Long-term planning

Computing - Year 7

Year 7 Themes	Autumn term 1	Autumn term 2	Spring term 1	Spring term 2	Summer term 1	Summer term 2
	Students will know that	**Students will know that**	**Students will know that**	**Students will know that**	**Students will know that**	**Students will know that**
• **School ICT network basics** • **e-Safety Issues with gaming** • **Word processing skills** • **Understanding algorithms** • **Understanding flowcharts and sequencing** • **Introduction to block-based coding** • **Introduction to text-based coding** **Working towards completing the iDEA bronze award.**	Security issues surrounding passwords not meeting set requirements School expectations surrounding the ICT Code of Conduct and how they should follow and respect this document. Not everyone is who they say they are online, and that people can hide behind fake profiles for various reasons. Gaming addiction is a negative of technology	Microsoft Word has a variety of tools that can assist users in making documents for a range of purposes. The 5 principles of effective logo design are: simple, memorable, timeless, appropriate and versatile In Microsoft Word you can adapt the page layout to enhance the presentation skills of a document by changing things such as: margins, page borders, line spacing.	The symbols that are needed to create a flowchart (start/stop, input/output, process, decision) Sub-routines can be created and called upon throughout flowcharts. This is a way of decomposing a bigger problem and will make the flowchart more efficient if the same sub-routine needs to be called upon throughout.	Block-based programming is another way of representing an algorithm. How to make efficient code, reducing the number of blocks used as this is one way of using “good programming practice”. What features within a game make the game engaging.	In Small Basic you can code both the Graphics Window and Text Window. When using the Turtle in the Graphics window the coordinates are important to understand to control how the Turtle moves around the screen. String concatenation is where you can combine strings with variables to create a complete string output line. When completing selection and iteration in Small Basic, you must declare the end of the statement. E.g. “EndFor” / “End/If”	Python syntax is case sensitive, and spelling of this syntax must match. Data types are important to declare as this allows for validation within programs. Strings are characters/numbers/symbols, integers are whole numbers, floats are decimal numbers. To display a message on the screen the command worded needed is print. Arithmetic operators are used to construct mathematical calculations and for longer, more complex calculations the use of brackets in the correct place needs to be considered. For loops are used when you want to repeat a sequence of instructions for a specific number of times. E.g. For i in

	advances and the impact that in can have on individuals. Reasonings behind PEGI game ratings. To develop an awareness of their own internet usage, including hours spent online to encourage a healthy balance with using digital technology.	Algorithms are step by step instructions to solve a problem. Sorting algorithms are a set of instructions that take an array or list as an input and arrange the items into a particular order. E.g.) Data can be sorted into ascending (A-Z, 0-9) or descending (Z-A, 9-0) order if it is done numerically or alphabetically. The bubble and merge sort are two different methods of sorting algorithms. The bubble sort algorithm looks at data in pairs whereas the merge sort algorithm looks at the data in groups.			Relational/conditional operators are used to establish relationships between expressions. Complex Boolean statements are when you combine more than one condition together e.g. AND/OR	range (1,20): will run the sequences 1-20 times. This is also known as iteration. Constants use capital letters. When creating programs with user input the data type should be specified for validation purposes. E.g. age = int(input()) to ensure only a whole number can be entered in. While loops are used when you want to repeat a sequence of instructions whilst a condition is met. When the condition is broken the loop will end. This is also known as repetition. E.g. while true: Booleans represent one of two values: True or False. Logic errors happen when there is an error in the code that is causing the program to produce incorrect outputs.

		Searching algorithms are used to find target data. The linear and binary search are two different methods of searching algorithms. The linear search algorithm is sequential and will start with the first data item and will continue to check each data in order, whereas the binary search will take the data and keep dividing it in half until it finds the target data.				

	Students will know how	Students will know how	Students will know how	Students will know how	Students will know how	Students will know how
	Confidence in using the Microsoft email system, including attaching documents to staff. Confidence in using other school systems such as VLE/remote access Folder management Keyboard shortcuts CTRL+c/v Use search engines to research information	Use a range of tools to create a unique logo design that can be used for a business that follows the 5 principles of effective logo design. Use a keyboard and mouse with both hands. Use computer shortcuts to complete work such as CTRL +C/+V and using spelling and grammar check. To create algorithmic solutions to problems and be aware that more than one solution can solve the problem To understand that algorithms should	To create working solutions to problems. To decompose problems into smaller, more manageable chunks using subs that can then be called upon throughout the flowchart. To evaluate the effectiveness of a flowchart solution by linking it to a real-life scenario – e.g.) would the bridge lights solution work without causing any crashes or danger to life?	Plan out an idea before creating it, thinking about things such as: game objective, sprites needed, how a score/life/timer system fits in Use variables to hold a “counter” for a score/live/timer system and correct placement for code to add/decrease from the “counter”. Independence when coding. (As much as we usually encourage students to seek help when hit with errors, during “their own game” we expect students to be independent in idea generation, coding, debugging and evaluating) Evaluate the effectiveness of their own game.	Plan out a creative project before creating it, thinking about things such as: graphics window coordinates, angles, when to lift the pen up/down and the sequence the program will follow. Use string concatenation for combining strings with variables. Use selection statements to create dynamic and interactive programs. Use the correct syntax for iteration by using for loops to create efficient code.	Use the python syntax to create, develop and debug programs. Create text output combining strings with other data types (e.g. int/float). Complete mathematical calculations using arithmetic operators such as * / + - Use iteration in python programs using for i in range (#): Use repetition in python programs using while true or statements such as while age != 0: Explain the difference between using “=” and “==” in python and when it is appropriate to use each. Identify the difference between a syntax error and logic error and attempt to debug these.

		be completed in the most simple, efficient way To understand how to decompose a problem into smaller, more manageable chunks				
	Vocabulary and the concepts they link to	**Vocabulary and the concepts they link to**	**Vocabulary and the concepts they link to**	**Vocabulary and the concepts they link to**	**Vocabulary and the concepts they link to**	**Vocabulary and the concepts they link to**
	Email, Virtual Learning Environment, Cyber-Security, Network, Software, Workstation, Grooming, social media, Mobile applications, Gaming addition, PEGI rating	Word processing, formatting, template, touch-typing, folder management, Algorithm, Decomposition, Unambiguous, sorting algorithms, Bubble sort, Merge sort, Searching algorithms, Linear search, Binary search, Computational thinking	Algorithms, Decomposition, Modular programming, Flowchart, Input, Process, Output, Decision, Selection, Sub-program / sub-routine, Sequence	Block-based programming, Selection, Repetition, User experience, Variable, Graphic design, Relational operators	Text-based programming, IntelliSense, conditional/relational operators, Boolean statements, selection, iteration, variables, input, coordinates, syntax	Debug, Text-based programming, syntax, sequence, variables, repetition, iteration, selection, operators, integer division, modulo operator, indexing, python libraries, camel case, constants, Boolean statements, logic error
	Assessment	**Assessment**	**Assessment**	**Assessment**	**Assessment**	**Assessment**
	End of unit VLE quiz	Assessment week 1	Student assessment screenshot PPT End of unit VLE quiz	Student assessment screenshot PPT (Their own game, including evaluation)	Assessment week 2	Low stake quizzes

	Diversity & development of cultural capital	**Diversity & development of cultural capital**	**Diversity & development of cultural capital**	**Diversity & development of cultural capital**	**Diversity & development of cultural capital**	**Diversity & development of cultural capital**
	Spiritual – what family values do households have in terms of technology usage? Moral – Computer Misuse Act, PEGI ratings Social – class/group discussions	Social – class/group discussions, class demonstrations	Spiritual – use of imagination and creativity and reflective of their experiences Moral – consequences of inaccurate solutions in Flowol Social – class/group discussions	Spiritual – use of imagination and creativity and reflective of their experiences Moral – age-appropriate game creations Social – class/group discussions	Spiritual – use of imagination and creativity and reflective of their experiences Social – class/group discussions	
	Cross-curricular opportunities and enrichment	**Cross-curricular opportunities and enrichment**	**Cross-curricular opportunities and enrichment**	**Cross-curricular opportunities and enrichment**	**Cross-curricular opportunities and enrichment**	**Cross-curricular opportunities and enrichment**
	iDEA - SLA 1		Safer Internet Day iDEA - SLA 1	National Careers Week – "Why is developing problem solving skills important for you?"	Maths – plotting coordinates	Alan Turing Day iDEA - SLA 1