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| **SUBJECT KNOWLEDGE AUDIT & TRACKER**  **Computing**  **2024-25** |  | Secondary  PGCE |

**Purpose of the Audit**

Your indications of specialist subject knowledge strengths and areas for development are used as a basis for discussion during your PGCE training.

At the start of the course, the audit will also be used to inform planning for the development of key ‘gap’ areas of subject knowledge, and then in subsequent school placements alongside your School Based Mentor to identify areas of curriculum about which you have less security of knowledge/which need revision. In terms of a tracker, you are able to chart the progression of both your knowledge and application of knowledge over the training year.

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| **Colour & date** | **Pre-course** | **End-SE1** | **End-SE2** | **End-SE3** |
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| **Key Stage 3 & 4** | | **I don’t know this** | **SK insecure** | **SK secure** | **I can teach this** | **I know several ways to teach this** |
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| **KS3 Curriculum Content** | Teach pupils how to - |  |  |  |  |  |
| design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems |  |  |  |  |  |
| understand several key algorithms that reflect computational thinking, use logical reasoning to compare the utility of alternative algorithms for the same problem |  |  |  |  |  |
| use two or more programming languages |  |  |  |  |  |
| understand simple Boolean logic and some uses in circuits and programming; understand how numbers can be represented in binary, and carry out simple operations on binary numbers |  |  |  |  |  |
| **KS3 Curriculum Content** | understand the hardware and software components that make up computer systems, |  |  |  |  |  |
| understand how instructions are stored and executed within a computer system |  |  |  |  |  |
| undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices |  |  |  |  |  |
| create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability |  |  |  |  |  |
| understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **KS4 Curriculum Content** | develop their capability, creativity and knowledge in computer science, digital media and information technology |  |  |  |  |  |
| develop and apply their analytic, problem-solving, design, and computational thinking skills |  |  |  |  |  |
| understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns. |  |  |  |  |  |
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| **GCSE KS4 Computational thinking and problem solving** | Fundamentals of algorithms |  |  |  |  |  |
| Searching and sorting algorithms |  |  |  |  |  |
| Programming and language |  |  |  |  |  |
| Further programming and language operations |  |  |  |  |  |
| Fundamentals of data representation |  |  |  |  |  |
| **GCSE KS 4 Theoretical knowledge** | Computer systems |  |  |  |  |  |
| Classifying programming language and translators |  |  |  |  |  |
| Systems of architecture |  |  |  |  |  |
| Fundamentals of computer networks |  |  |  |  |  |
| Network topologies, protocols and layers |  |  |  |  |  |
| Cyber security |  |  |  |  |  |
| Ethical, legal and environmental impacts of digital technology |  |  |  |  |  |
| **Additional notes:** | | | | | | |