Strands & Master Statements

Strand	Master Statement
Strand 1: Algorithms & Programming — Computational Thinking & Python (Year 8)	I can create programs using a range of techniques. I can create efficient and effective programs
Strand 1 (Year 9)	I can demonstrate a range of programming techniques. I can produce programs which are free from errors and well documented
Strand 2: Data Representation — Databases, Binary & Boolean Logic (Year 7)	I can explain the hierarchy of the units of data storage
Strand 2 (Year 9)	I can add data to a database. I can query a database to produce meaningful results and I can present these in a professional format
Strand 3: Computer Systems — Hardware, Software and Operating Systems (Year 8)	I can explain the basic systems architecture in Von Neumann Architecture
Strand 4: Networking — Internet, Networking & Security (Year 8)	I can explain the different types and topologies of networks. I can explain the key differences between wired and wireless network technologies. I can explain how the Internet works
Strand 4 (Year 9)	I can explain the different forms of threats to computers systems and networks. I can explain common prevention methods from forms of system attacks
Strand 5: Information Technology — Digital Literacy, Graphic Design & A.I. (Year 9)	I can use a range of formula and functions to model a real-world problem. I can use spreadsheet tools to format data and predict data trends

Progression Matrix

Level	Strand 1 — Algorithms & Programming (Y8)	Strand 1 (Y9)	Strand 2 — Data Representation (Y7)	Strand 2 (Y9)	Strand 3 — Computer Systems (Y8)	Strand 4 — Networking (Y8)	Strand 4 — Security (Y9)	Strand 5 — Information Technology (Y9)	Blooms' Taxonomy
Year 9 — Mastering		4A - I can create efficient and elegant programs using functions, sub-programs (procedures) and other programming techniques to create structured, re-usable code; 4B - I can use different types of data, including Boolean, string, integer and real appropriately; 4C - I understand the difference between and can use suitable loops including count (for) and condition (while) controlled loops; 4D - I can choose appropriate data structures (Variables, Lists and Dictionaries) to solve problems; 4E - I can write programs which avoid errors through validation, e.g. Try/Except		4A - I can design a (user interface) form to enter data and view records; 4B - I can embed web content onto my form; 4C - I can create a unique database which serves a real-world purpose; 4D - I can create meaningful reports and analyse these to give recommendations based on the data.			4A - I can suggest a suitable method(s) of protection for a particular particular form of attack on an individual or organisation.	4A - I can use 3D references across multiple sheets; 4B - I can use a range of advanced formula such as COUNTIF, VLOOKUP; 4D - I can interpret data and provide a detailed analysis from my model; 4E - I can create a menu system using Macros	Evaluation
Year 9 — Extending		3A - I can perform common operations on numeric and Boolean data; 3B- I can understand and use basic string manipulation, e.g. concatenation, .lower(), .upper(), .title(); 3C -I know how to integrate code from libraries and modules, e.g. import time and import random; 3D - I can use For loops for fixed iteration in Python; 3E - I can create robust programs which run error-free when tested destructively with invalid and erroneous data; 3F - My program meets the brief fully, i.e. solves the problem		3A - I can choose a range of fields which reflect the entity fully; 3B - I can choose a range of appropriate data types for the different fields; 3C - I choose appropriate formatting, e.g. currencies, data formats; 3D - I can create a parameter query which searches the database flexibly; 3E - I can format my report so that it is appropriate for audience and purpose			3A - I can explain the impact that attacks might have on an individual or organisation	3A - I can use Goal Seek to find a target value; 3B - I can use IF Statements to produce conditional outputs; 3C - I can use Validation to limit values on cells; 3D - I can plot complex charts with secondary axis such as climate charts; 3E - I can add trendlines to predict trends	Synthesis
Year 9 — Mastering / Secure	4A - I can import external modules and libraries when relevant such as time and random; 4B - I can successfully combine sequence, selection and iteration; 4C - My program meets the brief fully, i.e. solves the problem; 4D - I can choose appropriate data structures (Variables, Lists and Dictionaries) to solve problems; 4E - I know how to write and use my own simple procedures	2A - I can devise meaningful names for variables; 2B- I can modify variables and constants using operators (+-/*); 2C - I can use basic functions, e.g. input and print; 2D - I can use selection IF statements for selection; 2E - I can use While loops for conditional iteration; 2F - I can create programs which run and are free from logic or syntax errors		2A - I can devise meaningful names for fields; 2B - I know the difference between different data types; 2C - I can create my own database tables; 2E - I can create a query which uses logical operators or wildcards; 2F - I can create a simple printable report to display the results of a search		4A - I can explain the roles of servers, routers, switches, WAPs and NICs; 4B- I can explain how WiFi works and the devices necessary for wireless signals; 4C - I can explain DNS; 4D - I can explain how web hosting works; 4E - I can explain what Cloud Computing is and how it has affected individuals and organisation	2A - I can describe the characteristics of several forms of attacks that might threaten computer systems and networks; 2B - I can describe the characteristics of several methods of prevention to protect computer systems and networks	2A - I can use grid references in my formula; 2B - I can use conditional formatting to highlight values; 2C - I choose appropriate formatting, e.g. currencies, data formats; 2D - I can choose an appropriate chart for continuous or discrete data; 2E - I can format my spreadsheet so that it is appropriate for audience and purpose	Analysis
Year 9 — Extending / Developing	3A - I can perform common operations on numeric and Boolean data; 3B - I can use different types of data including Boolean, string, integer and real appropriately; 3C - My program runs error-free (does not crash); 3D - I can understand and use basic string manipulation, e.g. concatenation, .lower(), .upper(), .title(); 3E - I can use While loops for conditional iteration or For loops for unconditional iteration	1A - I can use variables and constants; 1B - I can identify variables, operators, inputs, outputs and assignments; 1C - I can explain the function of code using #comments		1A - I can add data to an existing database which has been pre-populated; 1B - I can create a simple query to search on one criteria		3A - I can explain the factors that affect the performance of networks; 3B - I can explain the pros and cons of a star and mesh topology; 3C - I can explain the pros and cons of different transmission media; 3D - I can explain the need for encryption across a network	1A - I can recall some forms of attack that might threaten computer systems and networks; 1B - I can recall some common prevention methods to protect computer systems and networks	1A - I remember to start all formula with an equals sign; 1B - I can use arithmetic symbols to perform calculations; 1C - I can use auto functions such as AutoSum; 1D - I can create a chart to visualise data; 1E - I can label my chart to provide meaning and context	Application
Year 8 — Mastering / Secure	2A - I can devise meaningful names for variables; 2B - I can modify variables and constants using operators (+-/*); 2C - I can use basic functions, e.g input and print; 2D - My program has few syntax and logical errors; 2E - I can use selection IF statements for selection		I can explain why data is represented in computer systems in binary form		4A - I can explain how a variety of computer systems work using Von Neumann Architecture keywords; 4B - I can explain how the amount of RAM in a personal computer affects the performance of the computer; 4C - I can explain the need for virtual memory; 4D - I can explain why data is represented in computer systems in binary form	2A - I can explain the difference between a LAN and a WAN; 2B - I can state the hardware needed to connect stand-alone computers into a Local Area Network; 2C - I can state some factors that affect the performance of networks; 2D - I can identify a star and mesh topology; 2E - I can state the advantages and disadvantages of wireless and wired networks; 2F - I can state that the Internet is a worldwide collection of computer networks, i.e. a WAN			Application
Year 8 — Extending / Developing	1A - I attempt to use inputs and outputs; 1B - I can explain the function of code using #comments; 1C - I can program a sequence of instructions; 1D - I can follow a scaffolded structure. However, my code may have syntax errors; 1E - I attempt to use variables and constants		I can calculate basic storage capacity sums. Eg. 100 MB * 10 = 1GB		3A - I can define a computer system; 3B - I can describe the purpose of RAM in a computer system; 3C - I can explain the need for secondary storage; 3D - I can state the purpose of the CPU as the processor of data and information	1A - I can name some network devices; 1B - I can name some devices needed to create a wireless network; 1C - I can name some devices on the Internet			Comprehension
Year 7 — Secure			I can order units of storage from bit to PetaByte		2A - I understand the terms hardware and software; 2B - I understand what the difference between an input and output device is; 2C - I can recall one storage device; 2D - I can recall a variety of input and output devices				Comprehension
Year 7 — Developing			I can state some units of storage		1A - I can name different hardware devices; 1B - I can recall the term input or output device; 1C - I can recall the term storage device; 1D - I can recall the names of different software				Knowledge