

Year 9 Progress Ladder – Computer Science

| Pathway A | Pathway B | Pathway C | Pathway D | COMP 1 - Theory | COMP 2 – Algorithms and Programming | COMP 3 – Digital Literacy |
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| 1. Exceeding expected progress | 1.Exceeding expected progress | 1.Exceeding expected progress | 1.Exceeding expected progress | <ul style="list-style-type: none"> ➤ Create a complex program in LMC. ➤ Explain how registers work within the CPU. | <ul style="list-style-type: none"> ➤ Implement reading and writing to external files within code. ➤ Create complex algorithms with multiple loops within code. | <ul style="list-style-type: none"> ➤ Describe and explain different hacking strategies (Brute Force, Phishing, DDOS, SQL Injection, Data Interception). |
| 2. Making expected progress | | | | <ul style="list-style-type: none"> ➤ Explain the benefits and drawbacks of different network topologies. | <ul style="list-style-type: none"> ➤ Create complex algorithms with multiple selection statements. | <ul style="list-style-type: none"> ➤ Demonstrate ability to edit multiple images together to create new complex images in Photoshop. |
| 3.Below expected progress | 2. Making expected progress | <ul style="list-style-type: none"> ➤ Explain what the CU and ALU are. ➤ <i>Describe what each part of network hardware does.</i> | | <ul style="list-style-type: none"> ➤ Implement variables to store and change values within code. | <ul style="list-style-type: none"> ➤ Demonstrate use of transparency when editing images in Photoshop. | |
| 4. Cause for concern | 3.Below expected progress | <ul style="list-style-type: none"> ➤ Explain what Virtual Memory is. ➤ Demonstrate denary and binary to hexadecimal conversions. | | <ul style="list-style-type: none"> ➤ Test project for robustness. ➤ Create clear next steps within EBI for further iterations. | <ul style="list-style-type: none"> ➤ Create a form to enter data for your database, ➤ Understand how computers affect the environment at all stages throughout their life. | |
| | | <ul style="list-style-type: none"> ➤ Create a basic program in LMC. ➤ Understand the FDE cycle and able to calculate FDE cycles from a CPU specification. ➤ Understand what a CPU register is. | | <ul style="list-style-type: none"> ➤ Implement a condition controlled and count controlled loop correctly within code. ➤ Understand what a variable is. ➤ Implement a variable. ➤ Design simple algorithms using loops, and selection i.e. if statements. | <ul style="list-style-type: none"> ➤ Demonstrate ability to use SQL to manipulate your database. ➤ Create a report for your database. ➤ Understand some of the different hacking strategies (Brute Force, Phishing, DDOS, SQL Injection, Data Interception). ➤ Recall some of the principles of the DPA. ➤ Create an encode their own Caesar cipher code. | |
| | 4.Cause for concern | 3.Below expected progress | | <ul style="list-style-type: none"> ➤ <i>Demonstrate denary to binary and binary to denary conversions.</i> ➤ <i>Identify network hardware.</i> ➤ Understand how sound is represented digitally. ➤ Recall the mnemonics used for LMC. ➤ Identify the different network topologies. | <ul style="list-style-type: none"> ➤ Implement a selection statement within code. ➤ Decompose a task. ➤ Create own success criteria. ➤ Test for basic functionality. ➤ Identify the differences between a controlled and count controlled loop. | <ul style="list-style-type: none"> ➤ Create a query your database. ➤ Recall what SQL is. ➤ Understand what a digital footprint is and the implications it may have ➤ Recall what the Data Protection Act is about. ➤ Demonstrate use of multiple layers within editing an image in Photoshop. |

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| | | 4.Cause for concern | 3.Below expected progress | <ul style="list-style-type: none"> ➤ <i>Identify different logic gates and understand the affect they have.</i> ➤ <i>Identify the difference between ROM and RAM.</i> ➤ <i>Understand what clock speed is and how it affects the computers performance.</i> ➤ <i>Understand what a multi core processor is and the affect it can have.</i> ➤ <i>Describe the differences between lossy and lossless compression.</i> ➤ <i>Know what LMC is.</i> | <ul style="list-style-type: none"> ➤ <i>Create and read basic flowcharts.</i> ➤ <i>Evaluate a project.</i> ➤ <i>Decompose a task.</i> | <ul style="list-style-type: none"> ➤ <i>Recall what a digital footprint is.</i> ➤ <i>Create a basic database.</i> ➤ <i>Understand what the Computer Misuse Act is.</i> ➤ <i>Demonstrate how to edit a basic image in Photoshop.</i> |
| | | 4.Cause for concern | | <ul style="list-style-type: none"> ➤ <i>Understand what a computer is and why they are needed.</i> ➤ <i>Describe what compression is.</i> ➤ <i>Understand why we need binary.</i> ➤ <i>Understand what a network is.</i> | <ul style="list-style-type: none"> ➤ <i>Understand the need for algorithms.</i> ➤ <i>Create a basic algorithm.</i> ➤ <i>Create a basic program.</i> | <ul style="list-style-type: none"> ➤ <i>Use the correct online and offline software.</i> ➤ <i>Understand how to be safe online.</i> ➤ <i>Can collect images and videos for website online safely.</i> ➤ <i>Identify what makes a good and a bad image.</i> ➤ <i>Knowledge and application of a variety of keyboard shortcuts.</i> ➤ <i>Understand what hacking is.</i> |

****Continued content from previous year****