

The LJMU Mentor Guide to the Computer Science curriculum in Phase 2a Secondary



Phase 2a student teachers will start to develop their independence for planning and teaching with the support of expert colleagues. With support, they will plan lessons which match the needs of groups and individuals, and develop longer term planning through sequences of lessons as part of an ambitious curriculum.

At the end of Phase 2 we expect student teachers to:

- Create a learning environment which reflects consistently high expectations and manage pupils' behaviour in line with school policies.
- Plan and teach lessons which demonstrate understanding of how pupils learn and develop, and which select and use appropriate teaching strategies for the subject matter and classes taught.
- Demonstrate secure subject knowledge in their daily teaching and be proactive in addressing any areas of need.
- Use a range of assessment strategies to accurately evaluate both their own teaching and pupils' learning and progress, and be able to use this information to design, adapt and sequence future plans.
- Adapt planning and teaching to respond to a range of learning needs, and if necessary, know where to seek help and advice to support pupils with SEND.

- respond constructively to challenge, feedback and critique, and continuously improve their understanding and practice.
- Have a positive impact on pupil progress and an increasing confidence in teaching across the curriculum.

Prior to Phase 2a; student teachers will have been taught about:

Behaviour management
 Rosenshine's Principles
 Curriculum and progression
 Questioning and dialogue in learning
 Subject knowledge and pedagogy

They will also have been taught about: *(the timing & sequence of these may vary for School Direct students)*

The role of their subject in the wider curriculum and statutory requirements
 Fundamental principles of how children learn
 Cognitive science and memory
 Principles of assessment
 Observing learning & deconstructing learning following observation
 Preparing for Phase 1 – the QTS file and mentoring expectations
 Anti-racist education / inequality in education / teachers' responsibilities in respect of equality & diversity.

In computing subject sessions: introduction and historical context, curriculum and community, classroom management, planning and preparation and KS4 curriculum.

The Phase 2a ITE Curriculum:

In Phase 2a, the centre – based curriculum focuses on subject knowledge and pedagogy. We ask you to support students in exploring these further in schools.

The focus of weekly discussions is in black. [Professional Development Activities for STUDENTS](#) are in blue.

Date (LJMU)	Taught LJMU session	School-based focus	Mentor curriculum in weekly meeting and Professional Development Activities .
Friday 3 NOV	Subject Knowledge Development KS4 Curriculum (Theory - Algorithms)	Observe teaching and review departmental planning related to sequencing learning in algorithms.	<p>Student teacher: consider, with the help of expert colleagues in the department, a number of real life /practical questions & strategies for effective assessment in computer science in relation to the curriculum map for KS3 & 4.</p> <p>Mentor: discuss how links are made between the theoretical side of this course (e.g algorithms and trace tables) and the actual practical coding.</p> <p>What decisions are made in the way you sequence the delivery of the OCR Specification? (I.e Is it completely linear from</p>

			start to finish over years 10 and 11 OR are some topics skipped in year 10 and taught later – if so, why?)
Friday 10 NOV	Assessment 1 – What did we <i>all</i> learn? / The PRIMM Model Subject Knowledge Development KS4 Curriculum (Computer Systems 1 - CPU)	What are the school / departmental expectations regarding assessment and feedback to inform progression. Observe how expert colleagues assess during computer science lessons. Create a toolkit of assessment strategies relevant to age, phase and curriculum focus.	Student teacher: With agreement with your mentor, apply the PRMM method of assessment to your planned lessons. Reflect on its efficacy in relation to the curriculum and departmental expectations for assessment. Discuss the outcomes with your mentor. Mentor: discuss how the department mitigates the limited subject time in KS3 (Ofsted, 2022) in preparation for KS4 success. What does this mean in terms of planning for KS4 (diagnostic assessment / base line assessments, review KS3 expectations, transition etc)?
Friday 17 NOV	Wider teaching pedagogies Subject Knowledge Development KS4 Curriculum (Programming - Selection)	Observe effective pedagogies in practice by expert colleagues. Deploy strategies in your teaching and reflect on their efficacy for progress. Observe how chunking is used in planning to support understanding in programming. Identify adapted teaching strategies to support a range of learners.	Student teacher: In your observations, take note of the gender balance in lessons for computer science. Explore strategies and activities that encourage and motivate female pupils in KS3 for greater engagement (and to support recruitment to GCSE) (Ofsted, 2022). Mentor: discuss teaching strategies with the student teacher and how they differ in relation to stage (KS3, early transition into GCSE, pre-examination GCSE, transition to post-16) and gender (Ofsted, 2022).
Friday 24 NOV	Subject Knowledge Development KS4 Curriculum (Theory - Logic) Homework & Remote Learning	Know and understand the expectations of the department homework policy. Plan effective homework for a range of learners and reflect on impact on progress.	Student teacher: Consider how you can use logical reasoning to predict the behaviour of simple programs to help avoid pupils misconceptions in your planning. What will this look like? How will it be included in the lesson? What language and scaffolding will be needed to make this successful? Mentor: discuss common misconceptions in the KS4 curriculum covered so far (algorithms, CPU, selection, logic). How do these misconceptions manifest themselves in practice? What strategies are there to address theme effectively?
Friday 1 DEC	GCSE Exam Paper Breakdown Session 1 / 2 GCSE Exam Paper Breakdown Session 2 / 2	Identify the links between GCSE computing topics with KS3 NC and A'level curriculum expectations.	Student teacher: Complete a GCSE exam paper and use the assessment criteria / scheme to mark accurately. Read the most recent chief examiners report to understand where pupils are most successful and where they need most support in relation to the GCSE specification. Mentor: discuss the GCSE paper and outcome the student teacher completed, as

			well as their understanding of the chief examiners report. Support them to create an action plan for their own subject knowledge development at GCSE and advise on relevant resources to support.
Friday 8 DEC	Subject Knowledge Development KS4 Curriculum (Theory - Databases) Subject Knowledge Development KS4 Curriculum (Programming - iteration)	Review subject knowledge audit for the end of the term. Identify key areas for development and develop an action for continued progress.	Student teacher: Review the GCSE specification used by the school and note where declarative knowledge ('knowing that') and procedural knowledge ('knowing how') are identified, sequenced and connected in the curriculum. What impact does this have for planning, scaffolding, sequencing lessons and encouraging engagement? Mentor: discuss how the subject curriculum is developed by the department and how the responsibilities are distributed. Identify an area of the curriculum that the student teacher can focus on developing a sequence of learning for on their return from their alternate placement (this can link to their subject knowledge development).
Friday 15 DEC	Subject Knowledge Development KS4 Curriculum (Programming-sub routines) Literacy across Computer Science	Know and understand the school policy and expectations relating to subject supporting literacy for all pupils.	Student teacher: Prepare the Phase 2a review form by populating the first section of the form. Mentor: discuss the Phase 2a review form, clearly identifying key targets for the alternate placement. Begin to discuss likely Phase 3a timetable on their return. If there is a sixth form attached to your school, prepare the opportunity for observation / teaching at KS5.

In Phase 2b, student teachers go to their alternate placement with no centre-based Curriculum but with continued support from their Liaison Tutor. The Phase 2b mentor guide will be accessible via www.itt-placement.com website.

Lesson observation focus questions: Computer Science

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1	Computing is broken into 3 key areas – Information Technology, Digital Literacy & Computer Science. What is the focus of this session? Does planning show a balanced treatment of computer science, information technology and digital literacy (the foundations, applications and implications of computing)?
2	Is computational thinking (a way of looking at problems and systems so that computers can be used to help solve or understand them) promoted in these lessons?
3	Which apps/software/hardware are being used? How is this helping deliver the learning intentions/outcomes/objective? Are pupils encouraged to play, tinker and experiment, being guided to reflect on what they discover?
4	What are the rules in place to protect and promote E-Safety?
5	Is computing placed in a context that is authentic, meaningful and motivating?
6	Do pupils show independence in their use of computing across all three strands of the curriculum and exhibit positive attitudes towards the subject and working constructively with others?