

Primary Initial Teacher Education: Curriculum Plan

Computing: Undergraduate Programmes

Curriculum Intent:

Through our Initial Teacher Education Curriculum, it is our intention that trainees:

- *receive sufficient grounding in subject knowledge to be able to teach KS National Curriculum Computing three strands of Computer Science, Information Technology, Digital Literacy confidently*
- *develop an understanding of why Computing is in the National Curriculum and why it is important to provide this opportunity for children to learn about Computing*
- *apply their subject knowledge to planning (short, medium and long-term), teaching, learning and assessment for classroom practice for training and beyond to ensure appropriate progression.*
- *develop knowledge and understanding of pedagogical approaches for teaching Computing at KS1 and adopt a critical approach towards these.*

Phase	Learn that...	Learn how to...
Phase 2	Trainees will know:	Trainees will be able to:
	The importance of Computing in society and the opportunities this affords children; their role, as teachers, to open these opportunities for all children.	save and retrieve files from EHU systems, and access common collaborative software.
	The fundamentals of what a computer is, how it works, how it stores, processes and sends information.	Evaluate unplugged approaches to teaching computational thinking.
	How computational thinking underpins computer science: problem solving, design and implementation of computer systems (virtual and physical devices).	Plan and teach a computer science lesson which demonstrates progression for all learners.
	Computational thinking includes decomposition, algorithms, pattern recognition, abstraction and logical thinking.	Use software beyond typical office applications which can be used for creative computing, for example: animation, sound editing, digital art, data handling (branching databases, flat file databases, spreadsheets), collaborative tools (Google docs, OneDrive), and their use in the classroom.

<p>The Internet is the largest network and is the hardware/ infrastructure which allows us to access the World Wide Web.</p>	<p>Develop a computing a medium-term plan which demonstrate progression for all learners.</p>
<p>The programme of study needs to be met across a Key Stage</p>	
<p>A long term plan should provide progression of knowledge and skills across the year groups.</p>	
<p>Trainees will understand:</p>	<p style="text-align: center;">Composite knowledge/understanding/skills</p> <p><i>By the end of this phase trainees will know:</i></p> <ul style="list-style-type: none"> - how to read code; - how to design and write a program; and - pedagogical strategies for teaching computer science to KS1 and KS2 children. <p><i>By the end of this phase trainees will understand:</i></p> <ul style="list-style-type: none"> - Computing is a separate discipline which is still relatively new and developing, although the underlying principles remain the same. - Computational thinking underpins computer science and problem solving within computing (and beyond). - Testing, debugging and collaboration are fundamental aspects of computing. Computing teaches children they cannot always get learning right the first time, so they need resilience, perseverance, creativity and a willingness to collaborate with others. - Cross-curricular contexts are important for teaching the IT strand, yet computing objectives must be planned and met - The requirements for e-safety education are progressive across the age phases; - E-safety teaches children to stay safe and responsible online in school and out of school. <p><i>By the end of this phase trainees will be able to:</i></p>
<p>Programming, and related activities, require resilience, perseverance, risk-taking, innovative-thinking, collaboration and recognition that we will probably not get it right the first time; debugging and testing are essential parts of the process.</p>	
<p>Cross-curriculum teaching with technology (TEL) does not meet the National Curriculum for Computing, unless there are specific learning objectives for Computing curriculum included; teachers should exploit cross-curriculum opportunities by planning learning for both subjects.</p>	
<p>Computing is integrated into society and there are significant opportunities for those who can work in this field. Computing requires a more diverse workforce.</p>	
<p>That an understanding of the fundamentals of computing is required to take part, as an informed citizen, in ethical and moral debates about technological issues (e.g. artificial intelligence, driverless vehicles, algorithms used to make decisions on our lives, data collected, held and processed by organisations).</p>	
<p>Computational thinking is a way of thinking, specific to computing, to make it easier to solve problems, think through solutions and create systems.</p>	
<p>Computational thinking can be taught explicitly through a range of pedagogical approaches and should become embedded in practice as children design and program their own systems.</p>	
<p>Searches can be made more efficient by using specific terms, alternative terms, Boolean operators, wild card characters, quotation marks, etc.</p>	

	<p>Children can use child friendly search engines.</p> <p>There are risks, responsibilities and opportunities when children are online. Risks can be identified as content, contact and conduct risks which will vary according to age and activity.</p> <p>Physical devices, such as robots or microprocessors can be programmed.</p>	<ul style="list-style-type: none"> - be able to plan for progression in a medium-term plan, considering cross-curricular opportunities - <p><i>By the end of this phase trainees will be able to:</i></p> <ul style="list-style-type: none"> - plan appropriately to teach computer science at KS1 and KS2
	<p>Information Technology should be selected on the basis of the task which is to be performed and different tools (hardware/ software) are suitable for different tasks. Information Technology use (including Internet searching) should be appropriate and efficient.</p> <p>Cross-curriculum teaching with technology (TEL) does not meet the National Curriculum for Computing, unless there are specific learning objectives for Computing curriculum included; teachers should exploit cross-curriculum opportunities by planning learning for both subjects.</p> <p>Online safety education should be tailored to meet the requirements of children at different stages of their development and technology use inside and outside of school.</p>	