Computing KS3 Matrix

Year 7	Emerging	Developing	Secure	Mastery
Choice and Selection A Guru can effectively combine information into different formats that the computer can deliver, with considerations for purpose and target audience.	I can use software under the control of the teacher to create, store and edit digital content using appropriate file and folder names. I know that people interact with computers. I know that all software executed on digital devices is programmed. I can share my use of technology in school. I know common uses of information technology beyond the classroom. I can talk about my work and make changes to improve it.	I can use technology with increasing independence to purposefully organise digital content. I can show an awareness for the quality of digital content collected. I can use a variety of software to manipulate and present digital content: and information. I can share my experiences of technology in school and beyond the classroom. I can talk about my work and make improvements to solutions based on feedback received.	I can collect, organise and present data and information in digital content. I can create digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience e.g. blogging. I can make appropriate improvements to solutions based on feedback received, and can comment on the success the solution.	I can make judgements about digital content when evaluating and repurposing it for a given audience. I know the audience when I am designing and creating digital content. I know the potential of information technology for collaboration when computers are networked. I can use criteria to evaluate the quality of solutions and can identify improvements making some refinements to the solution, and future solutions.
Computational thinking Gurus can understand what a problem is and can recommend solutions in a way that a computer, a human, or both can understand, giving justification.	I know what an algorithm is and I can express simple algorithms using symbols. I know that computers need precise instructions. I can show care and precision to avoid errors	I know that algorithms are implemented on digital devices as programs. I can design simple algorithms using loops, and selection i.e. if statements. I can use logical reasoning to predict outcomes. I can find and correct errors i.e. debugging, in algorithms.	I can design solutions (algorithms) that use repetition and selection. I can use diagrams to express solutions. I can use logical reasoning to predict outputs, showing an awareness of inputs.	I can show an awareness of tasks best completed by humans or computers. I can design solutions by decomposing a problem and creates a sub-solution for each of these parts (decomposition). I know that different solutions exist for the same problem.
Systems construction Gurus understand the basic principles of computer architecture and can analyse their uses across varied scenarios.	I know that computers have no intelligence and that computers can do nothing unless a program is run. I know that all software executed on digital devices is programmed.	I know that a range of digital devices can be considered a computer. I know and can use a range of input and output devices. I know how programs specify the function of a general purpose computer.	I know that computers collect data from various input devices, including sensors and application software.	I know why and when computers are used. I know the difference between hardware and application software, and their roles within a computer system.
Programming Gurus can plan and build a world and program characters and objects; enhancing their game with advanced features.	I know that users can write their own programs. I can create a simple block program. I can run, check and change programs. I know that programs run by following precise instructions.	I can use arithmetic operators, if statements, and loops, within programs. I can use logical reasoning to predict the behaviour of programs. I can find and correct simple semantic errors i.e. debugging, in programs.	I can create block programs that implement algorithms to achieve given goals. I can declare and assign variables. I can use post-tested loops e.g. 'until', and a sequence of selection statements in programs.	I can use variable and relational operators within a loop to govern termination. I can design, write and debug modular programs using procedures. I know that a procedure can be used to hide the detail with sub-solution (procedural abstraction).
Multimedia skills Gurus can use a varied range of tools to combine media entities for a purpose and target audience.	I can use presentation software under the control of the teacher to create, store and edit digital content using appropriate file and folder names. I can share my use of technology in school. I know common uses of information technology beyond the classroom. I can talk about my work and make changes to improve it.	I can use technology with increasing independence to purposefully organise and present digital content. I can show an awareness for the quality of digital content collected. I can use presentation software to manipulate and present digital content: and information. I can share my experiences of technology in school and beyond the classroom. I can talk about my work and make improvements to solutions based on feedback received.	I can collect, organise and present data and information in digital content. I can create digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience e.g. blogging. I can make appropriate improvements to solutions based on feedback received, and can comment on the success the solution.	I can make judgements about digital content when evaluating and repurposing it for a given audience. I know the audience when I am designing and creating digital content. I know the potential of information technology for collaboration when computers are networked. I can use criteria to evaluate the quality of solutions and can identify improvements making some refinements to the solution, and future solutions.
Handling and Editing Gurus understand how and why graphic editing continues to evolve, can distinguish between real and fake imaging and can use graphics editing tools to alter images.	I can use graphic editing software under the control of the teacher to create, store and edit digital content using appropriate file and folder names. I can share my use of technology in school. I know common uses of information technology beyond the classroom. I can talk about my work and make changes to improve it.	I can use technology with increasing independence to purposefully organise digital content. I can show an awareness for the quality of digital content collected. I can use a variety of software to manipulate and present digital content: and information. I can share my experiences of technology in school and beyond the classroom. I can talk about my work and make improvements to solutions based on feedback received.	I can collect, organise and present data and information in digital content. I can create digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience e.g. blogging. I can make appropriate improvements to solutions based on feedback received, and can comment on the success the solution.	I can make judgements about digital content when evaluating and repurposing it for a given audience. I know the audience when I am designing and creating digital content. I know the potential of information technology for collaboration when computers are networked. I can use criteria to evaluate the quality of solutions and can identify improvements making some refinements to the solution, and future solutions.

Guru: computer specialist (Synonyms: digital native, developer, technophile, technoid)

Year 8	Emerging	Developing	Secure	Mastery
Digital Portfolio A Guru can effectively use HTML and CSS to create a responsive design, which adapts to any size of screen for viewing on varied devices.	I can use software under the control of the teacher to create, store and edit digital content using appropriate file and folder names. I know that people interact with computers. I know that all software executed on digital devices is programmed. I can share my use of technology in school. I know common uses of information technology beyond the classroom. I can talk about my work and make changes to improve it.	I can use technology with increasing independence to purposefully organise digital content. I can show an awareness for the quality of digital content collected. I can use a variety of software to manipulate and present digital content: and information. I can share my experiences of technology in school and beyond the classroom. I can talk about my work and make improvements to solutions based on feedback received.	I can collect, organise and present data and information in digital content. I can create digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience e.g. blogging. I can make appropriate improvements to solutions based on feedback received, and can comment on the success the solution.	I can make judgements about digital content when evaluating and repurposing it for a given audience. I know the audience when I am designing and creating digital content. I know the potential of information technology for collaboration when computers are networked. I can use criteria to evaluate the quality of solutions and can identify improvements making some refinements to the solution, and future solutions.
Computational thinking Gurus can understand what a problem is and can recommend solutions in a way that a computer, a human, or both can understand, giving justification.	I know what an algorithm is and I can express simple algorithms using textual language. I know that computers need precise instructions. I can show care and precision to avoid errors	I know that algorithms are implemented on digital devices as programs. I can design simple algorithms using loops, and selection i.e. if statements. I can use logical reasoning to predict outcomes. I can find and correct errors i.e. debugging, in algorithms.	I can design solutions (algorithms) that use repetition, selection and two-way selection i.e. if, then and else. . I can use textual language to express solutions. I can use logical reasoning to predict outputs, showing an awareness of inputs.	I can show an awareness of tasks best completed by humans or computers. I can design solutions by decomposing a problem and creates a sub-solution for each of these parts (decomposition). I know that different solutions exist for the same problem.
Programming Building on from their skills from block programming, Gurus can understand the process of developing programs, the importance of writing correct syntax, being able to formulate algorithms for simple programs and debugging their solutions.	I can create a simple textual program. I can run, check and change programs. I know that programs run by following precise instructions.	I can use arithmetic operators, if statements, and loops, within programs. I can use logical reasoning to predict the behaviour of programs. I can find and correct simple semantic errors i.e. debugging, in programs.	I can create textual programs that implement algorithms to achieve given goals. I can declare and assign variables. I can use post-tested loops e.g. 'until', and a sequence of selection statements in programs, including use of if…then… else statement.	I can use variable and relational operators within a loop to govern termination. I can design, write and debug modular programs using procedures. I know that a procedure can be used to hide the detail with sub-solution (procedural abstraction).
Data & Data representation Gurus can explain how digital content can be represented and recognised by a computer.	I know different types of data: text, number. I know that programs can work with different types of data. I know that digital computers use binary to represent all data.	I know that computers transfer data in binary. I know how bit patterns represent numbers and images. I can perform simple operations using bit patterns e.g. conversion between binary and denary.	I can operations using bit patterns e.g conversion between binary and hexadecimal; binary addition.	I know the relationship between binary and file size (uncompressed). I know how numbers, images, sounds and character sets use the same bit patterns.
Data: Gathering & analysis Gurus can use a varied range of tools to gather and analyse primary / secondary data in order to prove or disprove a hypothesis.	I know that data can be collected via secondary sources I know that digital content can be represented in many forms. I know that data can be structured in tables to make it useful.	I can collect data via primary and secondary sources. I know the difference between data and information. I can use filters or can perform single criteria searches for information.	I can recommend suitable sources to collect data for a given problem. I can perform more complex searches for information e.g. using Boolean and relational operators.	I can justify my recommendations of primary and/or secondary sources of data for an identified problem. I can analyse and evaluate data and information, and I know that poor quality data leads to unreliable results, and inaccurate conclusions
Social media platforms Gurus can use a varied range of tools and resources to build a working WYSIWYG application, which can be used on any HTML5 compatible device, considering the purpose and audience.	I can collect, organise and present data and information in digital content. I can create digital content to achieve a given goal through combining software packages and internet services to communicate with a wider audience e.g. blogging. I can make appropriate improvements to solutions based on feedback received, and can comment on the success the solution.	I can make judgements about digital content when evaluating and repurposing it for a given audience. I know the audience when I am designing and creating digital content.	I know the potential of information technology for collaboration when computers are networked. I can use criteria to evaluate the quality of solutions and can identify improvements making some refinements to the solution, and future solutions.	I can evaluate the appropriateness of digital devices, internet services and application software to achieve given goals. I can recognise ethical issues surrounding the application of information technology beyond school. I can design criteria to critically evaluate the quality of solutions, I can use the criteria to identify improvements and can make appropriate refinements to the solution.