

SCHOOL OF EDUCATION AND SOCIAL WORK

ITE Mathematics Subject Handbook 2023/24



US
UNIVERSITY
OF SUSSEX



“The whole purpose of education is to turn mirrors into windows”

- Sydney J. Harris

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1. Introduction

Welcome to the School of Education and Social Work (ESW) at the University of Sussex, and to the Secondary Maths ITE. As a teacher of Maths, you have chosen a profession that is exciting, dynamic and rewarding. This programme recognises that effective Maths teaching is about enabling minds and our central aim is to develop critically reflective, committed, thoughtful and effective Maths teachers who will encourage students to think for themselves and enjoy their learning experience.

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 Maths teachers with many Maths 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.

Our mission is to build a teaching community that promotes, challenges and champions the mathematician in everyone. 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 pedagogy. Building on this and your personal subject knowledge for teaching, 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, practical and based on research-based evidence so that you are critically linking together theory and practice

The purpose of this handbook is to provide you with an overview of the course, how it is run and how we work alongside our school partners. This handbook should be used in conjunction with the main Secondary ITE handbook, the Maths Curriculum Studies programme for the year, the Maths Canvas Site and the main RPK Canvas site to guide and support your professional learning and development throughout this year.

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

James Bashford, Karen Gladwin and Charlotte O'Dowd

2. Useful Acronyms

There are many acronyms in education. Here are a few to start you off.

Feel free to add to the list as you come across more.

ADHD – Attention Deficit Hyperactivity Disorder

AEN – Additional Educational Need

AfL – Assessment for Learning

AHT – Assistant Headteacher

ALL – Association of Language Learning

AoL – Assessment of Learning

APK – Applying Professional Knowledge

APS – Average Point Score

ASC – Autistic Spectrum Condition

ATM – The Association of Teachers of Mathematics

AUP – Acceptable Use Policy

BCME – British Congress of Mathematics Education

BFL – Behaviour for Learning

BSD – Behavioural and Social Difficulties

CAMHS – Child and Adolescent Mental Health Services

C4C – Cause for Concern

CATs – Cognitive Ability Tests

CCF – Core Content Framework

CLA – Children Looked After (replaces LAC – Looked after Child)

CP – Child Protection

CPD – Continuing Professional Development

CS – Curriculum Studies

CT – Curriculum Tutor

DfE – Department for Education

DHT – Deputy Headteacher

DST – Directed Study Time

EAL – English as an Additional Language

EBD – Emotional and behavioural difficulties

EBI – Even Better If

EPK – Exploring Professional Knowledge

EWO – Education Welfare Officer

FFT – Fischer Family Trust

HAPs – Higher Ability Learners

HI – Hearing Impairment

HLTA – Higher Level Teaching Assistant

HoD – Head of Department

HoY – Head of Year

ITE – Initial Teacher Education

ITT – Initial Teacher Training

ITTCCF – Initial Teacher Training Core Content Framework

LAPs – Lower Ability Learners

MA – Mathematical Association

MAPs – Middle Ability Learners

MLD – Mild Learning Difficulties

NCETM – The National Centre for Excellence in the Teaching of Mathematics

NASUWT – National Association of Schoolmasters and Union of Women Teachers

NEET – Young people ‘Not in Education, Employment and Training’

NEU – National Education Union

PP – Pupil Premium (previously FSM – Free School Meals)

PPA – Planning, Preparation and Assessment (on a teacher’s timetable)

PS – Professional Studies

PUR – Progress Update report

RAISE – Reporting and Analysis for Improvement through Self Evaluation

REV – Review Time

ROE – Record of Evidence

RPK – Reflecting on Professional Knowledge

SATs – Standard Attainment Tests

SEF – School Evaluation Form

SENCO – Special Educational Need Co-ordinator

SEND – Special Educational Needs and Disability

SIMS – Schools Information Management System

SK – Subject Knowledge

SLT – Senior Leadership Team (SMT – School Management Team)

SoW – Scheme of Work

SpLD – Specific Learning Difficulty

TA – Teaching Assistant

TT - Timetable

VLE – Virtual Learning Environment

WWW – What Went Well

3. Distinguishing Features of ITE at Sussex

3.1 - Rationale for Sussex PGCE/ School Direct Mathematics Courses

The aim of the course is to produce the highest calibre of Maths teachers, whose typical characteristics will include:

- strong levels of mathematical subject knowledge for teaching.
- an infectious enthusiasm for your subject and a determination to see young people attain the highest possible standards in Maths.
- the skills required to create a positive Maths learning environment within which young people feel secure and best able to progress.
- a commitment to inclusion and to promoting equal opportunities within schools and in the wider community.
- a determination to continue your professional development throughout and beyond the course via reflection, self-evaluation, the sharing of good practice, experimentation and the reading of research methods and literature.

3.2 - Equality and Diversity

- The University of Sussex is committed to promoting equality and appreciating diversity in our society. Diversity has many different dimensions, including academic and physical ability, socio-economic and religious background, sexual orientation, ethnicity and culture. Sussex is committed to providing an inclusive and supportive environment for all including pupils and trainees in an environment free of harassment and bullying on any grounds. Our equal opportunities policy can be found in Appendix IV of the main ITE Handbook on the RPK Canvas site.
- By challenging stereotypes and educating pupils about cultural heritage we can assist as teachers in creating an equal and diverse school community. At Sussex we are committed to producing teachers who understand and respect diversity and have a goal of promoting cohesion alongside delivering their subject teaching. We seek to recruit trainees from a variety of backgrounds. Preference is given to those who are prepared to take responsibility for their own professional development, are punctual and reliable, work hard, and bring a sense of humour to see them through the difficult patches. We also expect trainee teachers to have a commitment to meeting the needs of all pupils. As such students are expected to develop an awareness of the particular features associated with pupils' social and ethnic origins, their gender and sexuality, and their levels of physical, emotional and intellectual ability.
- All our ITE courses seek to feature appropriate emphasis on issues around diversity and a consideration of inclusion and equality underpins all that we do. In addition, we run specific sessions in the Professional Studies programme, as well as subject specific seminars. We have also recently established subject links with schools in London and elsewhere where our trainees can experience a more diverse environment and learn from experienced professionals.

3.3 - Partnership

The idea of working together in partnership underpins all aspects of 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 each year. Monitoring and evaluation takes place during university led, Maths mentor development sessions; 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 ITT Core Content Framework
- 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 knowledge 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 through weekly reflections in PebblePad. Mentors use the calendar of mentor training sessions to structure their training, but tailor this to the particular needs of their trainees. The Secondary Phase Reports are completed in each half-term (Phases A-E). See 'Assessment of Professional Practice for more details on this. At the end of each placement, it 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 by the end of the training year. The professional tutor and mentor complete this document during each half-term 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 PebblePad.

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?;
- Training sessions led by visiting mentors and other experts, e.g. Deb Fris (Sussex Maths Hub Mastery Specialist).
- Visits to other educational settings, e.g. Special Schools, A Level classes
- Involvement in wider school activities
- Encouraged to attend local events organised by our Maths Hubs, and sociable Maths Jams.
- Encouraged to attend national Conferences such as BCME, ATM or MA.

Through these activities and approaches we anticipate that trainee teachers from Sussex will establish themselves within a national community of Maths teachers so you must **try to think University and School at the same time!**

As a trainee teacher it can be difficult to link together what you learn and are expected to complete from the University side of things when you have so much going on in school but it is important that you balance the two. We understand that you will be really focussed on your classroom practice and taking on information from lots of different sources but the University and the school experience feed into each other. At the start, it may feel very overwhelming and you will probably be exhausted from all the new information you will be taking on board so it is vital that you keep in touch with your Curriculum Tutor (CT). This can be done via email when/if requested, but weekly communication is maintained with your CT through completing the weekly reflections in PebblePad. As well as meeting expectations set by the school, it is important that you keep up with the tasks, assignments and deadlines set by the University.

4. 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 **personal presentation, 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 Canvas tasks and so on. It is also essential that you take responsibility for maintaining your teaching files in order and your records 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 leader by email (jrb43@sussex.ac.uk) or phone (number will be provided at the start of the course) if you are unable to attend a professional studies or curriculum session. If you have advance warning of an absence, then you should seek to notify the university or school as soon as possible. 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.

5. Preparing to teach Mathematics

5.1 - What is a Teacher and what does it take to be a Good One?

We will all have different ideas about what makes a good or outstanding teacher. You are each a unique individual with your own personality and bring with you a wealth of life experience that will inevitably influence the type of teacher you will be, what this looks like in the classroom and how you will interact with the students that you teach.

So what does it take to be a “Good Teacher”? It would feel natural at this point to write a list of qualities you need: Patient, Enthusiastic, Kind, Fair, Resilient, Imaginative, Professional, Tolerant, Reflective... and so on. How many more could you add to this list? Which of these qualities are your strengths? Which ones do you need to work on?

You also need to consider the professional knowledge needed for teaching. Important knowledge such as your subject content knowledge, knowledge of the curriculum, policy knowledge, pedagogic knowledge... again, we could go on.

However, there is no one correct way of teaching, or specific set of skills, knowledge, techniques or procedures you must mechanically apply to become a “Good Teacher”. As a beginning teacher with us, you will learn to develop a wide range of qualities, knowledge and skills over time in a way that is appropriate to your personality and style and that works across the varied school contexts you will experience during your training year and beyond. Perhaps we need to reframe our thinking of a “Good Teacher” to an “Effective Teacher”.

An effective teacher is one who can integrate theory with practice, use evidence to underpin their professional judgement and use structured reflections to improve practice. An effective teacher is also comfortable in the presence of young people and is interested in them as individuals as well as learners. An effective teacher motivates and encourages pupils by planning interesting lessons, and links their teaching to the lives of pupils. Part of being effective is to respect your pupils and in turn earn their respect, not only through the skills mentioned but by maintaining firm but fair discipline.

(Capel et al., 2013, p.1)

As a maths ITE team, we aim to support, guide, and educate students of all mathematical backgrounds to become the best teachers you can be. We welcome trainees into our community of mathematical scholars to share our ideas, learn from one another and cultivate knowledge together. We share mathematics through using creativity, positivity and ingenuity, while modelling good practice during a well-designed, research-based curriculum. We lead students to develop your own skills in analysis, reasoning, creativity, collaboration and self-evaluation through critical reflection.

5.2 - Why is teaching Maths so special?

The national curriculum gives us a good starting point in its’ first paragraph stating the purpose of studying Maths:

“Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history’s most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for

understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.”

(Gov, 2013, p.2)

In other words, Maths is awesome! I know that we all know that already otherwise you wouldn't be here, training to be a Mathematics teacher wanting to share your passion for the subject with others. Although this all might seem a bit overwhelming right now, remember that you are just at the start of your teaching journey. Being an excellent, effective maths teacher means that you want the best for the students you will teach so you will always be learning and developing, both as a person and as a teacher to enable you to achieve this. This quote by educationalist Scott Hayden sums it up well “Teachers have three loves: love of learning, love of learners, and the love of bringing the first two loves together”.

Focusing on what is expected ‘mathematically’ from the pupils, the national curriculum then goes on to outline its aims:

The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

There is a lot to unpick in these three seemingly quite short bullet points. It is important to hold onto the idea that maths is indeed a beautiful subject and it is our job, along with our school partners to equip you with the tools that are going to help you on this exciting adventure of becoming teachers of Mathematics.

As a Maths team, we encourage and strongly promote experimentation with innovative teaching and learning methods in our classrooms. We strive to make our students feel successful in your understanding of mathematics, and delight in those moments when our students blossom and evolve in their teaching ability, so that you can in turn meet your pupils with thoughtfulness and enthusiasm.

5.3 - How does the year work?

The overall course structure for the year can be found in the main Secondary ITE handbook. This will tell you when you are at school and when you engage with University sessions. University sessions comprise of Professional Studies sessions and Maths Curriculum Studies sessions. The Professional Studies programme of sessions can be found on the RPK Canvas Site. The Maths Curriculum Studies programme of sessions will be on the Maths Canvas site as a Google doc. This document will tell you where you should be and when. 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 via Canvas. In addition to this, we have our Key Dates and Tasks document for the year available to print on the Canvas site. This is super useful and important so **please do read all of these documents thoroughly and note the key dates for assignments and assessments onto your own calendar/diary**. It is not our responsibility, as tutors, to remind you of deadlines and what needs to be handed in when. Now all of you go and get your diary and populate it with all of the key dates! Do it

RIGHT NOW! It may also be sensible to get yourself a year planner to put up on your wall so that you can clearly map out the whole year. It will help to see where the pressure points will be.

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** (tasks, proposals, drafts and deadlines etc.)
- **Note the key dates for assessments** (progress updates, professional practice profiles)
- **Note the days that we may be off campus**
- **Note the days that you may be finishing late** (department meetings, open evenings, social events)
- 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.

5.4 – Get some kit

You are unlikely to be in the same classroom every day and might often be far from a maths resource cupboard so it is worth investing in a portable classroom resource unit. Essentially a '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 or a trolley something 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
 Erasers
 Rulers
 Scissors & Glue sticks
 Highlighters
 Few calculators
 Protractors and compasses
 Dice, playing cards...
 Blutac
 Board pens – lots of different coloured ones
 A variety of paper.

You will also need to buy an A4 notebook and folders for the year. We recommend at least 3/4 lever arch files and 1 A4 ring binder folder, although considerably fewer will be required if you are planning to work mainly electronically.

5.5 - Getting Organised for the Year

Ask any trainee teacher who have previously trained with us and they will tell you that the key to surviving the year is to **be organised**. If you are a naturally un-organised person (like me!) then you will have to work extra hard at this. Please do speak to your CT if you find being and maintaining organised difficult as we will be able to help you with techniques you can implement to make your lives easier and not get to Christmas drowning in a sea of paperwork.

5.5.1 – File everything!

Our main top tip for staying on top of things is to file everything away AS SOON AS YOU GET IT. Don't just chuck it in your bag and say you will do it later. It won't happen. It will end up a crumpled mess lurking at the bottom of your bag, possibly with a mouldy shrivelled up bit of fruit stuck to it. This has definitely not happened to one of us at all... Don't just pop it in the back of your writing pad either. Get your hole punch, buy a few sets of folder dividers (remember to get the wider ones for the lever arch files), label the heck out of everything and at the end of each day take 10 minutes to put everything in its right place. Alternatively scan everything straight after sessions and file electronically.

Your organising system may develop and change as the year progresses and this is fine. Just ensure that you get your folders started as these will stay with you for the rest of your career.

As a suggestion, you may want to set up your folders/portfolios like this:

Curriculum File – this should contain session outlines, readings & hand-outs from Maths Curriculum Session, your own notes and reflections on your curriculum sessions, as well as attempts to assess and develop your subject knowledge at the University. Notes that you take from reading journals related to sessions and for your own interest and professional development should go here too.

Teaching/School File – this should contain material from your professional practice including lesson plans, classroom resources, pupils data, schemes of work, observation records, copies of pupils marked work, mark books and other school assessment materials. We recommend that you have 2 files for this, one working file which could be an A4 ring binder that you use daily with your lesson plans etc. for your lessons each week and then a larger lever arch file that you transfer the paperwork from the ring binder at the end of each week into so that you aren't hauling around a humungous folder by the time you have taught 40 lessons. Include a section in your lever arch file for mentor meeting notes.

Professional Studies/Information File – this should contain your notes, hand-outs and documents issued as part of your general professional studies programme in University and School. This could also be where you file any record of CPD completed over the course of your training.

Mark book – It is essential that you track pupil's progress across the year and this must be done in a mark book. Pupil data may go in this file too. This should not just be a record of tests or of homework completed, you need to make sure that you collect meaningful data on each of your pupils for all the classes you teach. You will be given guidance on how to do this by us at University, but also from your school placement.

These folders/portfolios must be available to your CT when you have your review with us and when we come and observe you in schools. Your mentor and/or professional tutor may also want to have access to them.

By keeping these folders in good order it will help you immensely when it comes to your final RPK assessment and for when you discuss the evidence for meeting the Teachers' Standards (TS) with your mentor for your final summative report at the end of the course.

There are many ways that you may want to structure your evidence portfolios and we are not saying that one way is better than another. However, some ways work better than others.

As an electronic record

In a world of cloud storage it is possible to keep all of your evidence electronically. For some people this is easier to manage than paper which can be easy to lose or not filed away despite our advice. Also many schools are now paperless. Potential disadvantages of this method is that some evidence that you collect will be in paper form e.g. mentor lesson feedback. You will have to scan all of this paperwork, or you could take a picture with your phone and upload that but some might find this too time consuming and the prospect of potentially losing your evidence through a corrupt file may be too much to bare. It can also be difficult to decide the best way to label and organise your folders – but on the flip side it is easy to change organisation systems on-line.

As a paper only folder

If you are a whizz with a hole punch and like to buy pretty stationery then this is the method for you. You can file everything away quickly using dividers in folders (I suggest the extra wide dividers for lever arch files). You can also hand scribble notes on documents, making useful annotations and use post-it notes to flag up potentially useful evidence. Any paper based evidence like pupils work can be photocopied and popped in the folders. However as you can imagine you will collect a lot of paper over the course of your training which for some has ethical implications (think of the trees!) and those folders are going to fill up fast.

A mixed method approach

The best of both worlds? Lesson plans generally tend to be done on the computer, some of us are quicker typers than we are hand writers. Some evidence makes more sense to store electronically and others less so. A combination of the two could be a good solution. Remember that if you choose to store anything electronically it is your responsibility to provide an electronic device to show your evidence to your CT and ALWAYS BACK EVERYTHING UP!!!

5.5.2 – Assessment of Professional Practice

Your two Professional Practice placements are primarily assessed by Mentors and Professional Tutors and reported to the University via the Phase Reports on PebblePad. The Phase Reports are completed at five points over the year (Phase A -E). Your progress is monitored carefully and regularly by your subject Mentor, your Professional Tutor and your University Tutor through continuous formative assessment. There are descriptors for each area of our ITE curriculum which are staged at each of the five review points (Phases A-E) which you will find on PebblePad

The descriptors provided are used formatively on a regular basis to promote an ongoing professional conversation with all stakeholders across the Partnership about the current level you are working at.

As you progress through the training year, you are *Working Towards* meeting the Teachers' Standards in Phase E. The final summative assessment (Phase E) is derived from rigorous professional judgements from across the Partnership where you should be meeting all of the Teachers' Standards. Each Teacher Standard will be assessed by university and school-based partners on the available evidence and will consider the setting and context of the complementary school experiences in which your training has taken place.

Part 2 of the Teachers' Standards relates to personal and professional conduct. As you are embarking on an ITE programme, you will need to demonstrate that you possess the required attitudes and behaviours as an element of the assessment. No matter which route to QTS, all trainees are expected to demonstrate high professional standards from the outset and across all phases (Phases A-E). Part 2 of the Teacher Standards is assessed at each phase as Pass or Fail as an expectation of the course throughout.

5.5.3 PebblePad

PebblePad is a personalised electronic portfolio system designed to support trainees in their personal and professional development as teachers. It is completely web-based and works by providing trainees with a flexible way to plan, record and reflect on their learning over the teacher training year. Trainees use PebblePad to create records of their learning, experiences and achievements in order to evidence the growth of knowledge and skills as a teacher through a number of different workbooks. Trainees can easily share their learning 'assets' with Mentors, Professional Tutors, University Tutors, employers and peers, internal and external to the university, and invite comment and collaboration. Mentors and Professional Tutors or any other school-based colleague who is involved in the training and assessment of teacher trainees has access to PebblePad where they can review and comment on trainees' development over the course of the training year and scrutinise/quality assure evidence of meeting the Teachers' Standards at the end. Integrating with the University VLE (Canvas), trainees collate weekly reflections against the ITTCCF, record weekly Mentor meetings, collate lesson observation feedback, review subject knowledge, upload recordings of teaching practice and collect evidence towards meeting the Teachers' Standards at the end of the training programme on PebblePad. In this way, PebblePad ensures that we can enhance sharing of our assessment processes effectively with school partners and also streamline trainee workload.

Profession within the Maths ITE Curriculum

- On a regular basis use your weekly reflections on PebblePad to reflect on and review your progress within our Maths curriculum.
- Highlight the descriptors that make up each of our areas of intent that you feel you have developed in the phase that you are teaching in.
- This has to be supported by evidence ready to be discussed with your mentor twice a half term. In a typical 6 week half term this would be once in week 3 or 4 and once at the End of Phase review meeting in week 5 or 6.
- For the End of Phase Review meeting complete in advance the reflection sections for Phase Report B and Phase Report Es on PebblePad based on the overall progress you have made over the term with targeted areas for development leading into the next phase of training or in the case of Phase Report E, into your ECT year 1. These reflections will be read by your Mentor and Professional Tutor as well as your University Tutor.

Lesson observations

After October half term you will be observed (formally) every week by your mentor or other member of the Maths department. It is vital that your mentor/teacher gives you 3 strengths and 3 targets to work towards. You write the details of this observation into PebblePad **exactly as it is written on the form by your observer**. Note that the mentors must comment on your subject knowledge. You should also keep the form that the teacher observer completes as evidence and file it away safely alongside the lesson plan. It is helpful to keep these together in this way. Other teachers will also observe you who aren't your mentor. Use an A4 notebook for observation notes for each of your other lessons that will be observed by other teachers so that you have them all in one place and can share with your mentor at your weekly mentor meeting so that you can discuss your overall progress across each of your classes.

ITT Core Content Framework (DfE, 2019)

The Core Content framework (CCF) is mandatory for all providers of Initial Teacher Education. This framework defines in detail the minimum entitlement for all trainees and places a duty on ITT providers and partner schools to work to embed this in course programmes from September 2020.. According to the DfE (2019) it draws on the best available evidence and sets out the content that ITT providers and their partnerships must draw upon when designing and delivering their ITT curriculum and programmes.

The ITTCCF has been designed to support student teacher development in five core areas – behaviour management, pedagogy, curriculum, assessment and professional behaviours.

It is designed in the knowledge that the quality of teaching is the most important factor in improving outcomes for pupils. The ITT Core Content Framework and the Early Career Framework together establish a three-year structured package of support for future teachers.

The CCF entitlement will be reflected across your whole programme's provision, both school and university based. The Learn How to and Learn That statements of the CCF have been carefully considered and sequenced in your course programme to ensure that you receive this minimum entitlement. Your university tutors, your mentors, your Professional Tutors and you as trainees will be auditing your journey through the CCF in order that you can successfully meet the Teacher Standards (DfE, 2012) by the end of the course.

More information on the ITTCCF can be found on the RPK Canvas site.

Your Maths Subject Knowledge

Subject Knowledge is essential if you want to be an effective teacher. Even if you have a Maths degree, there will be areas of subject knowledge that you may have to revisit to ensure you are able to understand it at a deep level to be able to break it down to explain it to a pupil who does not know how to find an equivalent fraction by the time they are in Year 11 and have been taught it ten times. There is a difference between knowing maths and being able to explain it. So be honest when you consider your subject knowledge. This is not a competition. There is no-one to show off to. No Maths teacher can lay claim to know every maths topic at a deep level, even if they have been teaching for many years as there are always alternative ways of teaching a topic that will enhance your subject knowledge and therefore improve your mathematical explanations.

Subject Knowledge Audit

You will be asked to complete a Subject Knowledge Audit (SKA) at the start of the academic year. It is recommended that you return to this during the year; you will need to update weekly evidence as to how your subject knowledge is developing.

Subject knowledge in the context of Initial Teacher Education means much more than just being able to 'do the maths'. During the course of your university and school-based training you will develop skills in pedagogy and methodology which help you to communicate clearly and to promote understanding so that your pupils make progress.

So be honest when you complete your SKA, really think about your strengths and potential areas where you would benefit by furthering your knowledge. The more honest you are with yourself the more useful your SKA will be to you, your mentors and your CT who will then be able to guide you on how to develop those areas.

5.6 - Maths Curriculum Studies Sessions

These sessions happen throughout your first professional practice, and occasionally in your second placement. They are always on Fridays. 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 as we work with a spiral curriculum we revisit and consolidate key topics throughout the year as you become more experienced practitioners. Additionally there will be opportunities for peer teaching, progress reviews and bespoke discussions of emerging classroom issues. Here are some generic skills in the context of teaching Mathematics that you will develop whilst on the course in a bit more detail:

- 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.

5.7 - Assignments

It is best to look to the main handbook for these to see the wording for the assignments in all their glory. We will make sure that you are able to interpret the 'masters' speak that it is written in during our CS sessions and in reviews.

Do not suffer alone when writing these. Form writing groups together. Let us know if you are struggling, before the morning of the deadline would be good. We provide you with support to get the assignments done so DO NOT PANIC. Throughout the year, you will have to carry out some tasks. Some are smaller and just about you finding information out that will help you in your teaching, some are more substantial and will help you to develop your reading and writing skills in preparation for both of your key assignments.

Induction tasks will be explained on the Key Dates and Tasks document.

Academic Assignments

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 Secondary ITE 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.

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.

Possible Topic Choices for Assignments

If you are struggling with the – why not have a look at some of these and see if you get any inspiration.

Here is the list of possible topics to integrate with your maths topic:

- Use of manipulatives and representations
- Explanations and Modelling
- Adaptive teaching
- Developing mathematical reasoning
- Assessment for Learning

6. Teaching Mathematics

6.1 - Who is Involved in your Training and what do they do?

(credit to Fi Branagh, Mentoring Lead for the majority of information written in this section)

At the University

Your Curriculum Tutor

Your main contact person at the University is your **curriculum tutor (CT)**. First and foremost, you, our trainees, are at the heart of what we do. We have high expectations of all our students while welcoming diversity of every type (including but not limited to cultural, religious, gender, academic, and learning disabilities). We aim to support our differences with trust, understanding, and a community spirit. United by a common goal, we guide our students in their ipsative mathematical education evolution.

They have multiple roles for you throughout the year:

Support you throughout the year:

Your curriculum tutor checks that the school is training you in accordance with the programme agreed with the University. They co-ordinate your training at university and ensure that the programme that we create for you is right for your development as a teacher.

Daloz states that with little support and little challenge the novice will make little progress; too much challenge with little or no support and the novice is likely to withdraw, as they will not find it easy to cope with the challenge (Martin, 1996, p.44).

This quote from Martin (1996) encapsulates the role of the curriculum tutor (and the mentor) in the training process of the trainee teacher. Your tutor is there first and foremost to support you, but their role also includes challenging you to ensure that you are constantly improving and analysing your progress throughout the year. Your tutor will want to help resolve difficulties that may arise and offer concrete advice if it is sought. If crises occur between visits, you can always contact your tutor by email or telephone and indeed should do. Problems can usually be sorted out by phone or email, but your tutor may make an emergency visit to the school if that is required.

Observe you:

Your CT will come to observe you twice over the course of your training. This tends to be around Christmas time and then again in the Spring. The focus of these school visits is to moderate and review your progress through a **joint** lesson observation with the **Mentor or class teacher**. The purpose of a curriculum tutor visit is to provide you with feedback on your 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.

Each Curriculum Tutor will have their own way of arranging their visits which they will communicate to you a good few weeks before the visits begin. Please ensure that you respond promptly to any requests at this time as these visits are not easy to organise with so many trainees spread out in lots of different schools.

Your CT will arrive at least 15 minutes before the start of the lesson. Please ensure that you provide copies of the following for both your CT and the observing mentor/teacher (so two copies of each of the following **before the lesson starts**):

- a) **A copy of the lesson plan**
- b) **A copy of the slides**
- c) **Copies of any resources/worksheets/textbook that you will use as part of your lesson**

- d) A group profile sheet for the class with all available data on it
- e) Your mark book for the class

Please also ensure that there is somewhere for us to sit and type/write as we will generally fill out your observation form and return it after the observation on the same day. I once had to spend an 100 minute lesson sat on the floor. It was not fun. I do not want that to happen again please.

We will follow the lesson by having a short meeting with your mentor to discuss the lesson and then you join us for feedback with a set of strengths and areas for development to work on. It is important that we see progress being made on these from one observation to the second observation so always be sure to understand the feedback being given after each lesson that is observed.

Carry out your review tutorials:

You normally get two tutorials with your curriculum tutor over the course of the academic year. These will either be individual or group tutorials depending on the nature and purpose of the tutorial. Each CT organises theirs in a different way so watch out for messages from them on Canvas. These normally last about 30-40 minutes and can be face-to-face in our office, over the phone, over zoom and in schools

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. It is also an opportunity to generally let your tutor know how you are getting on!

Preparatory tasks

Bring with you

- Filled out review proforma
- Subject Knowledge Audit
- Attendance record
- Any ideas for personal targets
- Lesson Observations for discussion
- Relevant Files

Help you with assignments:

Your CT will assist you with your academic assignments. They set clear deadlines for each part of the assignment across the year and will mark and give you formative feedback for each of the following:

- Proposal for the APK
- Essay plan for the APK
- 3000 words split across the literature review and the evaluation sections of the APK
- Give you detailed guidance for both the APK and the RPK
- Provide you with relevant study skills sessions to help read and write at Masters level.

It is important for you to meet any deadlines set by your CT if you want to pass these assignments.

Monitor your progress:

It is the role of your CT to check on your progress regularly. **We do this via email communication with you and your mentor, your assessments, assignments, and your submissions onto Canvas as well as the weekly reflections.** It is your responsibility to ensure that all the correct documents are on Canvas at the right time each week. Your 'Key Dates and Tasks' document will help you to know

what needs to be submitted and when. It is NOT the responsibility of your CT to remind you of the documentation that needs to be submitted, but we will politely nudge if you miss a deadline.

Write your references:

Your CT is responsible for writing your reference while you are on our course. **When you apply for a post, you should inform your CT by email that you are applying and ask if it is ok to put us down as a referee (this is a matter of courtesy).** We will consider your reports from your mentor as well as our own experiences of your progress on the course, as well as attendance and punctuality, when we write the reference. Your second referee for a post should be your current mentor in school. You must let your CT know what schools you are applying to and it is normal procedure that you put us down as the main referee on the application form.

Co-ordinate your Curriculum sessions at University:

Your CTs will provide the majority of the input on your CS days at University. Occasionally we bring in outside speakers to enhance your experience on the course.

Challenge you to be the best teacher you can be!

The role of the curriculum tutor is to ensure that you become the best teacher you can in the time that you are with us. This can sometimes mean that we need to set you challenging targets. We are also here to let you know when you are doing well and use our years of experience to reassure you when times are hard!

There are other people involved in your time at University from administrative staff, technical staff, and other tutors. Please refer to the main Secondary ITE handbook for their roles and responsibilities.

At School

Your Mentor (please note that there is also a mentor handbook that you should look at too – this is a summary of what is in there)

The main person involved in your training while you are on professional practice in school. Their main duties include:

- Introducing you to the department
- Inducting you to the school (policies and procedures)
- Organising your timetable
- Staging your introduction to teaching a full lesson before half term
- Staging your progression towards the full amount of lessons
- Observing you (or organising your observation) each week and feeding back on your lesson
- Meeting with you once a week (for about an hour)
- Writing your assessment reports

It is your mentor who will guide you through your training in school. It is them who will set the standards that they feel are appropriate for the school you are placed in and induct you to the school policies and routines. It is highly advisable that you do what your mentor tells you to do. **If they say that you need to have your lesson plans in 48 hours in advance then that is what you do, no matter what your peers in other schools may have to do.**

So, being a mentor is a difficult task. They are responsible for balancing and interweaving two agendas. They must follow through a programme which will develop all areas of the CCF Standards, and all the specific subject knowledge 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. Their job is a hard one, so you need to be sympathetic to them and try to organise your own time as much as you can. It is your responsibility to remind them of YOUR deadlines, not the other way around.

Your Professional Tutor

The other main person that you will have contact within your school professional practice is the professional tutor. This person is responsible for the overall training of all trainee teachers in the school. They may also have other important responsibilities as well that take up much of their time. They will run your weekly professional studies sessions and are the point of contact for you in school should you be having any difficulties with your mentor or other issues that your mentor feels are outside of their remit.

It is very likely that the professional tutor will want to see you teach at some point and may become more involved in your training should any problems arise with your progress or your conduct.

The rest of the school

Rest of the Maths department:

There are a wide variety of people involved in your professional practice in school that may be less obvious than the mentor and the professional tutor. You may well be teaching other lessons with teachers other than your mentor. These teachers deserve the same courtesy that you would offer your mentor in terms of lesson plans in advance etc. **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!

Teaching Assistants

TA’s are also very important people in your classroom. The way a TA is used in your classes varies from school to school and from class to class. Sometimes the TA is attached to a particular child for medical reasons; sometimes they are to be used for the whole class. It is your responsibility to plan for your TA and let them have a copy of your lesson plan with their role clearly identified on the plan. A discussion over break time is also a very good way to discuss how you can best work together to help the pupils make progress. You must seek advice from the SENCO in school about how to best utilise your TA.

Communication Assistants

These people are specialised teaching assistants who help pupils integrate into mainstream classroom settings. Sometimes they may be a deaf communicator sometimes they may be a specialised EAL teacher who is in to help a new pupil.

Heads of Year (House)

If you are struggling with a particular pupil, you may want to send an email or go and visit the Head of Year of that pupil. They are privy to all the information about that child and may be able to give you an insight into why they are behaving in a certain way. Before contacting home to discuss poor progress of

behaviour of a particular pupil it is highly advisable that you contact the HOY for advice as they may know more about the family situation and be able to advise you.

Form Tutors

In the same way as the HOY, the form tutor will be able to advise you on patterns of behaviour of a particular pupil. They normally know their pupils very well and will be willing to talk strategies with you and techniques that they have found useful.

Administrative Staff

In the offices of the school, there are a variety of different people doing various roles. For you the most important ones are the attendance officers as they will be the ones that will be upset when you do not do your registers and advise you what to do for someone who seems persistently absent from your lessons.

You may want to send a letter or a postcard home and somewhere in the office will be a person who will help you get the address from SIMS and advise you how the postal system in school functions.

There may be a reprographics person in the office that you need to send your photocopying to. Be very nice here, there will sometimes be long deadlines for photocopying to be handed in that you may not be able to adhere to as a trainee teacher and will need special treatment!!

ICT staff will also be present somewhere in the school and you should go to them for password issues and anything to do with your whiteboard and computer.

Student Services Staff

These people are the ones to send your pupils when something is not quite right, such as a bad cut, feeling sick etc. Do not overuse Student Services as the pupils start to get the idea that you will send anyone and use this to get out of your lessons!

Site Manager and Ground Staff

If something is not quite right in your room that you teach in or you need keys, it is very likely that you should talk to your mentor first, but once you get to know the school better you may be able to go straight to the site manager and get things sorted. For issues such as sick in the corridor etc, it is normal procedure to get the site staff to clean this up. Apparently, this is a health and safety issue that we are not to clean this kind of thing up! If you see glass on the floor too, you should contact the site staff immediately.

Cleaners

Ask the most organised person in the department what the routines are for the cleaning staff. Do you need to put your chairs up etc. **DO NOT LEAVE YOUR ROOM IN A MESS!** Just because the pupils have made a mess does not mean that it is the responsibility of the cleaners to clean it up. If your timing of your lesson has meant that there was not appropriate time to clean up after the pupils, then you must do it. My advice would be to keep the least attentive pupils behind for a few minutes to have a 'chat' and help you clean up the mess and tidy the books away. **DO NOT ANNOY THE CLEANING STAFF!**

It would be impossible to write an exhaustive list of who does what in an institution as complex as a school. Needless to say, we expect absolute courtesy to all that you meet and demonstrate professionalism in all that you do.

6.2 - Guidance for being in school

6.2.1 - 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, especially when you first start and you are tired and having to learn the complicated ways of fitting into an established department. So:

- Dress appropriately - different schools have different dress codes. You want to create a good impression on your first day so until you finish your first week dress to impress and get the suit out. Make sure tattoos and piercings are covered until you know what the school policy is for teachers.
- Act in a professional manner e.g. be punctual and reliable, act with courtesy and tact, respect confidentiality of information.
- 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, why not take in **extra** provisions to share and say thanks. And for goodness sake take your own mug in – don't use someone else's!
- Adopt the ethos and protocols of the school during your placement.
- ALWAYS conduct yourself in a professional manner. Be particularly careful and mindful about talking about the school/other members of staff/pupils in any location outside of your home. Just don't do it. You never know who is in that closed toilet stall or who you are sitting next to in the pub, or on the bus or in the restaurant... you get the picture. Also remember you are in school so watch your language!

6.2.2 - 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 peers and 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. As well as input into pupil reports and records.

6.2.3 – School Induction Checklist

By the end of the induction period, please ensure that you:

- **Have 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
 - your programme and timetable for your placement

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

- **Understand the rules and procedures concerning:**
 - health and safety, staff absence

- **Are sure about:**
 - the nature of the school day
 - the time you need to arrive
 - where your pigeon hole or locker is
 - parking arrangements
 - any (un)written rules about staff appearance, dress or conduct
 - areas where you can work
 - how to access ICT resources for lesson preparation – we suggest taking your own laptop to work on as computers can be scarce in schools
 - coffee, lunch and staff-room procedures
 - any meetings you need to attend
 - anything you need to do before coming into school the next day/week

6.3 Working 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 publicly 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.

6.4 Extra help notes for first few weeks in school:

Observing lessons

In your first few weeks, you should observe lessons with an open mind. Just watch what the teacher does, the language they use and what the corresponding responses of the pupils are. It is very important to note how they follow through particular policies such as the behaviour policy as you will be expected to do the same when you start to teach.

Once you have noticed the basics of the lessons, it will be time to look for particular aspects of the lessons such as assessment and timing. Refer to the Key Dates and Tasks document for the foci of the observations.

Some maths specific information to find out over the first half term of your placement

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 the school?

- 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 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 KS2 to 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 clips, 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, apple 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?
- 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, is it dialogical? Is there DIRT time or similar? 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...

Observing pupils

In your first few weeks at school, you will be encouraged to follow a pupil (probably). Try to note how they are different in various lessons. What do you think causes the change in their attitude and behaviour?

6.5 - Once you start Teaching Mathematics

After your induction and observation period you will be feeling ready to start taking on some maths teaching, after all, that is what you have signed up for. You will not be thrown in at the deep end. Your teaching will build gradually with you perhaps planning and teaching a starter with a particular class, you might then do a plenary before moving onto doing some more interactive team teaching and then eventually taking over the whole class teaching. There are no hard and fast rules as to how quickly this should happen as it will depend on your confidence and experience so it is a good idea to create a plan with you mentor as to how you are going to build up to teaching your 8 hours a week on your first placement and then 12 hours a week on your second. If you feel like you are being pressured to take on too much too soon please talk to your CT about it.

6.5.1 - Lesson planning

I am going to be brutally honest here. When you first start planning it does take a long time. But like anything you are new to, the more you practice, the easier and better you will become at it. You will have been given some guidance on how to plan at University and this will be revisited throughout the course. However, nothing will compare to actual real life planning of real maths lessons to real pupils. This is why it is at school, with your mentor and other class teachers, that you will be embedding what you have learnt at University and developing your lesson planning powers. We encourage collaborative planning during the first few weeks when you take over your classes. This means actively planning lessons together with your mentor so that you can talk through the processes they go through when they are developing a lesson.

All of your lesson plans need to be checked by your mentor before you can teach them. At the start of your teaching journey this should be submitted to your mentor 24/48 hours in advance to give them the chance to give you feedback and for you to act on it. Some of your weekly mentor meeting time should be used to discuss what you are going to teach the week after and it is your job to then plan these lessons focussing on what the pupils are going to learn. If you do not submit a lesson plan, you are not allowed to teach that lesson. You must produce a lesson plan for every lesson you teach. You must also evaluate every lesson. It is important to reflect critically on your practice as this is the only way that you will improve. Planning and evaluating your lessons focussing on the learning that should have taken place is an essential part of learning how to teach and eventually becoming an effective teacher.

6.5.2 - Keep Observing

It is very easy for observations of other teachers to fall by the wayside once you start teaching your full timetable and become more involved in your classes and in the life of the school. Do not let this happen to you. As you become more experienced, observations will become even more useful, and you can use them to focus on areas of your own teaching that you want to further develop. The 'Key Dates and Tasks' document will outline the observation focus for each week that will match the Maths CS programme for the year.

Please do also go and observe other subjects that aren't Maths. We can learn so much from observing practical lessons in terms of advancing our pedagogic techniques. How do they teach in Drama and DT where the pupils are not always sat at their desks and lessons include a lot of moving around and potentially dangerous activities?

Observing pupils that perhaps you are having difficulties with in other lessons can be a really eye opening experience. Observe how other teachers work with them, learn from what you see. I also often suggest going to observe teachers that are like you – your mentor will be able to help you with this. If you are someone who doesn't have a fog horn voice you can use to blast the pupils into silence, go and observe a fellow quiet voiced teacher to see what techniques they use to get the attention of the class. There is a lot to be learnt from watching other teachers.

6.5.3 - How to 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.

Take charge of your lesson – the pace is your job, not theirs.

6.5.4 - What to do if Things are Not Going so Well with a Class/Pupil

(credit to Fi Branagh, Mentoring Lead for the majority of information written in this section)

- 1) A checklist of possible actions/reasons
- 2) Speak to your mentor.
- 3) Have you genuinely been planning far enough in advance for this class?
- 4) Are the lessons differentiated for the pupils?
- 5) Have you been marking and checking their work and praising their work?
- 6) Are your lessons dull? Do you have enough energy and variety in your lessons?
- 7) Are you being warm and greeting them?
- 8) How is the tone of your voice? Where are you standing in the classroom? Are you moving around too much/not enough?
- 9) Are you genuinely acting on the advice and feedback of your mentor/class teachers?
- 10) Do you need some time to get organised and sort yourself out? How can you fit this into your schedule?
- 11) Have you been observing other teachers enough recently?
- 12) Do you need to go and observe a particular pupil again to see how they are behaving in other lessons?
- 13) Have you sought the advice of the form tutor or head of year about this pupil?
- 14) Have you been filling in the necessary paperwork on the pupil to alert the other staff that they are not making progress?
- 15) Have you been praising enough to the class and sending postcards home or ringing home with good news?
- 16) Have you phoned home for the pupil and spoken to the parents/carers about their behaviour or lack of work? (do make sure that you check with their form tutor or head of year first)
- 17) Have you done any reading around the subject? If it is behaviour, then why not read anything by Paul Dix or Bill Rogers or Sue Cowley?
- 18) Are you stressed about assignments and the balance of schoolwork and Uni work – talk to or email your CT.

Be careful not to try to change everything at once. Try some strategies one or two at a time.

7 - Extra Notes for Trainee Teachers (University-centred advice)

Where to get help

Whilst your tutor is your first port of call, there will be times where you might need to gain the support of other professionals offered by different University services.

For general advice on the following issues, please visit the Student Life Centre:

<https://www.sussex.ac.uk/studentlifecentre/>

- Dealing with a crisis
- Developing study skills
- Health concerns
- Mediation
- Money worries
- Personal issues

For advice and guidance on mental health and wellbeing, please visit the Student Life Centre here:

<http://www.sussex.ac.uk/wellbeing/mentalhealth>

Other services for mental health support:

The University has signed up to Togetherall A 24/7 online community where you can anonymously access mutual support, self-assessment, self-guided course, creative tools. Togetherall's mental health professionals are available 24/7 to keep the community safe. Just register here to use the service free of charge.

Shout is a confidential mental health text support line run by volunteers that is available 24/7. You can text shout at 85258 if you are struggling with low mood, anxiety, relationship difficulties, issues with bullying, are feeling suicidal, or if you just feel overwhelmed and are struggling to cope.

Student Space is a free resource for all students, providing dedicated support services for students, by phone, text, email and webchat.

HOPELineUK offers phone support for young people (under 35 yrs) who are experiencing suicidal thoughts. Call 0800 068 4141 or text 07860039967 between 9am and midnight every day.

Samaritans: 24hr crisis phone line 116 123 or check out their mental health/Covid-19 resources

Stay Alive app is a pocket suicide prevention resource for the UK, packed full of useful information to help you stay safe. You can use it if you are having thoughts of suicide or if you are concerned about someone else who may be considering suicide. It includes a safety plan.

For any urgent mental health concerns, please phone the Brighton & Hove Mental Health Rapid Response Service (MHRRS) Telephone: 0300 304 0078 or Sussex Mental Health Line for support & advice: 0300 5000 101. Both are open 24 hrs/day 7 days/week.

For emergencies: dial 999 off campus, and Security on campus 01273 873333 (3333 from room phone).

For advice on finding jobs and experience, help with CVs, covering letters, applications, and job interviews, please visit the Career and Employability Centre at <http://www.sussex.ac.uk/careers/applyingforjobs>

What do you have to help you before you ask us? Who and what can help you?

(credit to Fi Branagh, Mentoring Lead for this section)

It is important to recognise that even though sometimes this course can feel lonely, you are not alone. So, you find yourself in a situation where you are unsure about an aspect of the course. What should you do? Your first port of call is this handbook and your plan for the year, the Key Dates and Tasks document as well as the main Secondary ITE handbook. Please do get in the habit of looking for yourself before you reach for the email of your tutor.

If you cannot find what you need or are still unsure, ask someone from your peer group. You can email, obviously, or you could use the forum on Canvas. Chances are that if you are struggling with something then someone else is too and you may well have saved them the bother of looking it up.

There is a very useful phrase to think of in these circumstances ‘The 4 B’s’:

- Brain*
- Book/Board (in our case, handbook or Canvas)*
- Buddy*
- Boss*

Basically, we believe that the majority of normal questions could be answered in your handbook, were talked about in a session, were in an email, are on our Canvas site or you could look them up in a book. If you have exhausted all these options or it is something that could not possibly be covered by these methods – then ask your tutor. It is really important that you are not constantly asking questions of your tutor of areas that have been covered elsewhere, this takes up too much of their time and does not allow them to use the time for real development of the trainees in their care.

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Expectations from Us and from You

Some of this next section is obvious, but some of it is borne of our experiences over the last few years that we would rather not repeat.

So...

What you can expect from us:

- Swift responses to your communications (within 24 working hours hopefully). Please bear in mind that when we are in ‘observation mode’ this might be a little bit longer as we are out and about all day and not near email.
 - *Saturday and Sunday are days off for all of us. If you send an email at 5pm on Friday night, please do not expect a response before Monday morning. Texting us will not necessarily make us move to the email any quicker!*
- Courteous email communications
- Therapeutic support and guidance

- Sensible no-nonsense approach
- Good guidance for your assignments in clear English
- Good response to your draft assignments
- Quality observations with a positive slant and targets that will help you to make progress
- As good a match to a school and a mentor as we can muster
- A rich variety of Curriculum Studies with elements of fun
- A sense of humour
- A sympathetic ear

You may also get (if you are lucky)

- Evening responses to communications
- Weekend responses to communications (these will be very rare and we would very much rather that you left your emailing of us to Monday as you are unlikely to get a response on the weekend, particularly on a Sunday)
- Very detailed draft responses
- Reminders of deadlines
- Flexibility of approach when you are in times of need
- Way more time than is allocated to the role by our workload

BUT

Don't demand it of us!

What we would like from you if possible:

- Commitment to the course in all that you do
- Professional approach at school and at University on Fridays – this includes the use of electronic devices to 'take notes' and your dress code.
- Self-reliance as much as is possible – try to find things for yourself. Read your own handbook and note the key dates for the course
- Discretion with regard to your school life and your University life. Please use social media with caution and professionalism
- Honesty – try to give us constructive feedback.
- Keep up to date and stick to the deadlines given
- **Swift responses to communications from us**
- Accept that you are very important to us, but so are the rest of the cohort
- Accept that you are the trainee and take your targets in the pleasant spirit that they are intended (for your benefit)

- Be punctual
- Be at all sessions and if you cannot then let your tutor know *before* the session is due to start.
- Be polite to us. While we totally understand that you are under extreme pressure on this course, a 'hi' at the start of an email does not go amiss.

Please do not send emails like this:

"James

Attached are the observation forms.

name"

The email should have been written:

Hi James, ,

So sorry that you needed to remind me for the tenth time this term to put up my lesson observations. I shall buy you some wine and chocolate on Friday to make up for it. I really do appreciate that you take time in the evenings to email me when you should be watching tv and relaxing like a normal person.

My most kindest regards for all that you do

Name

- A sense of humour would be nice too, if you can do that we will all be happy and successful

James, Karen and Charlotte

8. Secondary Mathematics General Reading List

In addition to the list you have already

This Induction Reading Guide encourages you to get into good habits for reading, reflecting and developing your practice as a maths teacher.

8.1 - Six Tips for reading and making sense of texts.

Keep it in perspective(s). When reading always keep in mind of the author's perspective. Are they a practicing teacher, a journalist or an education scholar? They can be writing from a theoretical, practical or political perspective? It may not always be clear, but sometimes you can infer it. For example, Barton (2017) is a long standing maths teacher and part time author. His perspective is practical and contemporary. When you hear Karen and Irene talk, they will have different perspectives on issues, as will your mentors and teaching colleagues.

Make it your own. Read and learn from your perspective. You are a trainee teacher who is learning about maths teaching. Note down words and concepts that you don't understand, write down your immediate thoughts (whether you agree with it or are sceptical about it) and make notes that help you understand the text and that organise your thoughts. Your perspective will change as you learn more and try things out, this is good.

Collect Quotes. Often quotes encapsulate the ideas that the author is sharing. In your assignments you will be bringing together ideas from others. Note down quotes, when you do, always note the exact reference and page number, so you can trace it if you need it.

Be critical. Always think about the evidence base upon which claims are made. Is the source academically peer-reviewed? Is the piece evidence based? Does it have clear references to peer reviewed articles? Is it an opinion piece? How generalisable are the claims? How do they fit with your philosophy, ideas and perspective on teaching.

Find Frameworks and theories. Educational theories at their simplest are frameworks in which to think about an aspect of teaching and learning. For example, there is the three part lesson plan (starter, main and plenary), the 5E model for lesson planning, Bloom's taxonomy for learning outcomes, Maslow's hierarchy of needs, SAMR model for using ICT. Just collect these, see if you can apply them when you observe lessons and when you plan and teach your own lessons. There are bigger overarching theories such as Piaget's theory of learning and Vygotsky's Zone of Proximal Development that you may use as your skills and understanding develop.

Once is never enough. Don't be scared to come back to texts that you have read throughout the course and beyond. As your experience changes, your understanding develops and you will find your perspectives change. Aspects of the text will produce new meanings and deeper understandings.

It is highly recommended that you make time to read. Choose when you read these and choose what to read. Remember to keep all of your notes from reading, these notes can form part of your evidence throughout the course.

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.**

Books on the teaching and learning of Mathematics

- Barton, C. (2017). *How I Wish I'd Taught Mathematics*. John Catt Educational Ltd.
- Boaler, J. (1997) *Experiencing School Mathematics: Teaching Styles, Sex and Setting* Buckingham: Open University Press
- Boaler, J. (2009) *The Elephant in the Classroom: Helping Children Survive, Achieve and Enjoy School Maths*: Souvenir Press Ltd
- Foster, C. (2003) *Instant Maths Ideas - Algebra*. Nelson Thornes
- Foster, C. (2003) *Instant Maths Ideas - Data, Numeracy and ICT*. Nelson Thornes
- Foster, C. (2003) *Instant Maths Ideas - Shape and Space: Shape and Space*. Nelson Thorne
- Foster, C. (2012) *The Essential Guide to Secondary Mathematics: Successful and enjoyable teaching and learning*. Routledge
- French, D (2002) *Teaching and Learning Algebra*. Continuum.
- Gates, P (2004) *Issues in Mathematics Teaching*. RoutledgeFalmer.
- Goulding, M (2004) *Learning to Teach Mathematics in the Secondary School*. London: David Fulton. 375.51/GOU
- Haggarty, L (2004) *Aspects of Teaching Secondary Mathematics*. RoutledgeFalmer. 375.51/ASP
- Haggarty, L (ed.) (2002) *Teaching Mathematics in Secondary Schools* The Open University 375.51/TEA
- Johnston-Wilder, S., Johnston-Wilder, P, Pimm, D. and Westwell, J. (eds) (2005) 2nd Ed. *Learning to Teach Mathematics in the Secondary School*. Oxon: Routledge
- Mason, J., and Johnston-Wilder, S. (2006) *Designing and Using Mathematical Tasks*, St Albans, Tarquin Publications.
- Mason, J. (1988) *Learning and Doing Mathematics*. London Macmillan
- McCrea, E. (2019). *Making Every Maths Lesson Count*, Crown House.
- McGrane, C & McCourt, M. (2020). *Mathematical Tasks: The Bridge Between Teaching and Learning*. John Catt Educational Ltd.
- Noyes, A. (2007) *Rethinking School Mathematics* London: Paul Chapman
- Oldknow, A & Taylor, R (2003) *Teaching Mathematics with ICT*. 2nd ed., London: Continuum. 375.5102854/OLD
- Ollerton, M. & Watson, A. (2001) *Inclusive Mathematics 11-18 (Special needs in ordinary schools series)*
- Ollerton, M. (2007) *100+ Ideas for Teaching Mathematics* London: Continuum
- Ollerton, M. (2012) *Getting the buggers to add up*. 3^d ed., London: Continuum

Ollerton, M. (2009) *The Mathematics Teacher's Handbook*. London: Continuum

Orton, A. (2004) *Learning Mathematics*. 3rd ed., London: Cassell.

Prestage, S. and Perks, P. (2001) *Adapting and Extending Secondary Mathematics Activities*, London, David Fulton Publishers Ltd.

Pimm, D. ed. (1987) *Mathematics, Teachers and Children*. Milton Keynes: OUP.

Skemp R. (1993) *The Psychology of Learning Maths*. 2nd ed., Harmondsworth Pelican Books. 375.51/SKE

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

Tanner, H & Jones, S (2000) *Becoming a successful teacher of mathematics*. London: RoutledgeFalmer. 375.51/TAN

Watson, A (2006) *Raising Achievement in Secondary Mathematics* OUP

Watson, A and Mason, J. (1998) *Questions and Prompts for Mathematical Thinking* Derby: ATM

Books on Teaching and Learning in Secondary Schools

Assessment Reform Group (1999) *Assessment for learning: beyond the black box*. Cambridge: ARG

Black, P et al (2003) *Assessment for Learning*. Open University Press.

Black, P. J. & Dylan, W. (1998) *Inside the black box: raising standards through classroom assessment*. London: King's College London, School of Education.

Black, P. & William, D. (1998) *Inside the Black Box*. London: Nelson.

Brooks, V., Abbott, I. & Bills, L. (eds.) (2004) *Preparing to Teach in Secondary Schools A Student Teacher's Guide to Professional Issues in Secondary Education*. OUP.

Capel, S., Leask, M. & Turner, T. (2005) *Learning to Teach in the Secondary School*. 4th ed., London: Routledge.

Cockcroft, W. H. (1982) *Mathematics Counts: Report to the committee of Inquiry into the Teaching of Mathematics in Schools*. HMSO
<http://www.dg.dial.pipex.com/documents/docs1/cockcroft.shtml>

Cohen, L., Mannion, L. & Morrison, K. (2004) *A Guide to Teaching Practice*. 5th ed., London: Routledge.

Cowley, S. (2001) *Getting the Buggers to Behave* London: Continuum

Ellis, V. (2007) *Learning and Teaching in Secondary Schools*. 3rd ed., Exeter: Learning Matters

Fautley, M. & Savage, J. (2007) *Creativity in Secondary Education*. Exeter: Learning Matters

Fleming, P. (2004) *Becoming a Secondary School Teacher: How to make a success of your initial teacher training*. David Fulton Publishers: London

Ginnis, Paul (2002) *The Teacher's Toolkit: raise Classroom Achievement with Strategies for Every Learner* Carmathen: Crown House Publishing

Hart, S., Dixon, A., Drummond, M.J. and McIntyre, D. (2004) *Learning without Limits* Maidenhead: Open University Press

Hoult, S. (2005) *Achieving QTS: Secondary Professional Studies*. Exeter: Learning Matters

McGregor, Debra (2007) *Developing Thinking Developing Learning* Maidenhead: OUP McGraw-Hill

Mercer, N. (1995) *The Guided Construction of Knowledge: talk amongst teachers and learners* Clevedon: Multilingual Matters

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

Pritchard, A. (2005) *Ways of Learning; Learning Theories and Learning Styles in the Classroom*. Oxon: David Fulton

Turner-Bisset, R. (2001) *Expert Teaching* London: David Fulton Publishers

White, R. and Gunstone, R. (1992) *Probing Understanding* London: Falmer Press

Wood, D. (1998) (2nd edn) *How Children Think and Learn* Oxford: Blackwell

Wragg, E. C. and Brown, G. (2001) *Explaining in the Secondary School* London: RoutledgeFalmer

Wragg, E. C. and Brown, G. (2001) *Questioning in the Secondary School* London: RoutledgeFalmer

Mathematics Reports

Ofsted (2021) *Curriculum research reviews series: languages*. Available at:

<https://www.gov.uk/government/news/ofsted-publishes-research-review-on-mathematics-education>

Smith, A (2017) *Review of post 16 mathematics*. Available at:

<https://www.gov.uk/government/publications/smith-review-of-post-16-maths-report-and-government-response>

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.

Subject Associations.

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

ATM 'Mathematics Teaching' – bi-monthly magazine

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.

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)

<https://undergroundmathematics.org/> (University of Cambridge – Rich resources for teaching A level)

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

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)

Keep a record of any additional references that you think should be included in next year's handbook!

Reading Report Template

Author(s)	
Title of Article	
Date	
Type	
Publication, volume (issue)	
Keywords	
Argument of the Article (100 words)	
Quotes	
References of interest	
Other notes	

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