

Computing KS3 Pathway Statements

Students will be taught to:

- Think logically. Applying computational thinking to problem solve and using programming concepts to create versatile solutions.
- Understand the opportunities and threats posed by online developments. Embracing the developments in digital technologies globally.
- Appreciate different data types and use, store and handle these efficiently;
- Use a wide range of applications to design and create digital media products.

Stage	Computational Thinking	Life Online	Programming	Living in a Digital World	Data Handling	Creative Digital Design
7	Students immerse computational thinking into their daily problem solving. They can transform problems into high level and complex processes and systems.	Students evaluate different cyber security threats and prevention in the outside world. They can undertake a full SWOT analysis of doing business online.	Students can routinely use high level language to make complex programs, with very few errors. They can test and evaluate their code to make it more efficient.	Students have an in-depth knowledge of data types, data flows and computer systems. They can evaluate developments in digital technology and build external implications into their arguments.	Students handle data with professionalism, considering the validation, verification and source of the data. They can use a host of advanced tools within different software and produce high quality outputs.	Students design and produce a range of professional standard media products. Testing and evaluation happens throughout the process. Feedback applied with continuous links to purpose and target audience.
6	Students use computational thinking with confidence in their daily problem solving. They can break down complex problems using subroutines with ease.	Students evaluate different cyber security threats and preventative measures in the outside world, and can prioritise the most dangerous based around circumstance.	Students can use high level language to create chunks of code which will solve a problem. Their code is generally efficient and has minimal errors.	Students understand data types, data flows and computer systems. They understand developments in digital technology and consider external implications around this.	Students use a range of advanced tools within different software. The end product is to a high quality which has made intrinsic reference to the data. They see patterns within data and bias in the source.	Students design and produce a range of substantial media products. Testing and evaluation happens throughout the process. Feedback applied and changes justified with clear reasoning.
5	Students use computational thinking to problem solve. They show a deep knowledge of arranging flowchart symbols. They design clear flowcharts and analyse what it shows. User experience is fully thought through and processes can be refined to increase efficiency.	Students analyse different cyber security threats in the outside world, and can prioritise the most dangerous based around circumstance. They understand a range of ways to prevent cyber attacks and security issues. As well as understanding the limitations of these.	Students can use high level language to produce error free lines of code. They use pseudocode to start to create more complex, multi-line solutions to problems. They will have mastered block code and have made complex programs using this.	Students convert binary numbers efficiently. They can explain how data flow flows around hardware systems. They can put this theory into a real world context and understand the ethical, social, environmental and cultural issues which arise through use of digital technology.	Students use a range of tools to input, handle, manipulate and present complex data. The end product is to a good standard which has made reference to the data. They can start to see bias and patterns within data and know where high quality, trusted data comes from.	Students design and produce engaging designs and media products. Knowledge of using digital tools is high. Decisions are made considering target audience and purpose. Some testing and evaluation of the final product is carried out.

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4	Students demonstrate a clear understanding of symbol use, selects appropriate symbols for complex logic, and explains choices clearly. Designs efficient flowcharts. Considers multiple outcomes and ensures clarity, accuracy, and efficiency.	Students independently and efficiently use the Crestwood Network. They show strong awareness of online risks and digital reputation. Proactively promotes e-safety and helps others stay safe online.	Students can use block code with confidence, to create engaging and comprehensive projects, which have minimal errors. They will have started using pseudocode to improve and solve problems.	Students convert binary numbers efficiently. Explain how and why binary is used in systems. They can identify different hardware parts in a computer and can link this to data flow.	Students can handle larger amounts of data with relative ease. They use a range of functions within different software types to help manage, manipulate and present the data in the most appropriate way. They use data in real life, active scenarios.	Students design and produce good quality media products. A range of digital tools are used. Consideration in the design is made to purpose and target audience. Students can differentiate between different media formats and identify when one is more appropriate.
3	Students accurately use a range of flowchart symbols and arrange them logically to represent a clear process or set of instructions. They improve flow charts based on feedback or evaluation. They explain what works well and how to improve.	Students can confidently log in, access school apps and files. Communicates and collaborates clearly & appropriately via GSuite. Demonstrates a good understanding of e-safety and digital footprints. They make safe, respectful choices online.	Students will have created problem solving tools using block code. They will have applied logic and done some testing, though there may be limited errors. They will be starting to link block coding to pseudocode.	Students convert binary numbers efficiently. They understand how binary is used in computing. They have a sound working knowledge of the different parts of a computer and what those parts do.	Students can handle data efficiently using different software. They use data in real life scenarios. They use some tools within the software to manage the data. They present data in a clear and informative manner.	Students design and produce media products, which generally tie in with a theme, purpose and target audience. The quality might be questionable at times. Some tools and techniques used.
2	Students can identify some common flowchart symbols and place them in a basic sequence with support. Can create a simple flowchart with basic structure. Some elements may be missing or unclear.	Students can log into a network independently and access core applications. Needs reminders about digital etiquette. Identifies some risks of being online. Can recognise inappropriate behaviour but may not always make safe choices.	Students can use block code to solve simple problems. There may be some errors in work, but these can largely be identified as areas for improvement.	Students convert binary numbers, but with some errors. They have some knowledge of how binary is used in computing, but this might be disjointed. They have some knowledge of the different parts of a computer.	Students can input data into different software, but it might not be in the most efficient way. They can get an output, but sometimes the presentation of this needs improving. They work within real world scenarios.	Students produce media product(s) though little tie-in will be made to the design process. Some thought may have been given to purpose and audience but the final design may be basic.
1	Students start to put instructions in to order but need significant support and ordering may be incomplete or unclear. Lacks understanding of logical structure or purpose.	Students need support to log in to the network and access basic applications. Unfamiliar with file saving and navigation. Has limited awareness of online safety. Struggles to identify unsafe behaviours or content.	Students have attempted to use some block coding. They will still get errors and need support in processing these and making improvements.	Students attempt to use and convert binary but still need support and scaffolding to do so. They are starting to look at how computers work.	Students start to input data into a system - though the data may be incorrect, incomplete or poorly presented. They are introduced to databases.	Students are starting to produce media product(s) and may have a few ideas. At this stage, these ideas do not match the given project brief and lack quality.