is essential to arrange a joint observation
between the Mentor and curriculum tutor. At the end of the visit the curriculum tutor and Mentor
contribute to a written report on the visit, copies of which will be kept by all parties. The trainee is
expected to email their own evaluation to the tutor and keep a copy for their records.

Curriculum tutors have two key roles:

- To check that the school is training you in accordance with the programme agreed with the
  university.

- Monitor your progress, challenge and support you. **Support** is the important word here. Your tutor
  will want to help resolve difficulties that may arise and offer concrete advice if it is sought. If crises
  occur between visits please contact your tutor by telephone or email and indeed you should do.
Problems can usually be sorted out by phone or email but your tutor will make an emergency visit to the school if that is required.

If you are unsure of any arrangements or require additional support, make contact with your tutor promptly to allow adequate time for a response.

5.6.1 - Top Tips for preparing for your University Tutor Visit

Before the observation....

- Check your school arrangements for visitors, including parking (remember Karen drives a camper van!) and signing in procedures and inform your Tutor in advance of any special arrangements.
- Make sure you have told your Mentor and Professional Tutor that the University Tutor is visiting and confirm arrangements for them to meet, during the visit, as required.
- Make arrangements to meet your University Tutor on arrival.
- Ensure that you have allocated appropriate time for feedback following on from the lesson and that your Mentor is aware of this. It is likely that the visit will take up to three hours for a one hour observation. (It is particularly important to arrange visits carefully to avoid clashing with teaching commitments, but where this does happen make sure your classes are covered and you have arranged for appropriate work to be available)
- Arrange somewhere to meet with your University Tutor for the feedback session. Ideally this should be a separate room where your conversation can take place privately. Try to avoid using the staffroom or similar areas.

When you are being observed...

When a class teacher, Mentor or University tutor is observing your lesson, you must:

- Make sure all your files are available for your observer at the start of the lesson.
- Make copies of your lesson plan and any resources you intend to use for your observers. If relying on technology or something outside of your control have a ‘Plan B’.
- Ensure that there is somewhere for the observers to sit!

When receiving feedback on the lesson...

- Ensure that you have somewhere private enough to discuss the lesson openly.
- Remember your observer will want to know how you felt the lesson went and how you are progressing towards your targets. Ensure that you complete an evaluation form before the meeting.
- Much of the feedback will inevitably be positive, in order to encourage you, and to celebrate your successes and progress. Don’t be tempted to dwell too much on these aspects of the feedback. Take any areas for improvement seriously, but not personally. Remember you are doing this to learn and improve!
• Discuss positively learning points and targets, not just what they are, but how you can achieve them.

• **Most important of all** – remember that it is what pupils have got out of your lesson which is of the greatest importance. You must discuss your perception of what pupils learned, and compare it with your observer’s perception.

5.7 - If things go pear-shaped

If you are unhappy with your experience and you are convinced that it isn’t working out, here is the procedure –

1. **Contact your Curriculum Tutor** and keep him/her informed of developments.
2. **Re-read the Main Handbook** sections on responsibilities and school experience entitlements.
3. **Discuss the issue with your Professional Tutor or Mentor.**
4. If there is no improvement your Curriculum Tutor will visit the school and arrange for a **supervisory conference,** involving the Professional Tutor, Mentor, yourself and any other parties involved.
5. The supervisory conference may result in an **Action Plan** – a way forward agreed by all parties.
6. Implementation of the Action Plan will be closely monitored.

5.8 - Keeping in touch

Your school placements are scattered throughout Sussex and each of you may well feel geographically and emotionally very isolated. Even when there aren’t any serious problems it’s good to talk. So remember the VLE discussion forum. Also, use email, texting, WhatsApp, and so on to maintain informal support networks.

6. Organisation, School Tasks and Observations

6.1 – File Everything!

As with any professional training, there is a certain amount of paperwork generated during the course. It is therefore essential that trainees establish a system for organisation from the beginning of the course. To help with this organisation, there are a number of different files which need to be set up:

**Curriculum File** – this should contain session outlines, readings & hand-outs, your own notes and reflections on your curriculum sessions, as well as attempts to assess and develop your subject knowledge at the University.

**Teaching File** – this should contain material from your professional practice including lesson plans, classroom resources, schemes of work, observation records, copies of pupils marked work, mark books and other school assessment materials.

**Professional Studies File** – this should contain your notes, hand-outs and documents issued as part of your general professional studies programme on wider school issues.

**ITE Portfolio** – this will draw on all of the above files, as well as formal ITE assessments (written assignments, observations and reports) to demonstrate your best practice and demonstrate your success against the Teachers’ Standards. You will be expected to develop this over both professional practices and present this at the end of the programme.

Further details on the nature of these files and their importance can be found in the main ITE Course Handbook.
6.2 – Plan your time
Many teachers use a planner document like this:

These are really useful as they have a day per page for you to map out what you are doing in your lessons and help you plan ahead.
You can buy them online from: http://www.edplanbooks.com/

We are not saying that you have to buy them, but other trainees have found them indispensable in the past.
Alternatively you may prefer to use an ordinary paper diary or an electronic diary on a tablet or laptop. The principle is the same programme in all key events and deadlines.

- **Note the key dates for assignments** (proposals, drafts and deadlines etc)
- **Note the key dates for assessments** (progress updates, professional practice profiles and cause for concern)
- **Note the days that you may be finishing late** (mentor meetings, open evenings)
- Make sure that you do not plan family/friend events at times that seem very busy on the calendar.
- **Build in time that is ‘holiday’** to ensure that you are not too tired throughout the year.

6.3 – Get some kit

You are unlikely to be in the same classroom everyday and might often be far from a maths resource cupboard so it is worth investing in a portable classroom resource unit. Essentially a cheap toolbox. It helps to avoid distractions and time wasting by finding certain bits of equipment at the start of lessons.
I recommend that you buy a cheap toolbox like this and raid your cupboards and perhaps even car boot sales for

**Things to put in your box:**

- Loads of pens & pencils
- Colouring pencils & pens
- Rubbers
- Rulers
- Scissors & Glue sticks
- Highlighters
- Few calculators
- Protractors and compasses
- Dice, playing cards…
- Blutac
- Board pens
- A variety of paper.

6.4 - Planning advice

**Lesson plans**

We will spend the first few weeks of the course concentrating on lesson planning and most of the introductory books for trainee teachers include substantial sections on how to plan a lesson. The planning grid reproduced here should be used to get started as it prompts you to consider all the necessary elements from the outset. You should use this proforma (an electronic version will be available on the VLE) for all your lesson planning during your first school experience and it is important that you get used to thinking about the different aspects of the lesson. This will also enable you to be more reflective in your evaluations, although you may wish to devise your own evaluation sheet to enable you to focus on specific aspects of your teaching, please feel free to do so. The most important thing is that you evaluate your planning and teaching on a regular basis. As the year progresses you may devise your own
documentation as we all plan in slightly different ways. As long as your plans include the same information as this plan does, it should be acceptable. However, you may be required to use a proforma that is provided by your placement school. This is to be expected, as you are, after all, a teacher in that school.

Setting Lesson Objectives
Useful stems:

**Know that…**
Knowledge: formula, BODMAS, names, language terminology…

**Develop / be able to…**
Skills: using knowledge, applying techniques, analysing information, organise ideas effectively, appreciate, evaluate choices, and make hypothesis and deductions…

**Understand how / why…**
Understanding: concepts, reasons, effects, principles, processes…

**Develop / be aware of…**
Attitudes and Values: empathy, caring, problem solving skills, moral issues, reflect on the writer’s presentation of ideas and issues…

**NB Objectives are NOT activities …or Outcomes**

<table>
<thead>
<tr>
<th>e.g. activity:</th>
<th>work in pairs to write objectives</th>
<th>This is what the student does in the class</th>
</tr>
</thead>
<tbody>
<tr>
<td>action</td>
<td>understand how to plan objectives</td>
<td>Understand how to work with others</td>
</tr>
<tr>
<td>outcome</td>
<td>draft objectives</td>
<td>This what the student actually learns from doing this activity</td>
</tr>
</tbody>
</table>

Objectives can relate to the learning processes too e.g. ‘Develop awareness of others’ perspectives’ through paired work.

**6.5 - Lesson plan checklist**

Before you teach the lesson, make sure you have considered the following points:

- Outcomes are clear and achievable for the lesson
- There are opportunities for you to assess the extent to which outcomes are met
- The lesson fits clearly into a wider unit
- The activities are clearly linked to the outcomes
You are aware of the pupils with particularly high or low achievement

You have reviewed each activity to ensure it is inclusive

You are clear how the higher achieving students will be extended in this lesson

You have selected or designed materials appropriate to the needs of the class

The pupil activities are varied throughout the lesson, incorporating a variety of learning styles.

You have planned questions to use during your presentation or explanation

Cross-curricular links are substantial and clearly explained or linked to activities

You are aware of the level of cognitive demand of each activity and have planned an appropriate sequence

You have planned appropriate groupings and can justify your choices

The lesson plan has been seen by your Mentor or the class teacher, two days in advance

6.6 - Lesson Planning
Thinking about planning units, schemes of work for your Professional Practice

Expectations during Professional Practice
Whilst most departments will have schemes of work in place, they vary in depth and detail and some departments will be willing to give you freedom to deviate from established teaching plans, as long as you cover certain core requirements, such as standardised assessment tasks. Whether you have complete freedom to plan or only limited freedom, you should have developed a good grasp during your Professional Practice of how individual lessons string together into schemes of work and how you ensure they all add up to a substantial learning experience. If you have engaged with the medium term planning process in advance, you should be fairly sure that the outcomes of the whole scheme of work will be greater than the sum of the parts (i.e. the string of individual lessons).

Starting the planning process
There are a number of simple questions to ask at the beginning of your planning:
• What am I trying to achieve with this group?
• What has been taught before?
• How much time is available?
• What resources are available?
• How is the work to be assessed?
• How does the work fit in with other work the pupils are doing?
• What is going to be taught later on?
• What does the department require of me in terms of following their existing plans?

Once you have identified these key issues, they provide you with the parameters for your own planning. You then need to think about what goes in to the scheme of work and what you leave out.

What goes in to a scheme of work?
There are a number of criteria you could consider when planning what you want to include in your scheme of work (SoW) and how you put it together:

For pupils to progress further in each lesson, it is important for you as the teacher to:
• recognise pupils’ starting points for the lesson and the importance of prior learning and knowledge
• develop pupils’ knowledge, skills and concepts to move them on through direct input, modelling and the setting and correct sequencing of tasks that are appropriate
consider how to monitor and assess pupils’ interim progress
recognise, record, report and celebrate pupil progression

Learning styles
You should also evaluate your SoW according to the range and variety of activities you have included. It is useful to use the medium term planning process as an opportunity to ensure you have included activities that appeal to a variety of learning styles. It is often difficult to include activities in a single lesson that suit all learners, but across a series of lessons you can ensure that there are activities at regular intervals that ensure all learners are equally likely to feel they have something to contribute and something to gain. If you do not review your medium term plan in this detail, but rather plan for content coverage alone and decide on activities lesson by lesson, you are more likely to favour specific styles. In some cases teachers may unconsciously favour their own learning style, in other cases, an over-reliance on text books might lead to lessons that marginalise kinaesthetic learners.

What should you leave out?
Earlier, you were advised to think about the adequacy of coverage in terms of ‘getting in’ enough of a spread in terms of time, place, significant events etc. These are intended to prompt you to ensure you have indeed made the best choices about what content to cover. If you misuse these prompts they will lead you to feel under pressure to include more and more content (and probably abandon the pupils to understand less and less).

Medium Term Planning
As with lesson planning there is no correct way to lay out your plan – as long as it is clear and helps you organise the learning sequence it will do the job. The key point is that the scheme of work grid should summarise the lessons and provide an overview. You expand the ideas and flesh out the activities in your lesson plans specifically for your class. You may want to experiment with different templates and you will find schools and departments have their own models for medium term planning. Other formats are also widely available on the internet.

Remember to include
- your TOPIC
- Timings
- Lesson Objective
- Lesson Outcomes
- Key concepts
- Key questions
- Main activities for teachers and pupils
- Enrichment opportunities / differentiation
- Resources
- Assessment opportunities – including formative and summative where appropriate
- ICT opportunities
- Homework

6.7 - Working Within a Mathematics Department

When you begin school experience you become a temporary member of a mathematics department: the colleagues with whom you will work are potentially a great source of support, ideas and even inspiration! To get the maximum benefit from working within the department it is important to approach the experience with a willingness to learn from its members, to join in and to make your own contribution. All this, of course, needs to be done while being sensitive to the workload and the pressures which colleagues are under.
Information gathering
You should expect to find out early in your contact with the department, from your Mentor or otherwise:

- Who are the members of the department and what responsibilities do they hold? [Your Mentor will clearly be your main source of support, but other colleagues will be only too willing to help if approached sensitively]

- Is there a departmental handbook?

- Is there a departmental base and if so, how you can use it without inadvertently sitting in the wrong seat!

- What ‘central’ resources are available within the department? e.g. books, worksheets, posters, games, structural apparatus, practical equipment, TV and video programmes, interactive whiteboards. Where are they kept and how can you gain access to them? A particular need will be access to ICT equipment. Is a digital projector available that will work with your laptop?

- What are the procedures you should follow for photocopying or resource borrowing, including room keys and laptops?

- What policies exist for the department? These may be the school policies adopted directly, or adapted for the department’s needs. They may include, in particular, Assessment, Behaviour, Homework, and SEN policies.

- What procedures will you need to follow, what forms will you need to complete to conform to departmental or school policy e.g. homework records, commendations and rewards for good behaviour, referral forms for poor behaviour and corresponding sanctions? Is there a departmental detention system?

- What are the key events in the calendar while you are in the school – examinations, key assessment dates, reports for parents/carers, parents evenings?

- When are departmental meetings held? As the expectation of the university is that you will attend all department meetings, INSET training and parent evenings that the school hold while you are on placement there.

- Are there any whole school or department training sessions available to trainees?

- Are there any health and safety issues of which you need to be aware? You should routinely be aware of fire procedures and evacuation routes from the rooms in which you teach and first aid procedures in the school.

- How does the department evaluate its own work? Many departments now have self-evaluation processes within an overall school scheme and use explicit evaluation criteria. There may be a senior member of staff (head, deputy, senior teacher) who is responsible for monitoring the work of the department.

- How do these apparently very busy people find time to relax and to get to know each other better?

*(Are there other questions useful to add to the above list for future trainees? Please feed them on...)*
Listening and learning

You will be busy and early on, most if not all, of your energies will be directed to planning, delivering and evaluating your lessons. However, as time goes on, you should be able to make good use of the opportunity to learn at first hand from experienced colleagues. You should:

- Observe as many lessons taught by colleagues as you can. Mathematics lessons, of course, but also in information technology which you will be applying, and, if possible, other subjects: e.g. modern languages for classroom organisation and management, design technology for the use of equipment and considerations of health and safety, P.E. to see how pupils' learning and behaviour can be managed outdoors; Drama to see how pupils are brought back to listening and learning after being given freedom to express themselves; geography and science to see what assumptions are made about mathematical knowledge of the pupils and to what uses their mathematics is being put.

- Listen to the discussion, formal and informal, that takes place within the mathematics department and staffroom – not all will be constructive and enlightening, but much will be;

- Ask questions - not too many at a time, though, so as not to try people's patience [In many schools one of the reasons for taking on trainees is to generate opportunities for discussion about teaching. Make sure you exploit this];

- Ask for help when you need to – you will notice that even experienced teachers do and that effective departments are organised to provide mutual help and support;

- Identify key issues and priorities for the department and the school while you are there and observe how they are tackled;

- Let your Mentor and or your tutor know if there are aspects of your school experience with which you are not happy. This is your responsibility – the school, department or university cannot help unless you make your feelings known;

- Observe (by negotiation) other events or meetings: internal or external assessment and moderation meetings, year assemblies and meetings, evenings for parents/carers based on subjects.

Your contribution

While you are in the department, you can contribute as well as benefit. You can help by bringing your energy and enthusiasm to:

- Being a 'second pair of hands'. When observing lessons agree with the teacher whether you are strictly an observer or whether you are supporting him or her by working with individual students or groups of students;

- Contributing to mathematics clubs, homework clubs, revision classes which take place after school or at lunchtime;

- Providing a learning resource you have developed for use in your classes;

- Assisting with extra-curricular events - e.g. music, drama, sport;

- Producing resources and leaving a copy for the department;

- Looking out for other opportunities to help or contribute as they arise;
6.8 Some important issues to think about:

- This will be the **hardest** year of your life! Shall I say it again? This will be the **hardest** year of your life!

- The course is not about teaching mathematics, but teaching children mathematics.

- To teach well isn’t just being a good explainer or about delivery but about facilitating learning, and especially being a good manager of learning.

- See yourself not as an apprentice, but discovering which approaches work best for you. Be prepared to adapt rather than adopt others’ strategies, whether you experienced or observed them. Remember what worked for you in your own learning may not necessarily work for all pupils now.

- Being able to do the mathematics yourself is **not enough** - you must plan for pupil learning, and have a number of strategies at your disposal for ensuring it takes place.

- No Plan = NO TEACH. If you fail to plan, you effectively plan to fail. Your Mentor is well within their rights to not allow you to teach if you have not planned appropriately for your lessons. If you do not teach, you are likely to fail the placement.

- You should see recording of your learning as important in itself, as well as for evidence.

- You are expected to share your learning with others and be open to learning from them. One of the strengths of this course should be the support you get from, and give to, fellow trainees.

- You must not be scared to make mistakes: admit them, and seek help when you need it. If you find yourself in a hole, stop digging!

- You must set your personal expectations high, but must not be a perfectionist: a good mathematical analogy is the process of "trial and improvement".

- We care about you as a person: ensure we treat you, and you treat others, with respect. Please signal if we or others, treat you with less respect than they were given.

- You must be able to accept professional judgements without taking personal offence.

- Being a good member of the teaching profession is not just about performing well in classrooms. You will be a member of several teams reliant on your work.

- It will be important to retain a sense of perspective about your work, so that you make and take time to be other than a trainee teacher this year.

6.9 - Induction & Mathematics in Schools Tasks

**Induction - Getting Started**

When mathematics trainees arrive at the university they have an intensive induction programme and a number of lectures on professional values as well as information about the Mathematics Curriculum. In addition trainees have a number of tasks to complete during the Induction period. Trainees are given guidance about lesson observations and are specifically asked to observe aspects of the work of the mathematics department when they go into their first placement.
When the trainees first arrive in school, they will need some time to find their way around and become familiar with school and departmental routines, which can vary greatly from school to school. They will be anxious to settle in as soon as possible, and will also generally be very anxious about beginning to teach. Although some trainees may well have plenty of confidence and previous classroom experience in most cases it’s recommended that classroom experience be ‘fed in’ gently.

Trainees are required to complete the following investigation and observations during their induction week and weeks following up to the autumn half term. In curriculum sessions trainees will be given other directed tasks to be completed in schools – these should be made available to Mentors by the trainees. They must make notes on the tasks which should be included as a section in their files. The trainee should discuss their tasks with his/her Mentor in their first sessions together.

6.2.1 Mathematics in Schools – An Induction Investigation

Your professional tutor will have arranged an induction programme for all the trainees in the school. This will be designed to give you an introduction to the school as a whole. Alongside this, your Mentor will also have prepared a programme to introduce you to the work of the Mathematics department. In addition this research task enables trainees to gather information that would be useful in preparation for future work in the department: it is by no means exhaustive but it may serve as a useful guide.

For Trainees to Complete During School Induction Week(s)
• How Is Mathematics Organised In The School?
You will be given copies of the mathematics department's schemes of work, which you should read carefully, in conjunction with the mathematics National Curriculum documents, and retain, in your School File.

The amount of detail given will vary from school to school. By talking to your Mentor and other departmental members and by keeping your eyes open, find out something about the philosophy of the department concerning why mathematics has been organised in the way it is. How many people teach mathematics in the school? How many are specialists? What is the structure of the department? How many hours a week do pupils have for learning mathematics do these remain the same throughout KS3? How many hours are available for mathematics at KS3, KS4 and for ‘A’ level? How are courses planned? When are departmental meetings held? (You should attend these).

How does the head of department see the role of mathematics in the curriculum? What provisions are made for less able pupils taking mathematics? What provision is there for trying to ensure that mathematics taught in the school is as far as possible free of race or gender bias? How is mathematics taught to pupils whose first language is not English?

Is there setting or streaming in any part of the school for mathematics? If so, how is this justified / organised? Is it flexible? How does the mathematics department arrange for the assessment of pupils' work? What arrangements have been made for liaison with feeder primary or middle schools regarding mathematics? What are the future plans of the department?

• Mathematics As An Examination Subject
Are any pupils accelerated to GCSE in advance of Y11? What GCSE syllabus (i) is (are) offered? What mathematics can pupils choose post-16? What 'A' level syllabus is available? How are pupils helped to make the transition from KS3 to GCSE to 'A' level work in mathematics? How many pupils take mathematics or further mathematics at 'A' level?

• Resources For Teaching Mathematics And Other Practical Matters
Find out about the range of teaching and learning resources in the department in terms of manipulatives, books and ICT resources, e.g. DVDs and video tapes, various kinds of software, games, or artefacts. What computers does the department have or have access to?
Make a careful point of finding out what you will have to do in order to use or borrow mathematics department resources. Who do you need to see, booking procedures, etc? Find out how to use ICT items like video, TV, computers, projectors, etc. How can you get a chance to practise using these if you need to? Do you need to book a specific room to use them in advance with a class, how much advance notice should you give? What facilities are available in the department for making your own worksheets, and for photocopying and printing? How is the department charged for this?

Are there any other professionals who support pupil learning? Do specific pupils or classes have dedicated teaching assistants?

Observe where teachers store books and resources at the end of a lesson and talk to them about how they organise their marking of pupils' work. When and where do they do their marking, what are the criteria used, how are marks recorded?

Look around the walls of the classrooms where mathematics is taught - are they used for the display of work? Can you tell by looking around the walls that these are mathematics classrooms? If rooms are normally kept locked when not in use find out who keeps the key - well before you have to teach in them...

• What To Make Of It All

Make some notes in your files on information you have gained about the above issues and any supporting documents. Finally, find out as much as you can about everything, keep an open mind on all you observe and refrain from making instant judgments. Let people know if you need help, or if there is anything you don't understand. Good Luck for your first days in your school....

6.8 - Mathematics in Schools – Professional Practice Observations

During the first days in school you will be observing many lessons. If unprepared or insufficiently focused – the process of observing can be tedious and unproductive. It is important also to note that when observing you are NOT giving the teacher marks out of ten, writing a film script for a classroom epic, or gathering information to replicate the teacher you are observing. Instead you are provided with an opportunity to really get an insight into the teacher's craft. To help you get the most from observing think carefully about the following:

- Plan, Structure & Focus your observations – think about what specifically you will concentrate on, how you will record the observation – timeline, classroom map, check list, events grid and what key conclusions can be drawn.
- Your presence in the room will always have an impact – how will you react to events which the teacher doesn't notice?
- Always, always, always thank the person whose lesson you have been observing!

The following focused observations should be carried out during the first half term. Some need to be mathematics focused others could be carried out in other subjects.

1. Comprehensive Observation
Mentor to advise on a suitable class and inform class teacher.
Choose one class to observe. Identify the learning objectives, i.e. what the teacher wanted these pupils to learn. Note the structure of the lesson, what texts the teacher used, other resources used (e.g. hand-outs, worksheets and ICT), teaching strategies (including whole class and group work, questions asked etc.), differentiation (e.g. pupil groupings, differentiated tasks and worksheets), how the learning was consolidated (e.g. plenary session, homework).

2. Getting settled and consolidating learning – starters and plenaries
Mentor to arrange suitable observation at KS3.
Observe one or more lessons in KS3. Note the structure of the lesson (e.g. starter activities, main activity, plenary), how/if the parts of the lesson linked together, and all other aspects as in task 1 above. Look at both how the lesson content is translated and what practical strategies are used by the teacher to get them seated, refocused, dismissed, etc.

3. Class Management
*Mentor’s class to be used for this task wherever possible. Mentor to identify pupils to focus on.*
Observe one or two lessons and list all the classroom management strategies that are used to maintain pupil’s concentration on their learning. Identify which strategies you found to be most effective and explain why. Consider how comfortable would you be using these strategies and explain why/why not? In a different observation focus your attention on particular pupil’s (2-3) behaviour – what seems to trigger misbehaviour? What brings them back on track?

4. Mathematical Understanding
*Mentor to identify a lesson where a key concept or process of the National Curriculum is a key focus.*
Look carefully at what particular mathematical skills or concepts are developed. What skills, strategies and/or specific language/vocabulary are used to develop the complexities of school mathematics? How far are skills integrated with mathematical knowledge? Is one emphasized at the expense of the other? Are concrete real world examples used to introduce the pupils to a new concept?

All of these induction tasks should be kept in a file. Initial feedback on these induction tasks will take place at the university following school induction week. The outcomes of these induction tasks will provide excellent background for the Curriculum Studies assignments.

6.9 Making the most of classroom observations

6.9.1 Observation guidance

During your time in schools you should view observation as one of the main training methods available to you. In the first few weeks of all your placements you should undertake a wide range of observations within and beyond your department. But just watching experienced teachers in front of a class can sometimes become boring and repetitive. You can help yourself, and your Mentor, by deciding on specific areas of the Standards to focus on, or particular issues in teaching and learning to look for.

*Successful observations…*
- Have a clear focus which is related to your training needs
- Are planned and discussed in advance with the person being observed
- Lead to personal reflection on what you have seen and how it relates to your teaching
- May lead to fresh ideas to try out, or new approaches to problems

The following pages include a number of proforma that you can photocopy and use during your time in school. There are a huge number of ways you might decide to conduct your observations, and these will often arise from conversations with your Mentor and your reflections on your own planning, teaching and assessment. Keep a record of the observations you carry out and make sure you evaluate your own teaching when you try out ideas you have observed in someone else’s classroom. The cycle of observing – experimenting – reviewing is an important one that does not necessarily rely on outsiders coming in to observe your practice. This means that, although inviting someone to observe you experimenting with new strategies can be useful, you are not wholly dependent on the feedback from others in order to make progress. Ensure you carry out observations using the full range of proformas provided.
A word of warning on observations

It will often be useful to de-brief with the teacher you have been observing. However, you must do this with sensitivity, remembering the unique place you have in the department as one of the least experienced people. Remember, you are there to learn from more experienced colleagues, but that does not mean everyone is on top form in every lesson you observe. You should think about the following:

- How to avoid providing qualitative ‘feedback’ to the person you observed if they haven’t asked for it – you are not there to judge them or put them on the spot
- Negotiate the type of observation you would like to do in advance, so the teacher is prepared for the conversation that will follow your observation
- Remember schools are small places and it is unwise to discuss specific problems that may arise in observed lessons with other colleagues in the school

If you have any problems or concerns about how to conduct observations you should discuss them with your Mentor or professional tutor in school in the first instance. Alternatively you could contact your university tutor for advice.

6.9.2 Suggested questions to consider during observations:

How does the teacher demonstrate:

- Understanding of, and responsiveness to, social, cultural, linguistic, religious and ethnic diversity?
- Knowledge of the pupils' needs, backgrounds and ability, and incorporate this in planning and teaching?
- Ability to establish positive relationships with pupils and motivate and engage them?
- Understanding of the ways in which they promote values through their teaching?
- Willingness to seek advice from others in relation to statutory duties of teachers? Particularly with regard to pupils with SEN; risk assessment; child protection.
- Ability to work well with other adults?
- Secure personal subject knowledge in their planning of the lesson?
- Ability to 'pitch' the level appropriately for the class?
- Confidence in presenting ideas and responding to questions on the topic?
- Understanding the implications of the Key Stage 3 curriculum on what is taught at KS4?
- Understanding of exam specifications where appropriate?
- Ability to plan for an inclusive lesson with regard to the profile of the class?
- Awareness of pupils with special needs and IEPs and taken steps to ensure they will be able to make progress in the lesson?
- Made appropriate use of ICT?
- Awareness of a range of approaches to promote positive behaviour?
- Ability to set objectives that are relevant to the level of study?
- Ability to set objectives that are sufficiently flexible to accommodate pupil’s abilities and needs within the class?
- Understanding of how today’s lesson fits in with broader plans for progression and pupils’ actual progress?
- Understanding of how they might assess learning in relation to objectives?
- Ability to devise or select resources that help to engage pupils and enable them to learn?
- Critical approach to selecting resources, showing an awareness of bias and stereotyping?
- Ability to work constructively with other adults in the class e.g. are LSAs clear about their role in today’s lesson?
- Awareness of a variety of assessment opportunities, including formal and informal approaches?
- Use of assessment data in planning?
- Knowledge of the profile of the pupils they are teaching, including SEN, G&T or EAL pupils?
The School of Education and Social Work

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- Ability to respond to pupil feedback and input, reinforcing correct understanding and addressing misconceptions?
- Ability to provide feedback to pupils during the lesson, highlighting areas of success and setting targets?
- Understanding of the role of peer and self-assessment through planning and teaching?
- Ability to keep clear and accurate records? Are they used in planning?
- Ability to provide challenge and support for all pupils in the class (including SEN, G&T and EAL)?
- Ability to integrate the requirements of the National Curriculum or exam specification into their teaching?
- Ability to communicate clearly, and develop effectively, learning objectives?
- Use of an appropriate variety of teaching and learning activities, through planning, activity design and successful teaching (including ICT where appropriate)?
- Use of strategies that promote active and independent learning?
- Respect for diversity in their teaching, through the selection and use of resources, values demonstrated in their actions and responses to pupils?
- Ability to plan and use time effectively?
- Ability to plan and use teaching space effectively?
- Understanding and application of a variety of approaches to behaviour management? These could include planning, grouping, reinforcing good behaviour and effectively dealing with instances of poor behaviour.
- Ability to plan and set appropriate homework?
- Ability to establish clear roles for other adults in the classroom to support effective teaching and learning?
- Understanding of the school's equal opportunities commitment / duties through their teaching?

7. Being reflective

7.1 Journal

Sussex has championed reflective practice for many years and it is something that we are keen that all trainees should adopt and embed in their training year as it has the potential to impact significantly on their practice throughout their entire teaching career.

Becoming a Reflective Practitioner at Sussex includes evaluating each lesson, reflecting upon progress each week via, writing a weekly journal and completing specific Directed Tasks.

Reflective practice develops over time and a reflective learning journal can be a significant tool developmentally. As well as being required to evaluate every lesson, trainees write a regular personal journal, pick out the main themes and upload these as a small entry each week (max 200 words) to the VLE.

Andrew Pollard (Reflective Teaching 2002) writes this about a reflective diary:

*A very personal diary can provide vivid and flexible accounts of ideas and feelings. It can offer a safe space to express the emotional side of teaching, as well as more systematic attempts to analyse and reflect. When a diary is 'unofficial' it may be a place to speculate, propose, theorize and generally enter into a conversation with oneself. This is extremely valuable, for the act of writing serves to 'scaffold' understanding (Tharp and Gallimore, 1988). A diary is also a record, and can be re-visited in later days, weeks or years to consider either specific issues or the process of continuing professional development.*

The personal journal will only be viewed by the trainee, the uploaded entries can only be reviewed by the individual trainee and the university tutors and nothing in this will be used against a trainee (unless it is clearly un-professional). However, it is expected that parts of it will be selected by trainees for use as ‘evidence’ for meeting a number of the Teachers’ Standards.
8. Working With or As a Mentor

Mentors bring extremely valuable experience and expertise in how to teach the knowledge and understanding and mathematical skills of Key Stage 3, 4 and 5 mathematics, as well as the sensitivity required to mentor a trainee. Sometimes the task of unpicking exactly where and how the student needs to focus takes time and patience but it is usually very rewarding to monitor the progress students make over a school placement. Some Mentors have been faced with the “problem” of moving on a very competent student and been able to add appropriate challenge. Comments made by students evaluating the course in the past have been extremely complementary of the help and support they have received from school mathematics Mentors, many of whom they consider the most important person in their development. Our work in the last few years emphasised the following:

The most important leaders in the Sussex ITE partnership are ...

As such their impact should be recognised and celebrated and their contribution valued by the whole school community.

The good ones are effective role models and critical friends who help their trainees develop a sense of their own professional identity whilst maintaining a focus on high standards in learning.

We should remember that we were all once beginners and have a moral responsibility to encourage, train and shape the next generation of teachers.

Evidently being a Mentor is an important and challenging task. He or she is responsible for balancing and interweaving two agendas. He or she must follow through a programme which will develop all areas of the Teachers’ Standards, and all the specific mathematical aspects, whilst at the same time, responding to a trainee’s individual concerns and needs and wrestling with day-to-day problems (on top of a full teaching timetable and the rest!). All of this has to happen within departmental systems, structures, schemes of work and pupil targets that may be flexible, but cannot be compromised where professional standards and pupil performance are concerned. Flexibility and responsiveness are therefore crucial but in order to make sure that trainees progress properly, this must happen in the context of target setting and action planning. It is through the continuous, weekly review of targets and the planning of flexible, focused training experiences that trainees and Mentors will get the balances right.
During the course trainees will have a series of tasks to do in school. These need to be discussed with Mentors, particularly where any discussion of reading is involved. This allows trainees to compare and contrast different perspectives. Combined with reading and experiences and reflection, this will allow trainees to develop their own views towards teaching mathematics.

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The main ITE Handbook is excellent reading as it has the roles and responsibilities of the subject mentor and valuable guidance on lesson observations, feedback to student teachers and the structure and programme of mentor meetings. Important information such as dates for completion of forms is there too.

8.1 Mentor Training Sessions

Mentor sessions are pivotal to trainees’ success. Trainees have an entitlement to one hour of their mentor’s time every week in both school placements. Allocation of this time is arranged differently in schools across the partnership, but it is important to remember that provision of the mentor hour is audited and its existence is not negotiable. To make the best use of such a brief period, experienced mentors have found that it’s useful to ensure trainees are instructed to draw up an agenda for the meeting prepared in advance, and that brief notes or ‘minutes’ should be taken during the meeting by the trainee, with targets and points for action noted – this should all be recorded on the Mentor Meeting Log. Trainees must keep a detailed record of their meetings since they provide a key source of evidence for their professional development and progress against the Teachers’ Standards. As such curriculum tutors expect these to be completed and filed regularly and uploaded to the VLE when requested.

Trainees should prepare for each meeting in advance by:

- Identifying the suggested focus for the week using the programme (below), and confirming agreement with their mentor. This programme is flexible and trainees or mentors can negotiate another focus to meet individual needs at any time.
- Reflecting on the overall school based training over the past week.
- Reviewing what progress has been made towards current targets during the week, with reference to lesson evaluations or other sources.
- Agreeing an agenda for the meeting with the mentor in advance of the meeting.

During the meeting trainees should:

- Keep a summary of key discussion points.
- Identify targets (coming out of the discussion) for the forthcoming week and strategies for achieving them.
- Complete a ‘To Do’ list as required.

After the meeting trainees should:

- Pass a copy of the Mentor Log to the mentor for comments ensuring that the notes taken during the meeting correspond to their understanding of the discussion.
- Make additional comments on progress if requested.
- Ensure a summary of strengths, targets etc are recorded on the weekly ITE tracker.

After the meeting mentors should:
• Check that the notes taken during the meeting correspond to your understanding of the discussion.
• Make additional comments on progress if you wish.

Inevitably, much of the time in mentor meetings will be used to review lessons or parts of lessons already taught and to plan those of the week ahead: however, it is important that wider pedagogical and professional issues related to the teaching of mathematics are also regularly addressed. These will arise from trainees’ current experience, but will also be suggested by the content of the University and the School Professional Studies programme and the University curriculum sessions, as well as by the curriculum directed tasks set by the curriculum tutor and the Curriculum Assignments. This professional dialogue is important both for the trainee and mentor. Therefore during the meeting mentors and trainees might additionally discuss and comment on any or all of the following:

• talking through a key issue in mathematics teaching (see suggested calendar below);
• explore an area of substantive subject knowledge;
• discussing one or two particular difficulties in much more depth, devising training experiences to help overcome these;
• discussing work that will contribute to a written assignment;
• checking the subject knowledge/ICT audit and suggesting ways of making good any gaps;
• Feeding back from lesson observations – please note that mentors need to complete one lesson observation per week after the Autumn Half Term using the official PGCE lesson observation schedule. These can be downloaded from www.sussex.ac.uk/education/iteforms

8.2 – Key Mentor Information
The calendar below originally drawn up in conjunction with experienced mentors offers a framework for mentor meetings - recognising the individual needs of the trainee, the practicalities of school based teacher education and opportunities to develop a deeper understanding of the maths curriculum.

Firstly mentor training meetings. These are crucial and are planned as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
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| 21/9 Wed | UNIVERSITY BASED MENTOR TRAINING – 15.30 – 18.30  
(New Mentor Training 13.30 – 15.30 if required) |
| 15/3 Wed | UNIVERSITY BASED MENTOR TRAINING – 16.30 – 18.30  
After: Accelerating progress for the new GCSE - A FREE CONFERENCE FOR HISTORY DEPARTMENTS, MENTORS AND TRAINEES |
| 9/11 Wed | PARTNERSHIP FORUM - 16.15 – 18.15 |
| 8/3 Wed | PARTNERSHIP FORUM - 16.15 – 18.15 |
| 23/6 Wed | ANNUAL ITE PARTNERSHIP CONFERENCE- 16.15 – 18.15 |

Mentors are always welcome at:
8.3 – A Recommended Programme of Mentor Sessions in Professional Practice 1 & 2

September to October – Approaching Professional Practice – “Finding out”
November to December – Beginning Professional Practice – “Trying out”
January to February – Consolidating Professional Practice – “Bringing it together”
March to April – Demonstrating Professional Practice – “Meeting the standards”
May – Enriching Professional Practice – “Exceeding expectations”

<table>
<thead>
<tr>
<th>Week</th>
<th>Date (w/b)</th>
<th>Suggested Session Focus (Teachers’ Standards, Activities, Tasks, Deadlines)</th>
</tr>
</thead>
</table>
| 5    | 26<sup>th</sup> Sept | **Trainee’s Individual Differentiated Needs** *(TS Part One: 3, 7 & 8)*  
Trainees should be prepared to discuss their strengths and areas for extension. Please focus on:  
1. Prior experience – trainees will arrive with a summary of this information  
2. Subject knowledge extension from subject audit.  
To support this mentors should identify and suggest useful areas to research for subject gaps, where possible:  
- Identify out of class opportunities were the trainee could contribute  
- Set provisional targets for development  
- Make available Schemes of work and specifications and assessment materials for KS3, GCSE, A-level etc.  
3. Behaviour policy in school – make sure trainee has a copy of any departmental or school policies  
4. Prepare teaching timetable (trainees should be given an indication of the subjects and classes they’ll teach).  
**Tasks:** Trainees will have a number of Induction tasks/observations to complete.  
**Deadlines:** Trainees should have a provisional timetable by the end of the week  
**Teaching Load:** mainly observation |
| 6    | 3<sup>rd</sup> Oct  | **Preparing to Teach** *(TS Part One: 2, 3, 7 & 8)*  
1. Information on pupils’ – access to key pupil data including target grades, SEN info, etc on classes to be taught  
2. Identify pupils to be ‘followed’ for any observation tasks  
3. Who to contact in school - SENCO etc  
4. What ICT is used in the department? *Does the trainee require some time for learning a new program etc?* Are copies of the software available for the trainee to use?  
**Deadlines:** Trainees should have data on their classes by the end of the week  
**Teaching Load:** mainly observation |
<table>
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<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Notes</th>
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| 7    | 10th Oct | Lesson Planning (TS Part One: 4 & 8) | 1. Preparing for joint planning – establishing strong enquiry questions, devising clear learning outcomes. (Lessons should be team-taught: trainee to take starter/other activities when ready; mentor to take the rest of the lessons).  
2. Discuss how the trainee might contribute to GCSE work.  
3. Teaching Load: As a minimum trainees should be taking some responsibility for parts of a lesson (eg Lesson starts, managing feedback from a discussion, small group work) |
| 8    | 17th Oct | Progress Review & Assessment (TS Part One: 6 & 8) | Review trainee’s progress over professional practice so far. Complete PPPA together. submit to ITE@sussex.ac.uk.  
On assessment in maths teaching:  
1. Examine department assessment policy/strategies  
2. Giving oral and written feedback  
3. Assessing using levels or alternatives at Key Stage 3  
4. Is there an assessment which trainees could shadow mark?  
5. Deadlines: Prepare and submit PPPA.  
Teaching Load: As a minimum trainees should now be planning and delivering one lesson a week  
Discuss possible ideas for the Applying Professional Knowledge Assignment – what topics might be taught, what pedagogical ideas might be included? Use these discussions to lead your reading over half term. |
| 10   | 31st Oct | Assessment for Learning (TS Part One: 6) | 1. Use of modeling to promote student understanding - consider this as a focus of an observation  
2. How is questioning used? Consider this as a focus of an observation  
3. Types of questioning e.g. Closed/Open, High/Low order, Thinking time, involving all pupils  
4. Developing appropriate questions  
5. Deadlines: Trainees should now be receiving at least one full lesson observation per week using the University schedule.  
Teaching load: As a minimum trainees should now be planning and delivering two lessons a week |
| 11   | 7th Nov  | Teaching Mathematical Concepts (TS Part One: 3) | Deadlines:  
- Agree a focus for Applying Professional Knowledge Assignment (APK) – What sequence of lessons will be developed? What key pedagogical ideas will be included?  
- Complete 1 Weekly Lesson Observation  
- Partnership Forum 9/11  
Teaching load: should be increasing to a maximum of 4 hours of lessons a week |
<p>| 12   | 14th Nov | Progress in Classroom Management (TS Part One: 7) | Explore progress in strategies for creating an orderly and purposeful environment |</p>
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<th>Date</th>
<th>Day</th>
<th>Topic</th>
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<tbody>
<tr>
<td>13 Nov</td>
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<td><strong>Diversity, Similarity and Difference and Empathy (TS Part One: 3)</strong></td>
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<td>What do these terms mean in your department? Do they have a place in</td>
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<td>mathematics?</td>
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<td>Discuss how these ideas might affect your lesson planning for your APK</td>
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<tr>
<td>14 Nov</td>
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<td><strong>SEN &amp; Differentiation (TS Part One: 5)</strong></td>
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<td>1. How does the department respond to different needs and abilities –</td>
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<td>SEN, Gifted and Talented, EAL?</td>
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<td>2. Planning differentiated tasks and lessons</td>
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<td>3. Pupil groupings and peer teaching/support</td>
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<td>Tues</td>
<td><strong>29th</strong></td>
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<td>Discuss how these ideas might affect your lesson planning for your APK</td>
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<td>Get permission to join the theatre trip next week</td>
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<td><strong>Teaching load:</strong> As a minimum trainees should now be planning and</td>
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<td></td>
<td>delivering four lessons a week</td>
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<td>15 Dec</td>
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<td><strong>Long Term Planning (TS Part One: 8)</strong></td>
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<td>Please focus on:</td>
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<td>1. How schemes of work and units of work are created and agreed</td>
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<td>2. How is data used to inform planning, track progress and improve</td>
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<td>learning?</td>
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<td>Discuss how you might consider these ideas in your APK</td>
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<td><strong>Deadlines:</strong> Start preparing PPPB</td>
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<td><strong>Teaching load:</strong> As a minimum trainees should now be planning and</td>
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<td></td>
<td>delivering six lessons a week</td>
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<td>16 Dec</td>
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<td><strong>Progress Review</strong></td>
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<td>1. Trainees should reflect on their progress and provide evidence of</td>
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<td>their work towards the Teachers’ Standards</td>
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<td>2. Present their updated Subject Knowledge Audit</td>
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<td>3. Then complete the Professional Practice Profile B</td>
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</tbody>
</table>
4. Review progress with Applying Professional Knowledge, and discuss in detail the structure of your SoW.

**Deadlines:** Prepare and submit the PPPB and submit to ITE@sussex.ac.uk

**Teaching load:** As a minimum trainees should now be planning and delivering six lessons a week

### Winter Break

<table>
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<tr>
<th>Day</th>
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<th>Topic</th>
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| 19  | 2nd Jan | Supporting Literacy and Communication in Mathematics *(TS Part One: 5)*  
1. What strategies are used across the curriculum to develop reading and writing in mathematics?  
2. Is there a school wide policy on literacy which maths contributes to?  
3. **Deadlines:** Start to teach Lessons for APK assignment  
Complete one weekly observation form  
**Teaching load** should be increasing to a maximum of 8 hours of lessons |
| 20  | 9th Jan | Trainee’s Targets for PPPC  
Trainees should be prepared to discuss their strengths and areas for development based on PPPB. Discuss strategies for addressing targets and securing progress.  
**Deadline:** complete at least one weekly observation form  
**Teaching load:** As a minimum trainees should now be planning and delivering eight lessons a week |
| 21  | 16th Jan | Transition and Post 16 Mathematics *(TS Part One: 3 & 6)*  
1. What links are made with Post 16 Maths Institutions?  
2. What experiences do department members have of A level teaching?  
3. How well do GCSEs prepare students for success at A level?  
4. How are pupils prepared for examinations  
5. Could the trainee be involved in any forthcoming moderation events?  
**Deadline:** complete at least one weekly observation form  
**Teaching load:** As a minimum trainees should now be planning and delivering eight lessons a week |
| 22  | 23rd Jan | Challenges of new GCSE specifications *(TS Part One: 3 & 6)*  
1. What GCSE specification has been adopted by the department?  
2. What options have been selected?  
3. What are the challenges of the new specification?  
4. What assessment materials are available?  
5. How are pupils prepared for examinations  
6. Could the trainee be involved in any forthcoming moderation events?  
7. **Deadline:** complete at least one weekly observation form  
**Teaching load:** As a minimum trainees should now be planning and delivering eight lessons a week |
| 23 | 30<sup>th</sup> Jan | **Applying for Jobs:** Please focus on:  
1. Letters of application  
2. Good CVs  
3. Mock Interview questions  
If trainee has a teaching post use this session flexibly  
**Deadline:** complete at least one weekly observation form  
**Teaching load:** As a minimum trainees should now be planning and delivering eight lessons a week |
| 24 | 6<sup>th</sup> Feb | **Trainee’s Individual Differentiated Needs**  
1. Trainees should be prepared to discuss their strengths and areas for development  
2. Review Subject Knowledge Audit.  
3. Please complete PPPC  
4. Review progress with Applying Professional Knowledge.  
**Deadlines:**  
- Complete PPPC and submit to ITE@sussex.ac.uk  
- complete at least one weekly observation form  
**Teaching load:** As a minimum trainees should now be planning and delivering eight lessons a week |
| (13<sup>th</sup> or 20<sup>th</sup> Feb) | **HALF TERM**  
Complete your APK ready for submission |
| 27 | 27<sup>th</sup> Feb | **School Induction.**  
**Discuss:**  
- Prior experience – trainees will arrive with a summary of this information in PPPs  
- Subject knowledge extension from subject audit.  
- Make available Schemes of work and specifications and assessment materials for KS3, GCSE, A-level etc.  
- Provide Behaviour policy in school – make sure trainee has a copy of any departmental or school policies  
- Prepare teaching timetable (trainees should be given an indication of the topics and classes they'll teach).  
**Deadlines:** Trainees should have data on their classes by the end of the week  
**Teaching Load:** mainly observation(if this is your 2<sup>nd</sup> week then teach at least one observed lesson) |
| 28 | 6<sup>th</sup> Mar | **Preparing to Teach (TS Part One: 2, 3, 7 & 8)**  
- Information on pupils’ – access to key pupil data including target grades, SEN info, etc on classes to be taught  
- Identify pupils to be 'followed' for any observation tasks  
- Who to contact in school - SENCO etc  
- What learning technologies are used in the department? *Does the trainee require some time/access for learning?*  
**Deadlines:**  
- Complete 1 Weekly Lesson Observation  
- Partnership Forum 8/3  
**Teaching Load:** Trainees should be preparing and teaching at least 4 hours |
<table>
<thead>
<tr>
<th>Date</th>
<th>Activity Description</th>
<th>Details</th>
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| 29 Mar | **Challenge to be Outstanding (TS Part One: 1 & 2)** – use the OfSTED evaluation schedule to stretch impact of trainee’s teaching on pupil learning. | **Deadline:**
  - Complete 1 Weekly Lesson Observation  
  - Mentor Conference and Training 15/3  
  **Teaching load:** As a minimum trainees should now be planning and delivering six lessons a week |
| 30 Mar | **Working with Wider School Workforce and Community (TS Part One: 8)**               | **Deadline:** Complete 1 Weekly Lesson Observation  
**Teaching load:** As a minimum trainees should now be planning and delivering eight lessons a week |
| 31 Mar | **Progress Review**                                                                 | **Deadline:**
  - Complete 1 Weekly Lesson Observation  
  - Prepare and submit PPPD  
**Teaching load:** As a minimum trainees should now be planning and delivering 10 lessons a week |
|        | **Spring Break**                                                                     |                                                                         |
| 35 Apr | **Discuss and facilitate focus for Exploring Professional Knowledge if selected. Reduce teaching timetable if EPK is planned and carried out this term.** | **Deadline:** Complete 1 Weekly Lesson Observation  
**Teaching load:** As a minimum trainees should now be planning and delivering 12 lessons a week (unless completing EPK) |
| 36 May | **Use flexibly to respond to trainee’s differentiated needs ahead of final report** | **Deadline:** Complete 1 Weekly Lesson Observation  
**Teaching load:** As a minimum trainees should now be planning and delivering 12 lessons a week (unless completing EPK) |
| 37 May | **Use flexibly to respond to trainee’s differentiated needs ahead of final report** | **Deadline:** Complete 1 Weekly Lesson Observation  
**Teaching load:** As a minimum trainees should now be planning and delivering 12 lessons a week (unless completing EPK) |
Progress Review

1. Trainees should reflect on their progress and provide evidence of their work towards the Teachers’ Standards
2. Present their updated Subject Knowledge Audit
3. Then complete the Professional Practice Portfolio Targets

Deadline:
- Complete 1 Weekly Lesson Observation
- Prepare and submit PPPE

Teaching load: As a minimum trainees should now be planning and delivering 12 lessons a week (unless completing EPK)

8.4 The Role of the Mentor

*The single most important thing in the whole P.G.C.E. course was the relationship with my mentor*

*It is the quality of the mentor that makes or breaks the course.*

These two comments made by trainees reflect the changes in teacher training and clearly demonstrate the vital role of the Mentor. They also have serious implications about the importance of consistency.

Since we are always so dependent upon personalities when working within the education arena, it would be impossible to expect every Mentor to provide exactly the same tenor of training to every trainee. Indeed, one of the great strengths of the schools/university partnership lies in the variety of skills of our individual Mentors. In addition, the diversity of departmental management and resources, along with the diversity of school ethos would make a mockery of any attempt at uniformity of experience.

However, the following are *entitlements*, uniform to all trainees:

- a) A minimum of one hour per week to be spent with the Mentor, ideally within the school timetable, with minimal interruption, at the same time each week;
- b) The pace of introduction to whole-class teaching to be similar in each training establishment and follow the guidelines outlined in this handbook;
- c) **One written** observation per week. These and all other observations by Mentors (and other colleagues involved with the trainee) must be accompanied by clear verbal and written feedback;
- d) A broad code of conduct to be followed in both the ways that observation is made and in the feedback given (see section on Observation);
- e) Mentor meetings to follow the calendar of sessions provided. This schedule includes time for (i) the trainee’s individual needs; (ii) blends, where practicable, with the university’s curriculum programme; (iii) enables the PPP to be used effectively; and (iv) provides opportunities for wider professional development, especially in the Summer Term during the Enriching Professional Practice era.
- f) The PPP evidence descriptors to be used in a consistent and constructive way, making them relevant to the trainee’s experience and professional development. Targets between Mentor and trainee to be jointly set and reviewed, according to these dates and in order to dovetail with the university programme;
- g) Every attempt to be made to assess trainees in a uniform manner, where possible including any Mentor moderation procedures available and joint observation with the curriculum tutor;
- h) Trainees to be allowed - at the discretion of the Mentor and HoD - some room to experiment with innovative methodology (which may at times interrupt the departmental schemes of work);
i) Opportunities (one or two lessons per week) to be made available for trainees to continue to observe colleagues (in other subjects as well as mathematics) throughout both placements, provided that the timetable can accommodate this. Arrangements for this observation should be made primarily by the trainee (on the advice of the Mentor and Professional Tutor) and should form part of the maximum recommended trainee timetable load;

k) Trainees to be challenged by Mentors if they appear to be reaching a plateau in their professional development;

l) Good communication to be maintained between the Mentor and the curriculum tutor, by e-mail/phone and all relevant documentation to be sent by the relevant deadlines. As part of this - mentors should attend the mentor meetings with the curriculum tutors.

8.5 - Induction to School Experience

A trainee’s induction is very important and forms the basis for their whole training. In addition to helping trainees to complete the Induction Tasks (see below), Mentors should also ensure that by the end of the week they have completed the following tasks.

Induction Checklist

By the end of the induction period, please ensure that your trainee(s):

- **Has copies of:**
  - the school staff handbook (staff lists, whole school policies, plan of the school, school calendar, school management structure, lines of responsibility, school guidelines/rules/sanction and rewards procedure)
  - school prospectus
  - departmental handbook
  - appropriate pupil data
  - their programme and timetable for Placement One

- **Has been introduced to**
  - The Head teacher, Professional Tutor
  - departmental/faculty colleagues
  - staff in school office, resources, librarian

- **Understands rules and procedures concerning**
  - health and safety, staff absence

- **Is clear about**
  - the nature of the school day
  - the time they need to arrive
  - where their pigeon hole or locker is
  - parking arrangements
  - any (un)written rules about staff appearance, dress or conduct
  - areas where they can do their work
- how to access ICT resources for lesson preparation
- coffee, lunch and staff-room procedures
- any meetings they need to attend
- anything they need to do before coming into school the next day/week

Introducing your trainee

Please remember that trainees should not be introduced to the class as ‘students’ or ‘trainee teachers’, even though we all know that pupils will very quickly work this out, as this can undermine their status in the eyes of pupils. Trainees could be introduced as ‘a new teacher’ instead.

8.6 - Working with other colleagues in the department

Although it is normally good practice for trainees to work with other members of the department, problems have arisen when trainees have had to work with too many colleagues and/or colleagues who are not familiar with the Sussex partnership requirements. It has therefore been agreed that:

- Trainees should not be directly trained* by more than three teachers in the department, (*i.e. not be observed by and receive professional feedback from), including the Mentor. Trainees can of course observe and take lessons for more than three members of the department. **NB. If other colleagues observe trainees formally, they must use the standardised observation schedule (see main handbook). Mentors should formally observe at least once a fortnight.**
- Colleagues involved in teacher training (i.e. in observing trainees, giving feedback etc.) should have a meeting with the Mentor at the start of the academic year in order to review requirements and procedures.
- Key pages of this handbook and copies of the lesson observation proforma should be photocopied and given to those colleagues involved in ITT.
- **At least 50% of allocated lessons in timetables should be in the mentor’s classes**

Clearly, restrictions imposed by timetabling may make this difficult, but Mentors are urged to adhere to these guidelines as closely as possible, in order to provide a coherent and consistent experience for the trainees.

8.7 - Approaches to Mentoring

Here are some detailed suggestions for integrating the trainee teacher into the timetable, not only during the early weeks of the placement when team teaching is essential, and teaching a whole class alone would be inappropriate, but also later in the placement, when traditionally the Mentor has pulled out of the classroom and left the trainee to teach on his/her own.

The 'Slice of Cake' Training

This is where the trainee, after perhaps a week's observation, takes a 'slice' of the lesson, for example, just the register, or the packing away procedure, or the introduction and/or execution of one exercise in the lesson. The Mentor should prepare the trainee for the 'slice' several days in advance, giving advice on technique and warning of common pitfalls. Afterwards, the Mentor should encouragingly debrief the trainee, and plans should be made to repeat the slice with appropriate improvements. This methodology is so important since it avoids the common problem of giving the trainee a whole lesson to teach after several periods of observation, only to find that there is so much to criticise that the trainee feels completely demoralised. Learning to teach 'slices' of a lesson permits gradual progression
as well as bridging the sometimes rather awkward gap between endless non-participative observation and whole-class teaching.

'Driving Instructor' Training

This can be one of the most effective methods of training during the early days of a trainee's experience. Essentially, the trainee takes part or the entire lesson while the Mentor observes and assists as appropriate. Where things are not going quite so well (e.g. a group of pupils are getting away with misbehaving or the trainee is clearly not allowing enough time to pack away), the Mentor makes a discreet comment to the trainee. The trainee then acts on the advice. By acting on the advice whilst teaching, trainees tend to learn from this experience more effectively and they feel much more confident about applying their experience on the next occasion when it is required.

Teaching Independently

- Teacher A supports weaker pupils; teacher B supervises the rest of the class.
- Teacher A assists pupils who have been absent and need to catch up on work missed, teacher B supervises the rest of the class.
- Teacher A works with a group of more able pupils (e.g. teaching grammar), teacher B supervises the rest of the class.
- Teacher A gives speaking and listening practice to a specific group of pupils, teacher B supervises the rest of the class.
- Teacher A conducts a small group speaking and listening assessment, teacher B supervises the rest of the class.
- Teacher A takes a small group of pupils to the computer network room; teacher B supervises the rest of the class.
- Teacher A takes a group of pupils to another area of the school to make a video or prepare a drama sketch/interview; teacher B supervises the rest of the class.
- Teacher discusses progress/reports/targets with a group of pupils; teacher B supervises the rest of the class.
- Teacher A deals with more 'difficult' (i.e. poor behaviour) members of the class, teacher B supervises the rest of the class.
- Teacher A helps small group/individuals with intensive G.C.S.E. preparation or 'A' level, while teacher B works with the rest of the class.
- The Mentor teaches to the trainee's lesson plan; strengths/weaknesses that are less like to concern class management difficulties are then discussed in the debrief. Trainees can learn much from this method.
- Teacher A teaches while teacher B records observation data for the purposes of researching an area in which one or both teachers have a particular interest.

Team Teaching

- Teacher A delivers just one clear-cut element of the lesson (especially if it is perhaps more 'adventurous' and/or requires excessive preparation), teacher B takes on the whole of the rest of the lesson.
- Teachers A & B conduct different elements of the lesson. For example, teacher A takes register and gives feedback on homework. Teacher B introduces theme of lesson and new teaching point. Teacher A consolidates work on, for example, IWB and so on. The teacher not involved in the presentation at any given moment ensures that pupils are paying attention, deals with any potential problems, helps slow learners, etc.
• Teachers A & B perform a 'double act' by performing Q&A from the textbook or worksheet to demonstrate it to the class.
• Teachers A & B perform a 'double act' in order to demonstrate a role-play or information-gap exercise before the pupils attempt it.
• Teachers A & B perform a 'double act' by reading a dialogue or having an *impromptu* conversation from which pupils have to for example fulfil speaking and listening assignment using the correct mathematical vocabulary.

These techniques should benefit the pupils by offering them more variety and individual attention. They should also benefit the trainee by allowing a progressive development of teaching skills based on practice and evaluation/feedback and, not least, they should benefit the Mentor by enabling him/her to develop new techniques and materials, encouraging a less stressful environment and allowing a rare opportunity for reflection upon his/her own teaching style.

In addition to ensuring all trainees meet the **Standards**, it is vital that a Mentor also differentiates the training to match the needs of individual trainees. Usually trainees who are struggling get a lot of support from their Mentor. However, able trainees can be just left to get on with it. Wherever possible differentiation enables trainees to extend their expertise and offers them appropriate challenge. Below are some suggestions to Mentors for **challenging** you! Do discuss any ideas for challenge you have with your Mentor and curriculum tutor. Both may have other good ideas.

### 8.8 - Differentiation for Trainees

- **Intellectual challenge** for the able trainee
  For example, can your trainee produce a suitable revision programme for post-sixteen examination classes? Or research and present to the department the latest research findings on a relevant aspect of Mathematics teaching?

- **Pedagogical challenge** for the able trainee
  For example, can your trainee present a series of lessons to the department that use a range of innovative learning styles? Or find stimulating ways of helping children address key skills on the computer?

- **Subject Knowledge challenge** for the able trainee
  For example, can your trainee become an 'expert' on a relevant area of the curriculum and provide background information for the department to use.

- **ICT challenge** for able/advanced trainee
  For example, can your trainee create a website? Set up new links with other schools? Produce departmental electronic systems for assessment purposes etc.

- **Extra support** for the ‘cause for concern’ or ‘at risk’ trainee
  For example, in what areas is your trainee experiencing problems? Can you set up a programme of extra support within your department to address these? Do you need additional help from the university in the form of a support tutor? If the latter, please contact the curriculum tutor as soon as possible (see also assessment and ‘at risk’ section).

### 8.9 - Observation and Feedback

Lesson observation and feedback are probably the most important keys to the successful development of the trainee. Written feedback should be given whenever possible, along with an opportunity for dialogue. Formal observation sessions should be carried out on the observation proformas provided (see main handbook).

**At least one observation per fortnight must be by the mentor. At least 50% of trainees timetable must be with mentor’s classes to ensure suitable opportunities for observation.**
One of the best times to exploit honest yet encouraging, quality, constructive feedback is during the period in October/November when the trainee is responsible for parts of lessons only. Mentors are then able to focus on one or two issues, e.g. pupils talking during the register, a quiet speaking voice etc., suggest remedial action and then comment on the remedy in action during the next lesson. Unless the trainee is a highly experienced already, observation feedback that begins only when the trainee has taken the whole lesson will often have too many issues to address at once and so prove daunting and demoralising from the trainee’s point of view.

It is very important to discuss the focus of your observation when planning a lesson with a trainee, even if your observation is to be of a general nature. This offers the trainee more security. Clearly, to say that you are going to focus on the use of resources, and then spend most of the time talking about class management, is not helpful.

Following a consistent approach for each observation debrief helps the trainee to reflect and accept praise and criticism as necessary:

- Give the trainee an opportunity to say how he/she felt the lesson had gone;
- Start with a positive comment;
- Try to discuss specific elements of the lesson rather than making broad generalisations;
- Try to link comments to the standards and subject-specific evidence descriptors;
- End on a note of encouragement (even if the lesson has not gone too well).

Where there are serious concerns, e.g. you may have a trainee who is excellent in the classroom yet turns up late each day or is dressed inappropriately, it is better to discuss these concerns privately outside the context of the lesson observation.

Please remember that trainees must be observed throughout both practices. Many competent trainees tend to be left to their own devices and can reach a plateau in the Spring Term. This category in particular needs to be observed and challenged (e.g. in the use of assessment, ICT etc.). Towards the end of the practice, observation sessions may tail off in order to allow the trainee greater autonomy, but they should not disappear altogether. Please try to provide opportunities for the trainee to continue to observe you and other colleagues, and to discuss analytically what they have observed.

Finally, Mentors should be aware of pastoral issues that tend to emerge in the course of such a stressful year. Below are the main pastoral concerns of trainees in recent years:

- Emotional problems – breaking up with partners
- Financial worries – lack of grants and very restricted travel allowance
- Being expected to teach too much too soon
- Insufficient access to resources and photocopying facilities
- University pressures – essays and presentations
- Lack of self-confidence when dealing with established staff

8.10 Target setting

Target setting is crucial to trainee development. The targets are the result of issues raised by trainee and Mentor – between you, you negotiate what is included.

Good targets are precise and have a clear focus in moving you forward. Equally important are the strategies to help you meet the target. It is no good saying that your target is to improve lesson starts and that the strategy is to improve lesson starts!

The following questions and advice are to help you with this important area:

Setting targets:-
- What is the area I need to work on?
- What evidence have I got that there is a problem to work on?
- Am I sure that is the real problem (e.g. poor behaviour may seem the problem, but the cause of the poor behaviour may be lack of clarity in your instructions, a lack of/too much challenge in your classes, a failure to engage pupils at the start of a lesson etc.)!
- If the target seems very broad, ask why you want to focus on that area (see below)

<table>
<thead>
<tr>
<th>Broad Target</th>
<th>Possible reasons WHY?</th>
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<tbody>
<tr>
<td>Differentiate lessons</td>
<td>To ensure materials are accessible to all</td>
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<td></td>
<td>To identify different types of mathematical thinking required in lesson and judge how appropriate and challenging this is for 7W</td>
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<tr>
<td></td>
<td>To identify prior knowledge and understanding so you can identify where to pitch the lesson</td>
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<td></td>
<td>To identify where the difficulties are in the lesson and provide scaffolded learning to overcome these</td>
</tr>
<tr>
<td>Improve classroom management</td>
<td>To engage pupils attention at the start</td>
</tr>
<tr>
<td></td>
<td>To sustain pupil interest and motivation during the main section of the lesson by providing shorter activities to provide pace</td>
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<tr>
<td></td>
<td>To ensure that all materials are accessible to all but still present a challenge to motivate pupils</td>
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<tr>
<td></td>
<td>To deal with instances of pupils calling out more firmly</td>
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</tbody>
</table>

Devising strategies:-
- These need to be practical
- You need to be able to show that something concrete has happened (e.g. a lesson has been observed, notes of a discussion etc.)
- They need to be precise
- They need to have a clear purpose

Below are possible examples of targets and strategies:

**An Example:**

The Problem
You are mid-way through the term. Lesson observations from your Mentor and other departmental colleagues suggest that you are sometimes explaining new material rather too quickly and some groups of pupils are becoming confused. This is confirmed by your own lesson evaluations where you have identified a need to plan more opportunities for revisiting and reinforcement in your lessons. Your Mentor suggests that this is as much about assessment and learning outcomes as pupils are not clear what they are supposed to be doing and why. You are also a bit disillusioned by the lack of pupil responses in the classroom.
Target Strategy

Clearer and more thorough explanations appropriately paced so as to maintain pupil concentration for longer periods. 
Analytical observation of two lessons by Mrs Teacheswell – a mathematics teacher in the department who is particularly good at introducing new material.

Development of a wider repertoire of techniques for revisiting and reinforcement of knowledge and understanding. 
Your bottom set Year 9 is about to begin work on a new topic. Whilst planning their sequence of lessons, devise a minimum knowledge and understanding that they must develop to get the most out of the lively game at the end of the sequence. Devise and implement a range of techniques to ensure that their knowledge and understanding is being constantly reinforced to meet the minimum you require.

Evidence that you have met this target:
- Observation and discussion with Mrs Teacheswell
- Lesson plans including use of ideas gained from observation; lesson observation by the Year 9’s usual teacher; your self-evaluations; assessment evidence; discussion with your Mentor.

8.11 Cause for Concern Procedure

One of the greatest challenges for a Mentor is the shift of emphasis from being a ‘supportive advisor’ to a ‘summative assessor’. Being honest at all times with your trainee is crucial. Liaising with the Professional and Curriculum tutors is also important, especially if you have any doubts about the trainee’s competence.

Mentors need to check on the PPP criteria. What should the trainee be achieving for the relevant stage of the course?

During the each half term consider if any of the following are clearly evident?

a) The trainee's attendance, punctuality and dress are poor.
b) The trainee demonstrates very little interest in, or rapport with, pupils.
c) The trainee on several occasions fails to meet deadlines with respect to reasonable requests from yourself or colleagues in the department (e.g. fails to prepare an activity for small group work).
d) The trainee shows little interest in the life of the department (i.e. resources available, routines, day-to-day procedures).
e) The trainee fails to establish a working relationship with yourself and/or your colleagues.
f) The trainee seems to express excessive concern about teaching an entire class.
g) The trainee demonstrates a poor professional demeanour, often indicated by bad manners and an impolite attitude towards established staff.
h) The trainee fails to respond to the professional advice given by Mentors.
i) The trainee demonstrates insufficient subject knowledge.

This list is not meant to be exhaustive, but it may help new Mentors in particular. If any of the above signs are evident, **it is important to contact the Curriculum tutor as soon as possible.** It is better to be over-cautious than to let problems continue until the last minute. Please use the cause for concern form in the main handbook if you wish to put your concerns in writing. Finally, remember that
for a trainee, being put on a cause for concern may be seen as a sign of failure, so before this is done formally, it is important to discuss it fully with the Curriculum tutor.

9. Academic Assessment

Whatever your prior academic performance, all assignments need to be completed to a competent level. To help you with this, there is a full explanation of each task and the marking criteria in the main course handbook. All assignments are requirements for successful completion of the course linking QTS with academic expectations. All assignments are opportunities to think at a deeper level about many of the issues we cover in university sessions, and are a vital component of good professional practice.

Note that good written assignments will:

- Be clearly and coherently presented with careful attention to technical accuracy (spelling, grammar, absence of footnotes, bibliography etc.)
- Where applicable, show a clear understanding of the nature, purpose, content, structure and concepts of the discipline and teaching of mathematics, making appropriate references and links to the National Curriculum and other relevant specifications
- Show evidence of reflection upon classroom experience. In particular, referring to pupils’ work to inform observations
- Draw upon the recommended reading about the teaching and learning of mathematics to critically inform your comments
- Weave together theory and practice.

What does weaving theory and practice mean?

The assignment will contain practical examples of classroom work combined with reflective commentary. These can be merged or presented separately. However within your commentary it is vital that you link theory and practice explicitly. This means organising your ideas around some structure or rationale. Sometimes it will help to draw on the theoretical ideas of others, whether this is articles, research evidence or departmental policy.

Below are some examples that weave theory and practice together:

- These particular examples of the uses of sources in the history classroom demonstrate two possible pitfalls that can limit pupils’ learning. I observed a number of pupils slipping too quickly into an easy identification of bias or unreliability in a source, on the basis of simplistic criteria about the source’s provenance. This led to countless sources being written off as unreliable. The need to encourage pupils to construct tentative accounts based on the fragmentary and imperfect sources available to them has been cogently argued by Byrom (1998). Byrom demonstrates…

- One of my main aims in planning for pupils’ extended writing based on medieval towns was to help pupils to structure their answers by distinguishing between general conclusions and particular details. I found it extremely useful to draw on the work of Counsell (1997) in order to plan the sorting activity on the town gilds. Counsell argues that…

- The benefits of enquiry or ‘big’ questions has been effectively demonstrated by Riley (2000). He states that…….Using these criteria, it becomes obvious that the reason for the poor quality of pupils’ work stems from a lack of clarity about the purpose of the task they were set. Therefore, using Riley’s ideas, a better way forward would be to……
Here theory and practice are woven together in a clear and helpful way. Notice too that the commentary focuses very precisely on what exactly is going on in the lesson, particularly helpful is the emphasis on very specific conceptual areas within the subject. Bland statements that pupils found source work or essay writing difficult or were not motivated are not very helpful. Articulating precisely what you are trying to teach and the specific issues that arose will be of far greater benefit to you.

10. PGCE Review days

These are individual tutorials carried out by your curriculum tutor.

They are an opportunity to focus on your strengths and areas for improvement, setting targets from your school experiences and building on your personal subject knowledge audit.

**Preparatory tasks**

Bring with you
- Subject Knowledge Audit
- Attendance record
- Any ideas for personal targets
- Lesson Observations for discussion
- Portfolio, including evidence gathered so far.
- Assessment File
- Reflective Journal

11. Secondary Mathematics - General Reading List – this is in addition to the list you have already.

Listed below are a range of texts concerned with learning and teaching as well as an additional selection of texts directly concerned with mathematics in secondary education.

Please note that it is not a requirement to read all of these texts. *It is expected that you will at least refer to a number of the texts listed, (or similar material) to demonstrate that you are developing your views during the course in general, and specifically to support your views in the assignments.*

11.1: Books on the teaching and learning of Mathematics


Ollerton, M. & Watson, A. (2001) Inclusive Mathematics 11-18 (Special needs in ordinary schools series)


Swan, M (2006) *Collaborative Learning in Mathematics* NRDC/NIACE 375.51/SWA


**11.2 Books on Teaching and Learning in Secondary Schools**


Morgan, N. & Saxon, J. (1994) *Asking better Questions* Markham, Ont.: Pembroke


11.3 Mathematics Reports
http://www.dg.dial.pipex.com/documents/docs1/cockcroft.shtml

http://www.mathsinquiry.org.uk

11.4 OFFICIAL Publications related to Mathematics

National Curriculum
You will need a copy of the National Curriculum in your subject for use at the beginning of the course in September. Please make sure it is the most up-to-date version. A new KS2/3 curriculum was introduced in 2014.

As most of your teaching will be related to the National Curriculum, it is suggested that you download and print the full document from the internet.

11.5 Subject Associations.

Journals published by the Association of Teachers of Mathematics (ATM) or the Mathematics Association (MA)

ATM ‘Mathematics Teaching’ – bi-monthly magazine
ATM Interactive Journal MTi

MA ‘Equals – Mathematics and Special Educational Needs
MA ‘Mathematics in School’ - Magazine (5 times per year)
MA ‘Mathematical PIE’ - Termly magazine
MA ‘PLUS’ - Termly magazine

Journal of Research in Mathematics Education

TES Online, a mathematics supplement is published quarterly.

Technology, Pedagogy and Education (formally Journal of Information Technology in Teacher Education

Mathematics Today - Institute of Mathematics and Its Applications

Essential Purchase: You are strongly advised to join one of the two main Subject Associations supporting work within Mathematics Education. Subsidised student memberships are available.

- Association of Teachers of Mathematics (ATM) - subscribe to bi-monthly journal which is available in a hard copy form or in an interactive form via the website.
- Mathematics Association (MA) - choose which journals to receive as part of you membership.

11.6 Websites

The following are a selection of websites that either, contain material that is very suitable for your work in schools or have links to other sites with suitable material:

Mathematics teaching:
www.ncetm.org.uk (National Centre for Excellence in the Teaching of Mathematics)
www.atm.org.uk (The Association of Teachers of Mathematics)
www.m-a.org.uk (The Mathematical Association)
www.nrich.maths.org.uk (University of Cambridge – Mathematics puzzles, games & articles)
www.cimt.plymouth.ac.uk (Centre for Innovation in Maths Teaching)
www.learn.co.uk (Learning resources for the UK National Curriculum from the Guardian)

Other useful links:
www.ofsted.gov.uk (OFSTED website - for school inspection reports)
www.teachernet.gov.uk (Many useful resources)
www.citizen.org.uk (Institute for Citizenship)

The following sites give information that will be useful for information throughout the course:

www.ofsted.gov.uk/ - this provides details of school reports but also useful advice about the findings of Ofsted and HMI about various issues in teaching
http://www.education.gov.uk/ - this is the official DfE website, which contains information about initiatives, publications and general policy changes in teaching
www.edexcel.org.uk/; www.ocr.org.uk/; www.aqa.org.uk/ - these are the exam board websites

Plus some websites recommended by other beginning teachers
www.cartoons.ac.uk
www.teachertube.com
www.topmarks.co.uk - interesting for IWB visual resources
www.tes.co.uk
www.teachingideas.co.uk/mathematics/contents.htm

11.7 Newspapers

Keep abreast of current issues in education by reading the following:

Times Education Supplement (TES) - Available weekly on Fridays
www.tes.co.uk

Guardian Education Supplement - Available weekly on Tuesdays
www.guardian.co.uk (education section)

11.8 Accessing resources on Study Direct (VLE)

The Sussex Virtual Learning Environment – Study Direct is a purpose-built computer-based learning environment developed by the University of Sussex to enable students to access course notes, related resources and support materials quickly and easily – and communicate with their tutors and fellow students online.

To gain access to Study Direct you will need to be enrolled as a student at the University as you will need your computer ID and password.

Keep a record of any additional references that you think should be included in next year’s handbook!
<table>
<thead>
<tr>
<th><strong>Reading Report Template</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author(s)</strong></td>
</tr>
<tr>
<td><strong>Title of Article</strong></td>
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<tr>
<td><strong>Date</strong></td>
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<td><strong>Type</strong></td>
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<td><strong>Publication, volume (issue)</strong></td>
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<tr>
<td><strong>Keywords</strong></td>
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<tr>
<td><strong>Argument of the Article (100 words)</strong></td>
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<tr>
<td><strong>Quotes</strong></td>
</tr>
<tr>
<td><strong>References of interest</strong></td>
</tr>
<tr>
<td><strong>Other notes</strong></td>
</tr>
</tbody>
</table>
### Initial Lesson Observation

**Class:**

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Comments</th>
</tr>
</thead>
</table>
| **Start of lesson** | How does the teacher get the class in and settled?  
Does the routine include a recap, setting aims / expectations?  
Does the teacher relate the lesson to prior learning?  
Are the pupils interested? |
| **Middle** | How does the teacher maintain pace?  
Are there varied tasks?  
Does the lesson involve all pupils? |

<table>
<thead>
<tr>
<th>Teacher activity</th>
<th>Pupil activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Behaviour management</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| How does the teacher praise and encourage pupils?  
How does the teacher use sanctions? |
| **Differentiation** | | |
| Task  
Outcome  
Support  
Other |
| **Homework** | | |
| What homework is set?  
How does it relate to the class work? |
| **End of Lesson** | | |
| Plenary  
Exit routine |
| **Pupils’ progress made in** | | |
| Knowledge  
Understanding  
Skills |
<table>
<thead>
<tr>
<th>Date:</th>
<th>Year:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set:</td>
<td>Period:</td>
</tr>
<tr>
<td>Subject:</td>
<td>Comments</td>
</tr>
<tr>
<td>How do the pupils enter the room? (file, groups, all together!)</td>
<td></td>
</tr>
<tr>
<td>How soon does the teacher begin the lesson? How?</td>
<td></td>
</tr>
<tr>
<td>Is a link made with previous learning?</td>
<td></td>
</tr>
<tr>
<td>Do you/they understand the tasks set immediately?</td>
<td></td>
</tr>
<tr>
<td>How much interest do these pupils’ show?</td>
<td></td>
</tr>
<tr>
<td>Are they active? Do they work collaboratively?</td>
<td></td>
</tr>
<tr>
<td>Which activity/activities do they respond the best to?</td>
<td></td>
</tr>
<tr>
<td>What did they actually learn?</td>
<td></td>
</tr>
<tr>
<td>Do you think the tasks were too hard, about right or too easy for some of the pupils? A lot of them? Most of them?</td>
<td></td>
</tr>
<tr>
<td>How was the pupils’ interaction with each other/the teacher/you? (polite /aggressive/ patient/sociable…)</td>
<td></td>
</tr>
<tr>
<td>What was the classroom like? (environment, ambience, displays…)</td>
<td></td>
</tr>
<tr>
<td>Classroom Management Observation</td>
<td>Class:</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------</td>
</tr>
<tr>
<td></td>
<td>Date:</td>
</tr>
</tbody>
</table>

**Start**
*How does the class arrive? How does the teacher settle them? Are there any routines in evidence?*

**During the lesson**
*How does the teacher use his / her voice to manage the class? How effectively does the teacher use their physical presence and the whole classroom to manage the class? How are transitions between tasks managed?*

**Dealing with incidents**
*Do pupils behave in ways that require the teacher to intervene to manage behaviour? What happens before this behaviour starts? What does the teacher do? How do pupils respond?*

**End of lesson**
*How does the teacher signal the end of the lesson? How do pupils respond? Does the lesson end on time?*

**Overall**
*What was the balance between praise and negative comments? How much time did pupils spend on / off task? How many pupils were well / poorly behaved? How did the teacher’s planning help with classroom management?*
## Observation of questioning techniques

| Class: | Date: |

### Types of questions

How many closed questions are asked and how many open questions? Record some examples.

### Pupil responses

How many pupils respond to questions? What is the quality of responses to closed questions? What is the quality of responses to open questions? Do pupils discuss answers?

### Timings

How long do pupils have to respond to the teacher’s questions? How does the teacher respond if no one answers a question, or answers it incorrectly?

### Follow up

How often does the teacher re-phrase an answer? How often does the teacher reflect the answer back to class for another response? How does the teacher deal with ‘wrong’ answers?

### Pupil questions

Are pupils encouraged to ask questions of the teacher? Of each other?
### Observation of talk

**Class:**
**Date:**

<table>
<thead>
<tr>
<th>How long does the teacher talk and why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record how long the teacher spends on the following activities in front of the whole class:</td>
</tr>
<tr>
<td>(a) Giving instructions</td>
</tr>
<tr>
<td>(b) Giving information</td>
</tr>
<tr>
<td>(c) Leading class discussion e.g. asking questions and dealing with the answers</td>
</tr>
<tr>
<td>(d) Intervening to manage behaviour in the class</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pupils’ talk</th>
</tr>
</thead>
<tbody>
<tr>
<td>What type of talk do pupils engage in?</td>
</tr>
<tr>
<td>a. When do pupils talk in front of the whole class? Do they talk at length? Does the whole class discuss aspects of the lesson?</td>
</tr>
<tr>
<td>b. How much time do pupils spend talking in pairs or small groups?</td>
</tr>
<tr>
<td>c. How much of pupil talk is focused on the work? How much of pupil talk is social or off-task?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality of talk in class</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) How much of the talk is descriptive and factual? Give examples.</td>
</tr>
<tr>
<td>(b) How much of the talk is analytical or evaluative? Give examples.</td>
</tr>
<tr>
<td>(c) Do you think the use of ‘talk’ has been planned as part of this lesson? How did it relate to the objectives?</td>
</tr>
</tbody>
</table>
Observation of teacher distribution of attention

Draw a sketch of the classroom and note down, with a tally chart, how often the teacher makes contact with each table/pupil. Mark the tables/pupil places for gender/ethnicity/assessment level, to analyse any patterns that may emerge.
Remember to note information like which class, the date and size of room.

e.g.
### Lesson Self Evaluation Schedule

<table>
<thead>
<tr>
<th>Learning objectives were appropriate &amp; clear</th>
<th>Learning objectives were poor &amp; unclear</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>My attempts to motivate the class were effective</th>
<th>Attempts to motivate the class were ineffective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I had no discipline problems</th>
<th>I had too many discipline problems</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I created a relaxed atmosphere</th>
<th>I created a tense atmosphere</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>My questioning technique was good</th>
<th>My questioning technique was poor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The timing of the lesson was good</th>
<th>The timing of the lesson was poor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The class enjoyed the lesson</th>
<th>The class did not enjoy the lesson</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I achieved my learning objectives</th>
<th>I did not achieve my learning objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**I would score the lesson:**

- Very Good/Outstanding (1)
- Good (2)
- Requires Improvement (3)
- Inadequate (4)

**What 2 things really went well?**

1:  

2:  

**What 2 things would have improved the lesson?**

1:  

2:  

**What have I learned from this lesson about the class or individuals that will inform my next lesson?**

**What progress was made towards Teachers' Standards (DfE, 2012)?**
All lessons should be fully evaluated either on formal Self Evaluation Schedules (at least 50% including all formally observed lessons) or in your journal. Write up what went well, what could be improved, why you think the lesson was good/bad, what progress you feel you have made/the pupils have made, how well the learning outcomes were achieved etc.

There are three different stages after the lesson when you can reflect on your lesson.

1. Directly after the lesson before you speak to anyone else.
2. After you have discussed the lesson with observers.
3. After you have marked the pupils work.

It can be useful to revisit your evaluation after each stage and update your thoughts.

Be reflective, look critically at your own performance as this is a key method for improvement.
**Date:**
**Time:**
**Trainee Teacher:**
**Teacher Responsible:**

**Resources:** Don’t forget anything! Have videos cued ready at the spot you want, know where the equipment is kept, etc. **Support Staff:** Do you have a TA? Don’t forget to evidence this if you do.

**Objective:**

**Class Details:**
What are your concerns? Particular pupils/issues

**Personal Development Targets:**

**Met**

**Outcomes:** Make these precise. To ‘understand’/ be ‘aware’ is too vague. It needs to be something that you can check has been learned

<table>
<thead>
<tr>
<th>Time</th>
<th>Teacher Activity</th>
<th>Pupil Activity</th>
<th>Key Questions &amp; Assessment</th>
<th>IPG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start:</strong></td>
<td>Think about what you need to do, what questions to ask, how to link the sections of the lesson together, how to manage transitions, when to hand out materials, when to get quiet, how to give instructions and so forth</td>
<td>What should the pupils be doing, what do you want them to learn from any activity, how long do you want them to spend on doing something, should they be doing it on their own, in pairs, small groups and so forth. WHAT STRATEGIES WILL YOU ADOPT TO SUPPORT AND CHALLENGE ALL PUPILS?</td>
<td>What can you draw upon from previous learning to help you, think of questions to ask that will make those connections for pupils? What foundations are you laying for future work either in the year or across the key stage?</td>
<td>Individual, Paired or Group work?</td>
</tr>
<tr>
<td><strong>Give real times</strong></td>
<td><strong>Issues from Prior Assessment</strong> – what have you learnt from prior lesson about pupils. Focus on individuals, as this will help you think of concrete steps you can take to inform your planning</td>
<td>Are all pupils going to be able to do the work and be challenged, yet experience success? What problems might pupils have with the lesson, how can you support their learning?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Plenary:</strong></td>
<td>Homework: Will all pupils be able to do the homework or will some need extra support?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary of Lesson Evaluation** (2 Stars and a wish!)

1. ★ ★  ★

**New Vocabulary:**

Words pupils will have to understand to do the work

1. These go into the relevant box at the top next time!

2. 

3. 

**Personal Targets for next lesson:**

1. These go into the relevant box at the top next time!
This handbook is for advice and guidance only and is not a substitute for the formal statements and requirements of the Charter, Statutes, Ordinances, Regulations and procedures of the University. In case of any conflict these formal statements and requirements take precedence over the handbook.

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