Curriculum Related Expectations (CRE's):
Computing & IT

The below criteria are used by the department to assess students' progress, knowledge and skills throughout Year 9.

CRE Descriptor	AUT Term	SPR Term	SUM Term
Mastering *(Learner meets all expectations of Developing and securing, and is succeeding in some or all of these areas as well).*	• Is able to write if...elseif...else statements using a range of relational operators. • Can demonstrate the use of nested selection. • Understand simple Boolean logic [for example, AND, OR and NOT] and its uses in programming. • Is able to decompose a problem and use pattern recognition to develop a suitable solution. • Demonstrates enhance problem-solving skills and a high level of independence to find solutions to problems and to debug their code. • Students are able to fully use KS3 key terms around programming. • Can describe how the Middle Squares algorithm works to create a random number. • Is able to plan effective ideas to develop their programming project (game or other) further. • Use Mu development environment to write, execute, and debug a Python program for the micro:bit. • Can describe what an Embedded System is and how they are different to a General Purpose Computer System and can define what advantages do they have over General Purpose Computers. • Is able to program fully and accurately in context. Mastering students achieve consistently well in all summative tests.	• Use complex functions and formulas such as IIF, Lookups or other advanced features. • Validate data, add rules to check data input. Use absolute / relative referencing. • Carry out binary addition. • Understand the relationship between binary and file size. • Is able to convert Hex to Denary or Binary and vice-versa.	• Demonstrate an advanced understanding of internal and external components including ones you could find on the motherboard. Give a wide range of examples of hardware and peripherals. • Describe some of the functions of an operating system. • Can write about emerging technologies and their impact on society. • Can define what a control system is a give several examples of their use in everyday life, explaining the inputs, outputs and flow of logic (processing) followed.

Securing (*Learner meets all expectations of Developing, and is succeeding in these some or all of these areas as well*).	• Concatenate text and string variables successfully without support. • Is able to write simple if...elseif...else statements. • Can describe different Datatypes and is able to use most key terms. • Understand that a seed, using time, is used to create Random numbers. • Can accurately program the use of random numbers according to a given context. • Is able to choose and apply iteration correctly in a range drawing challenges using Python Turtle. • Able to write, execute, and debug a program which uses core programming constructs for the micro:bit using Makecode.org. • Can use variables and Boolean (true or false) to control the flow of a program and mathematical operators with the micro:bit. • Can trace through code effectively to work out a given outcome. • Has a good understanding of file management and organises their working using a logical folder structure and appropriate naming conventions.	• Describe what Average, Max, Min and Mode values are and how they can be applied to a given context. • Understand the need for data validation and the difference between validation and verification. • Knows how to present data in an easily readable form using a range of methods. • Understand how numbers can be represented in binary. • Understand the difference in numbering systems (Base 2 – binary; Base 10 - denary/decimal). • Convert denary to 8 bit binary and 8bit binary to denary.	• Can clearly define what an algorithm is. • Is able to use Flowol to demonstrate bridge light control system. • Can state what a control system is an give some examples of their use in everyday life, explaining the inputs and outputs. • Know that computers contain processors and explain what the CPU does. • Understand the need for main memory and secondary storage. • Correctly define the term software. • Recognise common operating systems and list some of the functions of an operating system.
Developing (*Learner is succeeding in some or all of these areas*).	• Students can define what a variable is. • Know how to display messages and store a user input in a variable. • Students understand variable naming conventions. • Describe what selection is and explain how it works. • Is able to write simple if...else statements. • Is able to write sequential instructions for Python Turtle. • Is able to draw a given shape using Python Turtle. • Demonstrates some use of iteration within Python Turtle. • List the micro:bit's input and output devices. • Write programs that use the micro:bit's 5✕5 LED display for output. • Can accurately demonstrate the user of using a forever Loop; programming buttons to perform an action with the micro:bit. • Has an understanding of file management.	• Understand the application and benefits of spreadsheets • Know how to navigate Excel. • Demonstrate the user of basic formula using arithmetic operators. • Demonstrate the use of aggregate Functions (SUM, Average, Max, Min and Mode values) • Demonstrate that data validation is in evidence. • Recognise the difference between data (0,1) and information - numbers/text/sound/images/video. • Recognise numbers can be represented in binary. • Carry out simple operations on binary numbers converting between binary and decimal.	• Understand a range of ways to use technology safely, respectfully, responsibly and securely. • Basic understanding of digital footprints, how to protect their online identity and privacy. • Recognise inappropriate content, contact and conduct. • No know how to report concerns. • Be able to read and interpret basic flowchart symbols. • Students will know how to write algorithms using flowcharts. • Describe the difference between hardware and software. • Understand that a computer system consists of Input, Process, and Output. • Recognise input devices and describe their uses. • Recognise output devices and describe their uses. • Identify the core components inside a computer and state their purpose. • Know the difference between application software and system software. • Recognise different types of application software and their uses. • Recognise common operating systems and list their purpose.