



Year 9 KS3 Computing DC1

Learning Focus	Emerging	Developing	Securing	Mastering	Beyond
Strand Information Technology	<p>I can use a variety of software to manipulate and present digital content.</p> <p>I can share my experiences of technology in school and beyond the classroom.</p> <p>I can talk about their work and makes improvements to solutions based on feedback received.</p> <p>I can create the basic project management tools GANTT and FLOW charts.</p>	<p>I can collect, organise and present data and information in digital content.</p> <p>I can create digital content to achieve a given goal through combining software packages.</p> <p>I can make appropriate improvements to solutions based on feedback received and can comment on the success of their work.</p> <p>I can make judgements about digital content when evaluating and repurposing it for a given audience.</p> <p>I can demonstrate a clear awareness of quality, audience and purpose in their work.</p>	<p>I can evaluate the appropriateness of digital devices, internet services and application software to achieve given goals.</p> <p>I can demonstrate a clear awareness of quality, audience and purpose in their work and uses appropriate tools to check their work independently.</p> <p>I can design criteria to critically evaluate the quality of solutions, uses the criteria to identify improvements and can make appropriate refinements to the solution.</p>	<p>I can justify the choice of and independently combines and uses multiple digital devices, internet services and application software to achieve given goals.</p> <p>I can evaluate the trustworthiness of digital content and considers the usability of visual design features when designing and creating digital artefacts for a known audience.</p> <p>I can design criteria for users to evaluate the quality of solutions, uses the feedback from the users to identify improvements and can make appropriate refinements to the solution.</p> <p>I can consider the properties of media when importing them into digital artefacts.</p>	<p>I can independently analyse, plan, implement, test, evaluate, feedback and Agile project for a real end user. Choosing the most appropriate software.</p>



Hope



Endurance



Forgiveness



Trust



		<p>I understand the potential of information technology for collaboration when computers are networked.</p> <p>I can use criteria to evaluate the quality of solutions and can identify improvements, making some refinements to the solution and future solutions.</p>		<p>I can document user feedback, the improvements identified, and the refinements made to the solution.</p> <p>I can understand the ethical issues surrounding the application of information technology, and the existence of legal frameworks governing its use e.g., Data Protection Act, Computer Misuse Act, Copyright etc.</p>	
<p>Strand: Algorithms and Programming</p>	<p>I understand how to trace and code a simple algorithm using basic arithmetic operators, if statements, and basic loops.</p> <p>I can correct issues with support.</p> <p>I can Code and annotate some of the given tasks in Python.</p>	<p>I understand how to trace and code a simple algorithm using basic arithmetic operators, selection statements, and loops.</p> <p>I can use logical reasoning to predict the behaviour of programs.</p> <p>I can Detect and correct simple semantic errors i.e., debugging, in programs.</p> <p>I can declare and use variables.</p> <p>I can use decomposition and</p>	<p>I understand how to trace and code a simple algorithm using basic arithmetic operators, selection statements, iteration and variables.</p> <p>I understand the basic principles of decomposition and abstraction to turn a large/complex problem into manageable chunks.</p> <p>I can use logical reasoning to predict the behaviour of programs</p>	<p>I understand that programming bridges the gap between algorithmic solutions and computers. Has practical experience of a high-level textual language, including using standard libraries when programming. Uses a range of operators and expressions e.g., Boolean, and applies them in the context of program control. Selects the appropriate data types. Uses nested selection statements. Appreciates the need for, and writes,</p>	<p>I can code independently in Python and am independently developing coding skills in other languages including JavaScript.</p> <p>I demonstrate an excellent grasp of the languages structure and syntax and including the use of procedures/functions to aid decomposition.</p>





abstraction with support. Codes all of the given tasks in Python.

and debugs code efficiently.

custom functions including use of parameters.

I can design, write and debug modular programs using procedures and know that procedures can be used to hide the detail with sub-solution (procedural abstraction).

I Know the difference between, and uses appropriately, procedures and functions. Understands and uses negation with operators. Uses and manipulates one dimensional data structures. Detects and corrects syntactical errors.

I can code all of the given tasks in Python with some extension work and appropriate use of decomposition.

I appreciate the effect of the scope of a variable e.g., a local variable cannot be accessed from outside its function.

I understand and apply parameter passing. Understands the difference between, and uses, both pre-tested e.g., while, and post-tested e.g., until loops. Applies a modular approach to error detection and correction.

I can code all of the given tasks in Python and several extensions tasks, demonstrating a good grasp





				of the languages structure and syntax and including the use of procedures/functions to aid decomposition.	
Strand Communication and e-Safety	<p>I can understand the importance of communicating safely and respectfully online, and the need for keeping personal information private.</p> <p>I understand some of the moral and ethical issues associated with technology.</p> <p>I understand some of the risks to IT systems.</p>	<p>I can recognise what is acceptable and unacceptable behaviour when using technologies and online services and demonstrates responsible use of technologies and online services.</p> <p>I understand some of the legal, moral and ethical issues associated with technology.</p> <p>I understand the main threats to an IT system and can suggest different methods to minimise these risks.</p>	<p>I can demonstrate use of computers safely and responsibly, including physical health and well-being.</p> <p>I recognise what is acceptable and unacceptable behaviour when using technologies and online services and demonstrates responsible use of technologies and online services.</p> <p>I understand the legal, moral and ethical issues associated with technology.</p> <p>I understand the potential threats to an IT system and can suggest different methods to mitigate these risks.</p>	<p>I can demonstrate use of computers safely and responsibly, including physical health and well-being.</p> <p>I can recognise what is acceptable and unacceptable behaviour when using technologies and online services and demonstrates responsible use of technologies and online services.</p> <p>I can understand the legal, moral and ethical issues associated with technology.</p> <p>I can understand a wide range of potential threats to an IT system and can suggest appropriate methods to mitigate these risks and enable a speedy recovery.</p>	<p>I can independently demonstrate acceptable and unacceptable behaviour when using technologies and online services and demonstrates responsible use of technologies and online services.</p> <p>I can independently administer appropriate methods to mitigate these risks and enable a speedy recovery.</p>





<p>Strand Data Encoding and Encryption</p>	<p>I can appreciate that programs can work with different types of data and can find the required information using basic searching.</p> <p>I understand that decimal is not the only number system.</p> <p>Understands the difference between hardware & software and input, output and storage devices.</p>	<p>I can perform more complex searches for information e.g., using Boolean and relational operators, domain name filters and other settings.</p> <p>I can present findings clearly using well formatted tables, charts and graphs appropriately.</p> <p>I understand that all digital devices are based on the use of ON/OFF states represented using Binary.</p> <p>I can convert between Binary and Denary and perform basic binary calculations.</p> <p>I understand that images, sound and text are encoded into Binary for processing and storage.</p>	<p>I can perform complex searches for information e.g., using composite Boolean and relational operators, domain name filters and other settings.</p> <p>I can present findings clearly using suitable tables, charts & graphs.</p> <p>I understand that a CPU's transistors rely on ON/OFF states and that these are represented using Binary.</p> <p>I can convert between Binary, Hexadecimal and Denary and perform binary addition and subtraction.</p> <p>I understand how images, sound and text are encoded into Binary for processing and storage.</p> <p>I understand the role of encryption and can apply</p>	<p>I understand why and how numbers, images, sounds and characters are encoded into Binary.</p> <p>I can convert between Binary, Hexadecimal and Denary and perform binary shifting, addition and subtraction including the two's complement method.</p> <p>I understand the relationship between resolution and colour depth, including the effect on file size.</p> <p>I understand the relationship between bit depth, sample rate and bit rate in sound files, including the effect on quality and file size.</p> <p>I know the relationship between data representation and data quality.</p> <p>I understand the relationship between binary and electrical circuits, including Boolean logic.</p> <p>Understands how and why</p>	<p>I can develop encryption methodologies and can apply a range of complex ciphers and identify strengths and weaknesses and defence strategies for different approaches of attack.</p> <p>I independently can build the main components in a PC. Choosing components by technical specifications and performance indicators.</p> <p>I can independently install the appropriate operation system and drivers to create a function system.</p>
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I understand the role of encryption and can apply basic ciphers.

I understand the role of the main components and peripherals in a desktop computer.

a range of common ciphers.

values are data typed in many different languages when manipulated within programs.

I understand and can explain the need for data compression and performs simple compression methods.

I understand the role of encryption and can apply a range of common and more complex ciphers and identify strengths and weaknesses of different approaches.

I understand the role of the main components in a PC and can accurately compare and choose components using technical specifications and appropriate performance indicators.