# ITT Course Curriculum: BSc. (Hons) Secondary Mathematics Education with QTS\*

Year 3

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## How to use this ITT curriculum

This ITT curriculum outlines what trainees in year 3 on this course are expected to know and be able to do for each week they are on their ITT and the method by which trainee progression will be assessed. It is subject specific, informed by pertinent research and underpinned with the Core Content Framework and its associated evidence (as necessary for those seeking to be recommending for QTS at the conclusion of their ITT). It is sequential in its approach, mapped against the various components of the Core Content Framework and shows a purposeful integration of centre-based (university-based) learning into Professional Practice. There is no separate ‘Professional Practice’ curriculum for year 3 trainees to follow. Instead, there is one single curriculum which encompasses all the learning which should take place throughout the ITT course.

### If you are a trainee:

This is the curriculum you will follow each week throughout your ITT course both when you are at university and when you are on Professional Practice (these weeks are shown in orange). It provides the learning which will be delivered to you in your subject, the knowledge, and skills you will be expected to demonstrate each week and the questions which assist you, your tutor, and your mentor (during Professional Practice) in assessing if you are making progress or if further support is needed. **You need to complete every week of this curriculum to meet the necessary Standards required for QTS recommendation at the end of this course and to ensure you are able to transition into your Early Career Teaching (ECT) phase.**

### If you are a school-based expert colleague (mentor or lead):

This curriculum outlines what year 3 trainees in this subject should know and be able to do throughout their ITT. This includes the weeks when they are on Professional Practice being supported by their expert mentor (these weeks are shown in orange). There is no separate ‘Professional Practice’ curriculum, rather one single subject specific curriculum which encompasses every week of ITT allowing you to see the prior learning and what trainees can already do and understand prior to working with you. Throughout their course trainees will continue to have their learning delivered by Edge Hill colleagues (this will be online throughout Professional Practice). We ask our expert-colleagues to provide opportunities for trainees to demonstrate, practise, receive feedback, or get better at the skills which they are expected to be ‘able to do’ each week. We also ask mentors to assess the extent to which the trainee has made progress each week using the ‘key questions’ provided and completing the relevant section (2) on the Weekly Development Summary (WDS) during the weekly mentor meeting in addition to confirming on the form if the trainee is making sufficient progress. Additional support for mentors is available via the weekly communications and the [FoE mentor space.](https://sites.google.com/view/foementorspace/secondary-and-further-education/pp-paperwork)

## Rationale of curriculum coverage and sequence including use of pertinent research:

The curriculum for year 3 Undergraduate Secondary Mathematics Education course ensures complete coverage of the ITT Core Content Framework and its associated evidence basis (Department for Education, 2019) as appropriate for Secondary ITT. The content contained in early sessions provides trainees with an understanding of the importance of mathematics in the curriculum including the current debates and key issues related to the subject; for example, in the way in which the teaching of mathematics for mastery programme influences much of the current thinking in mathematics education and is fundamental to curriculum design.  This knowledge of mastery for mathematics is strongly aligned to the Subject and Curriculum strand of the CCF regarding how children master foundational concepts and knowledge before moving on whilst, at the same time, this aspect of the curriculum aligns with the key ideas about How Pupils Learn as teaching for mastery reflects the importance of understanding how memory works.  Prioritising the ideas centred on teaching mathematics for mastery provides a sound base of knowledge for the trainees in readiness for appreciating the implications for the key themes of the mathematics national curriculum programmes of study; for example, an understanding of mathematical fluency and coherence directly supports and prepares trainees for the way in which mathematical thinking underpins the structure of the curriculum.  These aspects are underpinned by Hodgen et al. (2018). This broad discussion on the principles of mathematics education supports the trainees in considering the finer details of subject knowledge, specific pedagogical approaches, and an understanding of how mathematical misconceptions impact on learning and how this is linked to the curriculum (Ofsted, 2021).

## Delivery of curriculum outcome(s) into composite and component elements:

Curriculum outcomes have been broken down into composite and component elements to aid the year 3 trainees in gaining a secure knowledge and understanding of the key learning. For example, to ensure that trainees can assess pupils’ mathematical understanding effectively, they are required to understand some of the differences in assessments, how to plan for assessment tasks, and how to use questioning as an effective tool.

How the curriculum enables trainees to develop their sense of social justice including the importance of inclusion and representation in their subject:

The importance of how mathematics education can support all aspects of equity, diversion and inclusion is embedded into all sessions as well as through discrete sessions. For example, in addition to sessions dedicated to content such as inclusion and colonisation, trainees are encouraged to promote a philosophy that mathematics is accessible to all pupils with positive language in every session.

Opportunities to revisit key learning:

Year 3 trainees routinely revisit key learning throughout the three-year programme and build on the earlier work on the curriculum to consider how pupils learn mathematics. Having gained knowledge of a range of learning theories throughout the programme they develop their reflection on the ways in which mathematics teaching and learning is influenced by key theorists. They also become increasingly aware that mathematics is an intellectually challenging subject and that ongoing CPD through the various mathematics networks (e.g. NCETM and ATM) is an essential component for creating a positive impact on their pedagogy and teaching practice particularly during their ECT.

 References

* Department for Education (DfE) 2019. ITT Core Content Framework <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/974307/ITT_core_content_framework_.pdf> (Last Accessed 03/08/22)
* Hodgen, J., Foster, C., Marks, R., & Brown, M. (2018). Evidence for Review of Mathematics Teaching: Improving Mathematics in Key Stages Two and Three: Evidence Review. London: Education Endowment Foundation. Available from: <https://educationendowmentfoundation.org.uk/evidence-summaries/evidencereviews/improving-mathematics-in-key-stages-two-and-three>
* Ofsted (2021) Research Review Series: Mathematics. Available from: <https://www.gov.uk/government/publications/research-review-series-mathematics/research-review-series-mathematics>

| Week (starting 3.10.22) | For the subject they are training in trainees should know that:*(max 3 bullet points)* | For the subject they are training in trainees should be able to:*(max 3 bullet points)* | Key questions *(2-3 as indicators of progress)* | CCF | Method of Assessment |
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| 1*Introduction and SK Audit**How do we inspire pupils to succeed?* | * Mathematics is an intellectually challenging subject and ongoing CPD through the NCETM and ATM is an essential component for creating a positive impact on their pedagogy and teaching practice.
* A culture of mutual trust and respect supports effective relationships.
* High-quality teaching has a long-term positive effect on pupils’ life chances, particularly for children from disadvantaged backgrounds.
 | * Enhance their subject and pedagogical knowledge in preparation for teaching a range of key stages and levels and articulate their personal vision of mathematics as a subject to help pupils see how these are related to their success in school and after.
* support pupils to journey from needing extrinsic motivation to being motivated to work intrinsically.
* Strengthen their pedagogical and subject knowledge by participating in wider networks.
 | *1 What is your ‘vision’ for Mathematics?* *2 What do we mean by ‘to succeed’ in Mathematics?**3 How do we as mathematics teachers support pupils in setting/managing their aspirational goals?* | HE5,6 | WDS |
| CCF evidence base | Aronson, J. (Ed.) (2002) Improving academic achievement: Impact of psychological factors on education. New York: Academic Press. |
| 2*AfL theories and strategies* | * Departmental standardisation can help aid the accuracy of assessment and effective assessment is critical to mathematics teaching because it provides teachers with information about pupils’ understanding and needs.
* Questioning is an essential tool for mathematics teachers; questions can be used for many purposes, including to check pupils’ prior knowledge, assess understanding and break down problems.
* Over time, feedback should support pupils to monitor and regulate their own learning in mathematics.
 | * Provide feedback that takes into account the range of factors which can impact on pupils’ understanding of the feedback.
* Provide appropriate wait time between question and response where more developed responses are required and reframe questions to provide greater scaffolding or greater stretch.
* Discuss and analyse how pupils’ responses to feedback can vary depending on a range of social factors, including their perception of the value of mathematics.
 | *1 What does mathematics education research tell us is beneficial about AfL?* *2 Why is questioning ‘an essential tool’ in teaching and learning of mathematics?**3 What AfL strategies have you used / observed when undergoing your placement last year?* | CP6A1,6 | WDS |
| CCF evidence base | \*Education Endowment Foundation (2016) A marked improvement? A review of the evidence on written marking. Accessible from: https://educationendowmentfoundation.org.uk/public/files/Publications/EEF\_Marking\_Review\_April\_2016.pdf. |
| 3*Equality and opportunity in approaches to assessment* | * Good assessment helps mathematics teachers avoid being over-influenced by potentially misleading factors, such as how busy pupils appear.
* Working with colleagues to identify efficient approaches to assessment in mathematics is important; assessment can become onerous and have a disproportionate impact on workload.
* Guides, scaffolds and worked examples help pupils apply new ideas, but should be gradually removed as pupils confidence increases.
 | * balance input of new content so that pupils master important concepts.
* Make effective use of teaching assistants and other adults in the classroom under supervision of expert colleagues.
* Build in additional practice or remove unnecessary expositions.
 | *1 Consider assessment in mathematics. Does it favour some pupils over others? Which skills are valued over others and Why?**2 How can we support pupils to learn more and remember more in mathematics?* | CP4A2A7 | WDS |
| CCF evidence base | Wiliam, D. (2010) What Counts as Evidence of Educational Achievement? The Role of Constructs in the Pursuit of Equity in Assessment. Review of Research in Education, 34, pp. 254-284. |
| 4*Collaborative learning and assessment* | * Effective teaching can transform pupils’ knowledge, capabilities and beliefs about mathematics.
* Teaching assistants (TAs) can support pupils more effectively when they are prepared for lessons by teachers, and when TAs supplement rather than replace support from teachers.
 | * Choose and use appropriate strategies for collaborative learning in mathematics lessons such mental maths activities.
* ensure that support provided by teaching assistants in mathematics lessons is additional to, rather than a replacement for, support from the teacher.
* Prepare teaching assistants for mathematics lessons under supervision of expert colleagues.
 | *1 What is the relationship between direct instruction and enquiry learning in mathematics?**2 How should we as teachers and our TAs support pupils during group tasks in mathematics lessons?*  | CP1PB5 | WDS |
| CCF evidence base | Steenbergen-Hu, S., Makel, M. C., & Olszewski-Kubilius, P. (2016) What One Hundred Years of Research Says About the Effects of Ability Grouping and Acceleration on K-12 Students Academic Achievement: Findings of Two Second-Order MetaAnalyses. Review of Educational Research (Vol. 86). https://doi.org/10.3102/0034654316675417. |
| 5*Assessing non-written work: S+L* | * Learning mathematics involves a lasting change in pupils’ capabilities and understanding of the world around them.
* Regular purposeful practice of what has previously been taught can help consolidate material and help pupils remember what they have learned.
* Worked examples that take pupils through each step of a new process are also likely to support pupils to learn.
 | * use concrete representation of abstract ideas particularly when learning algebra and theorems.
* accumulate and refine a collection of powerful mathematics analogies, illustrations, examples and explanations which relates abstract learning to real-life problems.
 | *1 What examples of non-written assessments have you used / observed in mathematics lessons on placement?**2 How was formal non-written assessment undertaken in mathematics during your placement last year?* *3 Was it different for KS3 and KS4?* | HPL1,7,9 | WDS |
| CCF evidence base | Allen JP, Pianta RC, Gregory A, Mikami AY, Lun J (2011) An interaction-based approach to enhancing secondary school instruction and student achievement. Science 333(6045):1034-1037 https://doi.org/10.1126/science.1207998. |
| 6Academic Achievement Week | * Secure subject knowledge helps mathematics teachers motivate pupils and teach effectively.
* Before using assessments, mathematics teachers should be clear about the decision it will be used for and be able to justify its use.
 |  | *What have you learned about the transition to KS5 from your visit to a Post-16 setting?* | SC2A3 | WDS |
| CCF evidence base | Bailin, S., Case, R., Coombs, J. R., & Daniels, L. B. (1999) Common misconceptions of critical thinking. Journal of Curriculum Studies, 31(3), 269-283. |
| 7*Teaching and assessing GCSE RS* | * Craft a mathematics curriculum which helps pupils apply their subject knowledge and skills to other subject areas.
* To access the mathematics curriculum, early literacy provides fundamental knowledge; reading comprises two elements: word reading and language comprehension; systematic synthetic phonics is the most effective approach for teaching pupils to decode and understand worded mathematics problems.
* Every mathematics teacher can improve pupils’ literacy, including by explicitly teaching reading, writing and oral language skills specific to individual disciplines.
 | * choose, where possible, externally validated materials, used in controlled conditions when required to make summative assessments.
* design practice, generation and retrieval tasks that provide just enough support so that pupils experience a high success rate when attempting challenging work.
* Increase challenge with practice and retrieval as knowledge becomes more secure (e.g. by removing scaffolding, lengthening spacing or introducing interacting elements); support younger pupils to become fluent readers and to write fluently and legibly.
 | *1 How can we best prepare pupils for terminal examinations? Alongside their mathematics knowledge, what other skills do pupils need to develop?**2 What techniques might you use to help pupils learn key mathematical vocabulary for their GCSE?* | SCK6,9, 10 | WDS |
| CCF evidence base | Adesope, O. O., Trevisan, D. A., & Sundararajan, N. (2017) Rethinking the Use of Tests: A Meta-Analysis of Practice Testing. Review of Educational Research, 87(3), 659–701. <https://doi.org/10.3102/0034654316689306>.  |
| 8*Teaching A Level RS* | * Secure subject knowledge helps teachers motivate pupils and teach effectively.
 | * Collaborate with colleagues to share the load of planning and preparation and making use of shared resources.
 | *1 How does planning and delivering mathematics lessons differ with Post-16 learners?**2 Consider your subject knowledge audit – how confident are you in delivering the different A Level mathematics syllabus?* | SCK2 | WDS |
| CCF evidence base | Hanushek, E. (1992) The Trade-off between Child Quantity and Quality. Journal of Political Economy, 100(4), 859–887. |
| 9*Using Data Effectively* | * Effective assessment is critical to teaching mathematics because it provides teachers with information about pupils’ understanding and needs.
* To be of value, mathematics teachers use information from assessments in mathematics to inform the decisions they make; in turn, pupils must be able to act on feedback for it to have an effect.
 | * Draw conclusions about what mathematics knowledge pupils have learnt by looking at patterns of performance over a number of assessments.
* record data only when it is useful for improving pupil outcomes.
 | *1 How do you use data gathered from mathematics assessments?**2 How is assessment data used by the mathematics Department within the school?* | A1,4 | WDS |
| CCF evidence base | Slater, H., Davies, N. M., & Burgess, S. (2011) Do Teachers Matter? Measuring the Variation in Teacher Effectiveness in England. Oxford Bulletin of Economics and Statistics, https://doi.org/10.1111/j.1468-0084.2011.00666.x. |
| 10*Reporting to parents and other stakeholders* | * Building good student-teacher relationships help in managing behaviour effectively within lessons.
* Building effective relationships is easier when pupils believe that their feelings will be considered and understood.
* Effective relationships with parents, carers and families can improve pupils’ motivation, behaviour and academic success in RE and across the school.
 | * The pastoral system of the school plays a critical part in supporting pupils, including the roles of form tutors, pastoral support staff and members of the leadership team.
* communicate with parents and carers proactively and make effective use of parents’ evenings to engage parents and carers.
* liaise with parents, carers and colleagues to better understand pupils’ individual circumstances and how they can be supported in the mathematics classroom to meet high academic and behavioural expectations.
 | *1 How was achievement and progress in mathematics communicated to parents in your placement school last year?**2 How can mathematics teachers build effective relationships with parents and carers?* | A4MB5PB4 | WDS |
| CCF evidence base | Sadler, D. (1989) Formative assessment and the design of instructional systems. Instructional Science, 18(2), pp.119-144. |
| 11 *Managing marking workload* | * It is important to identify efficient approaches to assessment, particularly in RE where staff may teach large numbers of pupils; assessment can become onerous and have a disproportionate impact on workload.
* Marking and assessment are not synonymous: high-quality feedback can be written or verbal
 | * Identify effective and accurate approaches to marking and alternative approaches to providing feedback within the mathematics classroom environment.
* Identify efficient approaches to marking and alternative approaches to providing feedback.
* Prioritise highlighting errors related to mathematical misconceptions, rather than careless mistakes.
 |  *1 How did experienced mathematics teachers in your placement school last year manage their marking workload?**2 What strategies have you tried to reduce marking workload?* | A5,7 | WDS |
| CCF evidence base | Gibson, S., Oliver, L. and Dennison, M. (2015) Workload Challenge: Analysis of teacher consultation responses. Department for Education. Accessible from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/485075/DFE-RR456A\_- \_Workload\_Challenge\_Analysis\_of\_teacher\_consultation\_responses\_sixth\_form\_colleges.pdf.  |
| 12-13 Christmas break |
| 14*Assignment Workshop* | * DSLs and other specialist colleagues have valuable expertise and can ensure that appropriate support is in place for pupils.
* Trainees have a responsibility to keep children safe in their placement school, and they have a role to play alongside the DSL and other staff.
 | * Know who to contact with any safeguarding concerns and have clear understanding of what sorts of behaviour, disclosures and incidents to report.
 | *1 What are you looking forward to on placement?**2 What are your priorities for your own development as a mathematics teacher?* |  |  |
| CCF evidence base | Jussim, L. & Harber, K., (2005) Teacher Expectations and Self-Fulfilling Prophecies: Knowns and Unknowns, Resolved and Unresolved Controversies, Personality and Social Psychology Review 2005, Vol. 9, No. 2, 131–1557 |
| 15Assessment Week |
| 16Start of Consolidation Placement 1 | * Mathematics teachers can affect and improve the wellbeing, motivation and behaviour of their pupils.
* Trainees have a responsibility to keep children safe in their placement school, and they have a role to play alongside the DSL and other staff.
* In mathematics pupils are motivated by intrinsic factors (related to their identity and values) and extrinsic factors (related to rewards).
 | 1. Model courteous and aspirational behaviour.2. Use inspirational and consistent language that promotes challenge, aspiration, resilience, and praises pupil effort. Set tasks which stretch pupils, but which are achievable.3. Create a positive and respectful learning environment in which making mistakes, resilience and perseverance are part of a daily routine.4. Identify and familiarise themselves with placement setting safeguarding procedure, including the name of the Safeguarding Lead. | * What have you learnt about the importance of having high expectations?
* How has your understanding of managing behaviour developed this week? Can you link this to any learning from your university learning?
* Have you been able to identify any effective/ineffective practice during your observations this week? What was it? Why did it work/not work?
 | HE1MB6 | WDS |
| CCF evidence base | Kraft, M., Blazar, D., & Hogan, D. (2018) The Effect of Teacher Coaching on Instruction and Achievement: A Meta-Analysis of the Causal Evidence. Review of Educational Research, 003465431875926. https://doi.org/10.3102/0034654318759268. |
| 17Consolidation Placement2 | * Reflecting on the effectiveness of the different approaches to managing behaviour is useful in relation to a particular setting.
* Taking pastoral responsibility for a group of pupils is important in assisting their experience in the mathematics classroom environment.
* Reflection and metacognition are important factors for pupils’ progress in Mathematics teaching.
 | 1. Give clear, manageable, specific and sequential instructions for tasks and behaviour which use consistent language and/or non-verbal signals2. Check pupils’ understanding of a task before it begins and address any misconceptions3. Reinforce established school and classroom routines which maximise time for learning4. Engage with parents/carers and colleagues in helping to support and manage pupil behaviours (for example, strategies to best support specific pupils) | * What knowledge and understanding of the issues related to HE and MB have you gained through your academic reading? How does this relate to your current practice?
* How have your expectations of pupils’ learning and progress in mathematics developed and/or changed in light of your previous placement experience?
* How can you ensure pupils are motivated in the mathematics classroom?
 | HEMB | WDS |
| CCF evidence base | Kalyuga, S. (2007) Expertise reversal effect and its implications for learner-tailored instruction. Educational Psychology Review, 19(4), 509-539. |
| 18Consolidation Placement3 | * Mathematical learning is supported by their contribution to the mathematics curriculum, the design of mathematics resources and their decisive response to pupil’s behaviour within the classroom.
* Mathematics teachers’ expectations can affect pupil outcomes; setting goals that challenge and stretch pupils to know and remember more of the mathematics curriculum is essential.
* Mathematics Teachers can influence pupils’ resilience and beliefs about their ability to succeed in mathematics, by ensuring all pupils have the opportunity to experience meaningful success.
 | 1. Respond consistently and decisively to pupil behaviour (inc. the use of rewards, praise and sanctions).2. Motivate pupils via the use of challenging content which builds towards pupils’ long-term goals and aspirations.3. Support pupils to journey from needing extrinsic motivation to being motivated to work intrinsically. | * How does the behaviour policy in your school operate?  How well does it work? Are there exceptions? Does it reach all children? If not, what adaptations might need to be made and why?
* Based on your experiences and academic reading, what promotes high expectations and/or high level of behaviour management?
* What are your areas of development with regards setting high expectations and managing behaviour? What impact will these developments have on the learning in your mathematics classroom?
 | HE3MB4 | WDS |
| CCF evidence base | Kriegbaum, K., Becker, N., & Spinath, B. (2018) The Relative Importance of Intelligence and Motivation as Predictors of School Achievement: A meta-analysis. Educational Research Review. <https://doi.org/10.1016/j.edurev.2018.10.001>.  |
| 19Consolidation Placement4 | * A range of mathematical approaches should be applied to enable an inclusive mathematics curriculum.
* The mathematics curriculum sets out the department’s vision for the knowledge, skills and values that pupils will learn, encompassing statutory curriculum guidance within a coherent wider vision for successful learning in mathematics. Ensuring pupils master foundational concepts and knowledge in mathematics before moving on is likely to build pupils’ confidence and help them succeed.
* In mathematics pupils learn new ideas by linking those ideas to existing knowledge, organising this knowledge into increasingly complex mental models; carefully sequencing the mathematics curriculum to facilitate this process is important.
 | 1. Plan and deliver a carefully sequenced mathematics curriculum which encompasses the school’s vision for its knowledge, skills and values.2. Support pupils in building increasingly complex mental schemas over a period of time3. Draw explicit links between new content and the core knowledge in mathematics. 4. Revisit the essential skills and teach key concepts through a range of solved mathematics examples. | * How does the mathematics curriculum promote the wider vision, values and skills of the school?
* What is the rationale behind the mathematics curriculum sequence and design? You may find it useful to liaise with the HOD about this.
* Critically review your mathematics subject knowledge for this setting and suggest ways you could develop this.
 | SC1 SC3SC7 | WDS |
| CCF evidence base | Muijs, D., & Reynolds, D. (2017) Effective teaching: Evidence and practice. Thousand Oaks, CA: Sage. |
| 20Half Term |
| 21Consolidation Placement 5 | * It is important to provide pupils with success criteria and appropriate support to assist in developing them as independent learners.
* Explicitly teaching pupils the substantive, disciplinary and personal knowledge they need to succeed in mathematics is beneficial. Pupils are likely to struggle to transfer mathematics to what they have learnt in other subjects.
* Requiring pupils to retrieve knowledge previously learnt in mathematics, and spacing practice so that pupils revisit ideas after a gap are also likely to strengthen recall.
 | 1. Use retrieval and spaced practice to build recall of key mathematical knowledge over time.2. Provide tasks that support pupils to learn key ideas securely (such as low-level retrieval tasks). 3. Interleave concrete and abstract examples via the use of worked mathematics examples.4. Balance exposition of new mathematics content, repetition, practice of new skills and knowledge.  | * What effective/ineffective practice have you observed regarding the retrieval and spaced practice of mathematics subject knowledge content? What was it? Why did it work/not work?
* How has university teaching and/or independent study contributed to your knowledge and understanding about a particular mathematics topic?
* Critically reflect on your progression so far against the EHU ITT pillars.
 | SC5SC8HPL8 | WDS |
| CCF evidence base | Roediger, H. L., & Butler, A. C. (2011) The critical role of retrieval practice in long-term retention. Trends in Cognitive Sciences, 15(1), 20–27. https://doi.org/10.1016/j.tics.2010.09.003. |
| 22Consolidation Placement 6 | * Intervention work with small groups within a lesson is more effective than planning different mathematics lessons for different groups of pupils.
* Regular purposeful practice of what has previously been taught in mathematics can help consolidate material and help pupils remember what they have learnt. High-quality classroom talk can support pupils articulate key ideas, consolidate understanding of mathematics and extend their key mathematical vocabulary.
* Grouping pupils in the mathematics classroom environment provide more tailored support and can be effective, but care should be taken to monitor its impact on engagement and motivation, particularly for low attaining pupils.
 | 1. support collaborative/ paired/ group work so that engagement and motivation are not negatively affected.2. Discuss if and how the placement school ensures that mathematics groups are based on attainment in mathematics.3. Plan, regularly review and practice key mathematical concepts over time (for example, using effective structured mathematics activities).4. Design mathematical retrieval tasks that provide the right level of support so that pupils experience high success rate when attempting challenging mathematical work. | * How effectively do all pupils learn mathematics in your lessons? How do you know this? What promotes the passion to learning mathematics and what hinders?
* Critically reflect on how well you have adapted your mathematics teaching this week.
* Why is it important to talk about *adaptive* teaching rather than *differentiated* teaching?
 | HPL7CP7AT5 | WDS |
| CCF evidence base | Yeager, D. S., & Walton, G. M. (2011) Social-Psychological Interventions in Education: They’re Not Magic. Review of Educational Research, 81(2), 267–301. https://doi.org/10.3102/0034654311405999. |
| 23Consolidation Placement 7 | * Mathematics teaching should not take a homogenous approach but should take into account the individual needs of all pupils.
* Teaching assistants (TAs) can support pupils more effectively in mathematics when they are prepared for lessons by teachers, and when TAs supplement rather than replace support from teachers.
* Adapting teaching in mathematics is less likely to be valuable if it causes the teacher to artificially create distinct tasks for different groups of pupils or to set lower expectations for particular pupils. Guides, scaffolds and worked mathematics examples, such as guided reading or writing frames, can help pupils apply new ideas, but should be gradually removed as pupil expertise and confidence in mathematics increase.
 | 1. Under the supervision of expert mathematics colleagues, make effective use of TAs, additional support staff and specialist support (e.g. SENCO, DSL).2. Plan for the use of TAs in your mathematics lessons, recognising this is in addition to, rather than replacement of, support from the mathematics teacher.3. Decide whether intervention work with small groups within a mathematics lesson is more effective than planning different mathematics lessons for different groups of pupils.4. Reframe mathematics questions to provide greater scaffolding or greater challenge. | * How successful are you at making use of specialist support (such as TA’s) in your lessons? How could this be developed?
* Critically reflect on your use of modelling and scaffolding in your mathematics teaching.
* What knowledge and understanding of teaching pupils for whom English is an additional language have you gained through your academic reading? How does this relate to your current practice and/or setting?
 | PB5AT4CP4 | WDS |
| CCF evidence base | Mitchell, D. (2014). What really works in special and inclusive education. Oxford: Routledge.  |
| 24Consolidation Placement 8 | * Applying a range of research-informed strategies into their mathematics teaching and methods of assessment are essential in pupils’ learning.
* To be of value, mathematics teachers use information from mathematics assessments to inform the decisions they make; in turn, pupils must be able to act on feedback for it to have an effect.
* Marking and assessment are not synonymous: high-quality feedback can be written or verbal
 | 1. Record data only when it is useful for the purpose of improving pupils’ mathematics learning outcomes.2. Utilise cost marking strategies (e.g. using abbreviations or codes) when providing written feedback, recognising that marking is only one form of feedback.3. Where possible, use high quality verbal feedback during lessons and written feedback after lessons.4. Identify effective approaches to marking and alternative approaches to providing feedback | * How well are you balancing the demands of assessment procedures? Have you identified any practice which is highly effective and not onerous (e.g. peer assessment and self-assessment?
* Have you (either in observations or your own lessons) identified any effective practice with regards to verbal feedback? What was it? What impact did it have?
* Critically reflect on how your setting collects and utilises assessment data. Does this assist with improving pupil mathematical outcomes?
 | A4A5 | WDS |
| CCF evidence base | Skaalvik, E. M., & Skaalvik, S. (2017) Still motivated to teach? A study of school context variables, stress and job satisfaction among teachers in senior high school. Social Psychology of Education, 20(1), 15–37. https://doi.org/10.1007/s11218-016-9363-9. |
| 25Consolidation Placement 9 | * Designing formative and summative assessment opportunities within the mathematics curriculum using assessment boards mark schemes is essential to guide their marking.
* Written and verbal feedback are part of teaching and learning. Anticipating common misconceptions in mathematics is also an important aspect of curricular knowledge; working closely with colleagues to develop an understanding of when misconceptions are likely to arise is valuable.
* In mathematics it is important to identify efficient approaches to assessment, particularly where staff may teach large numbers of pupils; assessment can become onerous and have a disproportionate impact on workload.
 | 1. Prioritise errors resulting from mathematical misconceptions rather than careless mistakes.2. Provide feedback which takes into account the range of factors which can impact on pupils’ understanding of the feedback (such as their age or the message the feedback contains).3. Provide accurate mathematics assessment and feedback to pupils in line with external benchmarking (such as GCSE or A level requirements). | * How effective is your written feedback to pupils? To what extent do you focus on correct mathematical misconceptions rather than careless mistakes?
* How has your understanding of summative assessment practice developed? Think specifically about those which prepare pupils for GCSE and/or A level outcomes.
* Reflect on a mathematics lesson you taught this week. How did you ensure it was sequenced so that it built on pupils’ prior knowledge and prepared pupils for the next step?
 | SC4A5 | WDS |
| CCF evidence base | Rich, P. R., Van Loon, M. H., Dunlosky, J., & Zaragoza, M. S. (2017) Belief in corrective feedback for common misconceptions: Implications for knowledge revision. Journal of Experimental Psychology: Learning, Memory, and Cognition, 43(3), 492-501. http://dx.doi.org/10.1037/xlm0000322. |
| 26 Consolidation Placement 10 | * Transit from a student teacher to ECT through the development of competencies required for mathematics teaching.
* It is important to contribute to the local mathematics community, such as the Maths HUBS.
* Effective professional development is likely to be sustained over time, involve expert support or coaching and opportunities for collaboration.
 | 1. Engage parents/carers in the education of their children (including effective use of parents’ evenings).2. Critically engage with research and use evidence to critique practice.3. Identify areas for development and engage in appropriate CPD with clear intentions for pupil outcomes.4. Build effective working relationships by working with colleagues as part of a team. | * How effective is your communication to parents/carers in relation to pupil’s achievements and well-being?
* Have you been involved with any CPD to improve teaching outside of your programme of ITT? If not, what could this look like? What CPD may you find useful to engage with in the future (during your ECT phase for example)?
* How has your understanding of ‘professionalism’ developed since the start of your ITT programme? What insights have you made?
 | PB1 PB4PB7 | WDS |
| CCF evidence base | Murdock-Perriera, L. A., & Sedlacek, Q. C. (2018) Questioning Pygmalion in the twenty-first century: the formation, transmission, and attributional influence of teacher expectancies. Social Psychology of Education, 21(3), 691–707. https://doi.org/10.1007/s11218-018-9439-9. |
| 27-28 Easter Break |  |