ICT Department

Year8 Term 1a

Topic: Unit 6- Introduction to Spreadsheets

Learning Journey

Prior learning: *Students will be using spreadsheet software for the first time during KS3 computing. In some primary schools and during year 7, spreadsheet software may have been introduced to students during maths lessons. Again, this would not be consistent amongst all students and therefore will need to introduce the basic skills of spreadsheet software to all. Students will be expected to know basic maths operators to create formulae and perform calculations.*

	Learning sequence –						***Endpoint***
Main learning steps	Students will learn what a spreadsheet software is and why it is used by individuals and organisations? Students will be introduced to MS Excel and the key components that make up a workbook.	Students will be able to create a simple table in MS Excel to store data e.g. records of student data Students will be introduced to the formatting techniques in MS Excel	Students will be introduced to formulae in MS Excel and how to calculate efficiently using spreadsheet software Students will be able to create basic formulae using basic operators for a given table of data.	Whole class feedback- Bronze assessment Students will be able to use existing data to calculate using basic functions: SUM, MAX, MIN, COUNTA Students will be able to present existing data into graphs	Students will be able to identify benefits and drawbacks of spreadsheet software	Whole class feedback- Silver assessment Students will use their MS Excel skills to create a spreadsheet to track an individual's budget.	Students will know how to navigate a spreadsheet document using rows, columns and cell references. Students will be able to enter different types of data into cells such as text, numbers and formulae. Students will be able to collect primary data, organise it and present data in table and graph format.
Assessment			Bronze test: Multiple-choice		Silver test: Multiple-choice	Gold assessment- Apply Formulae, Formatting, Functions and graphs to a given data set	

Where will we use these ideas again: *Students will revisit spreadsheets in unit 11-Computer Models. In this unit students will use their prior understanding of MS Excel to create and use a spreadsheet model. Students will understand that a spreadsheet model allows individual and firms to make predictions.*

ICT Department

Year: 8 Term 1b

Topic: Unit 7- Cyber-Security

Learning Journey

Prior learning: *Students will have studied the concepts of e-safety and collaborating online safely in year 7 unit 2. This unit will continue the internet safety concepts but move from individual e-safety issues to more business style*

Learning sequence –							***Endpoint***
Main learning steps	Students will explore why our data is valuable to others and why it is important to keep it safe. Students will look at what data companies, such as social media platforms, collect about us and what they use it for. Students will also look at how the law tries to keep our data safe	Students will look at the social engineering tactics deployed by cybercriminals to dupe users into giving away data that could lead to further crime.	Whole class feedback- Bronze assessment Students will explore the concept of hacking and the techniques used by hackers to exploit computer systems. Students will look at the consequences of hacking and what laws are in place to act as a deterrent.	Students will learn about malware and the different categories of malware, as well as understanding how they work and the damage they can do.	Whole class feedback- Silver assessment Students will look at the risks that cyber threats pose to a network. Students will investigate methods of defending the network against attacks, such as firewalls and anti-malware. Students will be introduced to MS Sway and its key features.		Students will understand why an individual's data is valuable to others and why it is important to keep it safe. Students will understand social engineering tactics and how to keep computer systems safe.
Assessment		Bronze test: Multiple-choice		Silver test: Multiple-choice	Gold assessment: Students will design and create a cyber-security presentation in Sway		

Where will we use these ideas again: Student will further learn the concepts of online safety in PSHE lessons and other cross-curricular opportunities

ICT Department

Year: 8 Term 2a

Topic: Unit 8- Introduction to Python

Learning Journey

Prior learning: *Students were introduced to flowcharts and pseudocode and how to construct them in unit 3- Computational Thinking. Students were introduced to Python programming in unit 8- Introduction to Python where they have learnt about sequencing and selection. Computational thinking was introduced in unit 3 and recapped in unit 8*

	Learning sequence –						***Endpoint***
Main learning steps	Students will recap on the four corner stones of computational thinking: Algorithm, Decomposition, abstraction, pattern recognition. Students will recap on how to create flowcharts and write pseudo-code	Students will be able to understand how programming in Scratch is different to Python programming Students will create simple programs in Scratch, EduBlocks and Python to understand the difference of block-based and text-based coding.	Students will be introduced to ReplIT programming environment. Students will create Python programs showing a simple **sequence** of events. Students will learn how to use the PRINT function and how to output a string/character to the screen Students will be able to create output an image using the PRINT function in Python	Whole class feedback- Bronze assessment Students will learn about **data types** in programming and how data is represented in a Python a program Students will learn the importance of declaring data types in a Python program Students will understand the concept of casting so that calculations can be performed in Python	Students will learn what a **Variable** is in programming Students will practice using a variable in Python programs that use the INPUT function to ask simple question such as 'what is your name?' Students will be able to use the PRINT function to output what values are stored in the declared variables.	Whole class feedback- Silver assessment Students will learn about the concept of **Selection** in programming. Students will create Python programs where the IF ELSE function is used to allow selection in their code. Students will develop this code to allow INPUT from a user and PRINT the values stored in a variable.	Students will know how to create a simple program using a textual programming language. Students will be able to understand the data types used in Python Students will be able to solve a problem using sequencing and selection in a textual programming language. Students will be able to detect and correct syntax errors.
Assessment			Bronze test: Multiple-choice		Silver test: Multiple-choice	Gold Assessment- Plan and create a Python code for a given problem	

Where will we use these ideas again: Students will continue to learn the concepts of programming in the Python unit- 15. Programming in Python will also be revisited when teaching the concepts of Boolean logic, searching and sorting in unit 17

ICT Department

Year: 8 Term 2b
Topic: Unit 9- Human Computer Interaction
Learning Journey

Prior learning: *This will be the first unit looking at HCI design concepts. In primary school, students may have investigated design choices for technological devices.*

Learning sequence –							***Endpoint***
Main learning steps	Students understand the terms HCI, GUI, WIMP and WYSIWYG Students will study existing HCI designs and recognise key HCI design concepts	Students will compare two different online application interfaces and explain why the characteristic and design of each interface are different.	Whole class feedback- Bronze assessment Students will plan a design of a mobile phone application for a given problem Students will draw a wireframe to illustrate the interface designs of each screen	Students will explain what key features have been used in their designs and why they have been chosen Students will write elevator pitch to present their mobile application idea	Whole class feedback- Silver assessment Students will create their mobile phone application interfaces on an online platform		Students will understand what human computer interaction is and its importance when designing technologies. Students will be able to compare computer devices and online interfaces. Students will design and create a mobile phone application for a given problem
Assessment		Bronze test: Multiple-choice		Silver test: Multiple-choice		Gold assessment: Create a Dragon' Den style pitch of the final mobile phone application idea and design	

Where will we use these ideas again: *Students will continue to look at design concepts in many units such as in the programming units, to ensure the program that is output is user-friendly. Also in the AI and robotics unit, students will investigate AI interfaces and how computers react to requests.*