

KS3 ICT & Computing 2022-2023

| | Year 7 | Year 8 | Year 9 |
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| TERM | Extension from KS2 | Continued Skills... | Preparation for KS4 |
| TERM 1 | General IT Procedures | ESAFETY Social Media, Sharing Information Online Digital Footprint, Privacy Settings Identity Theft, Phishing | E-SAFETY Cyber Threats, Social Engineering DOS Attack, Hacking - Hats BWG Malware, Mitigation |
| | ESAFETY Cyberbullying & Advice, Trolling Social Media/Gaming - staying safe online Creating Strong Passwords | | |
| Half Term | | | |
| TERM 2 | Bebras Challenges UK Computational Thinking, problem solving | Bebras Challenges UK Computational Thinking, problem solving | Bebras Challenges UK Computational Thinking, problem solving |
| | COMPUTATIONAL THINKING Decomposition, Abstraction, Algorithms | PROGRAMMING PYTHON String Manipulation Arithmetic Operators Casting, IF Statements | PROGRAMMING PYTHON Boolean Operators, ELSE/ELIF FOR Loop, WHILE Loop Array/List Read/Write/Amend to file |
| | DATA REP 1 What is Binary? Binary and Denary | | |
| | PRESENTATION & PUBLICATIONS Text/Image, basic formatting Page design/layouts | PRESENTATION & PUBLICATIONS House Styles, Slide Master Animations, Hyperlinks | |
| Christmas Break | | | |
| TERM 3 | PROGRAMMING BLOCKBASE Algorithmic Thinking, Decomposition Pseudocode, Instructions, variables | SPREADSHEETS MIN, MAX, AVERAGE functions Conditional Formatting CountIF Moderate formatting | SPREADSHEETS IF Statement, Data Validation VLOOKUP Absolute Cell Referencing Security |
| Half Term | | | |
| TERM 4 | PROGRAMMING TEXTBASE 1 Small Basic, Input/Output, Variable Iteration | COMPUTATIONAL THINKING Pseudocode & Flowcharts | AUGMENTED REALITY * <i>Subject to change</i> |
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| Easter Break | | | |
| TERM 5 | SPREADSHEETS Basic +/.* SUM function Basic formatting Graphical Representation | DATA REP 2 Recap Binary & Denary Binary & Denary conversions Binary Addition | |
| | | | DATA REP Recap conversions binary/denary addition Hexadecimal conversions |
| Half Term | | | |
| TERM 6 | PROGRAMMING TEXTBASE 2 Python, Print, Input/Output Variables, Concatenate | SYSTEMS ARCHITECTURE 2 Operating System Application Software Systems Software | SORTS & SEARCHES SORT - Merge, Insertion, Bubble Searches - Linear & Binary |
| | SYSTEMS ARCHITECTURE 2 Input/Output/Storage devices | | PRESENTATION & PUBLICATIONS Mailmerge, Integrated Document Scrolling marquee |
| Summer Break | | | |

KS3 Progress Grid - Information Technology, Computer Science & Digital Literacy

| LP | Year | INFORMATION TECHNOLOGY | COMPUTER SCIENCE | DIGITAL LITERACY |
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| 8-9 | 9 | <ul style="list-style-type: none"> Students will independently, critically evaluate the quality of solution(s) and make appropriate improvements to the solution. Presentation skills, creating digital publication, audience and purpose, colour schemes, multimedia, embedding other documents, hyperlinks To independently utilise & demonstrate the use of advanced tools & features of spreadsheet. IF statement, V-Lookup, Absolute cell referencing Can fully explain the Fetch – Execute Cycle and identify internal components of a PC | <ul style="list-style-type: none"> Can understand there are searching & sorting algorithms - Binary/Linear To apply the fundamental principles & concepts of computational thinking to solve a problem/task. Can write a program for a give scenario/problem to solve a task Read/write/append, file handling, calling function Can carry out Array & Lists Can develop and extend a program Can explain all 3 sorting algorithms Can carry out all 3 sorting algorithms | <ul style="list-style-type: none"> Hacking, the different types of hacker, (white, grey, black), their roles and impact. Mitigation of various social engineering & malware Consequences of DOS attack |
| | 8 | <ul style="list-style-type: none"> Students will perform complex searches for numerous information and query data on multiple tables e.g. using a relational database Can recognise the importance of gaining permission when using information from the internet. Can evaluate the quality of solutions and can identify improvements | <ul style="list-style-type: none"> Distinguish and discuss between the characteristics of different sorting algorithms. Explain the principals of the divide and conquer searching algorithm. | <ul style="list-style-type: none"> Can suggest suitable methods to mitigate against various cyber crime |
| | 7 | <ul style="list-style-type: none"> Students to search internet with various parameters and conditions. To be able to demonstrate how different input and output devices are used in real life | <ul style="list-style-type: none"> Can perform a searching algorithm on larger text and numeric sets of data. Can address Logic error & syntax error | <ul style="list-style-type: none"> Can understand that data must kept safe and secure and suggest ways to protect it. Can apply methods to keeping data safe on the computer Can advise that data on the internet requires careful protection of online privacy |

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| 6-7 | 9 | <ul style="list-style-type: none"> • Can describe the Fetch – Execute Cycle • Can identify and explain internal parts of a computer • To demonstrate the use of some advanced tools & features of spreadsheet (Concatenation Roundup, round down) • Can choose & produce appropriate graphical representation of specified data | <ul style="list-style-type: none"> • Can identify & list the data storage units • To carry out Functions, formula • Can name and describe some sorting algorithms • Can carry out a various sorting algorithm • Be able to apply appropriate Datatypes to a given task | <ul style="list-style-type: none"> • Can explain how Cyberattacks, DOS attack works • Social engineering - how to mitigate it. • Understand prevention of online risks, cyber-attacks, hacking, social engineering, different methods. • Can distinguish between some types of Malware & how they are spread |
| | 8 | <ul style="list-style-type: none"> • Can choose appropriate software of specified data • Can explain the use of a range of input and output device • Can use a given criteria to make improvements to the quality of work | <ul style="list-style-type: none"> • Can give advantages and disadvantage to a sorting algorithm. • Distinguish between some of the characteristics of different sorting algorithms. • | <ul style="list-style-type: none"> • Can identify and describe few examples of Cybercrime • Can give advice on how to protect against keeping data safe with some reference to cybercrime. |
| | 7 | <ul style="list-style-type: none"> • Can make suitable design choices for a given audience • Can explain the use of input and output device | <ul style="list-style-type: none"> • Can perform a searching algorithm on text and numeric data. • Can explain what binary is and carry out Den-Binary conversions. | <ul style="list-style-type: none"> • Can explain some methods to keeping data safe on the computer • Can recognise that data on the internet requires careful protection of online privacy |
| 4-5 | 9 | <ul style="list-style-type: none"> • Can partially describe the Fetch – Execute Cycle • Can explain some internal parts of a computer • Can apply suitable formatting techniques to a spreadsheet model • Can explain the use of and give examples of spreadsheets in a real-life example • Can demonstrate Roundup, round down | <ul style="list-style-type: none"> • Can carry out concatenation • use various Datatypes - Integer, String, Float, character, Functions, formula • Can identify syntax and logic errors in text-based program • Can write pseudocode for a given scenario/problem to solve a task • Can write a simple program for a give scenario/problem to solve a task • Can write a program using arithmetic operation • Can identify and name various sorting algorithms <ul style="list-style-type: none"> • Can carry out a couple of sort algorithms | <ul style="list-style-type: none"> • Can understand the awareness of predators online & consequences • Can describe Social engineering - different methods • Can identify different types of Malware and they have different roles. • Can understand what Malware is and its impact. |

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| | 8 | <ul style="list-style-type: none"> • Can make suitable design choices for a given audience • Can use a given criteria to make improvements to the quality of work | <ul style="list-style-type: none"> • Can look at a data set identify and carry out the best searching algorithms to use on a set of basic numeric data (5 items) • Can give an advantage or disadvantage to a sorting algorithm. | <ul style="list-style-type: none"> • Can identify and describe few examples of Cybercrime • Can understand that the information stored on a computer may not be secure • Can describe the need to have strong passwords. |
| | 7 | <ul style="list-style-type: none"> • Can make use of additional tools • Identify the requirements for target audience • Can explain the difference between hardware and software • Can label main parts of a computer • Can to identify different input and output devices | <ul style="list-style-type: none"> • Convert positive denary whole numbers into 2-digit hexadecimal numbers and vice versa • Can explain the difference between syntax and logic errors | <ul style="list-style-type: none"> • Can understand the need for keeping personal information safe |
| 2-3 | 9 | <ul style="list-style-type: none"> • Can understand that a computer has the Fetch – Execute Cycle • Can identify some internal parts of a computer • Can apply some formatting techniques to a spreadsheet model • Can demonstrate & build on the basic spreadsheet functions & formulas | <ul style="list-style-type: none"> • Can explain different datatypes and their uses • Can write a simple program for a user input • Name two sorting algorithms • Can carry out one sorting algorithm | <ul style="list-style-type: none"> • Can give examples of Cybercrime • Responsible sharing of information online, what is appropriate, safe • Social engineering awareness • Can understand there are different types of Malware. |
| | 8 | <ul style="list-style-type: none"> • Can use a software application for a given task • Can plan a digital publication • Can use text & images to create digital content. | <ul style="list-style-type: none"> • Convert positive denary whole numbers into 8-bit binary numbers and vice versa • Can carry out a basic search with advice from the teacher on which searching algorithm to use • Can give one advantage or disadvantage to a searching algorithm. | <ul style="list-style-type: none"> • Can identify how the use of technology can impact them • Can understand there is various Cybercrime |
| | 7 | <ul style="list-style-type: none"> • Can identify everyday digital devices • Can identify piece of hardware • Can identify piece of software • Can use software to present digital content: data and information. | <ul style="list-style-type: none"> • Understands that data is represented as a sequence of 1s and 0s there are only two digits to select from | <ul style="list-style-type: none"> • Can explain cyberbullying behaviour • Can demonstrate the use of computers safely • Can understand that the information stored on a computer may not be secure |

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| | | <ul style="list-style-type: none"> • Can use basic features to present content (text & images) • Can copy & paste images from the internet | | <ul style="list-style-type: none"> • Can understand the need for keeping personal information safe |
| 0-1 | 9 | <ul style="list-style-type: none"> • Can understand that computers carry out instructions • Can understand that there are various components to a computer. • Can use a range of digital devices safely | <ul style="list-style-type: none"> • Name a sorting algorithm. | <ul style="list-style-type: none"> • Understands guidelines for safe IT equipment & internet use • Understands to communicate safely and respectfully online |
| | 8 | <ul style="list-style-type: none"> • Can use a range of digital devices safely • Can identify Hardware & Software | <ul style="list-style-type: none"> • Can understand what an Algorithm is | <ul style="list-style-type: none"> • Understands the importance of being safe online • Can give examples of social media and understands that the information put on can be seen by others |
| | 7 | <ul style="list-style-type: none"> • Login to network • Create folder file structure • Using web browser • Understands that people interact with computers • Shares their use of technology in school & home • Can identify a digital device | <ul style="list-style-type: none"> • Understand computers only understand binary 0's & 1's | <ul style="list-style-type: none"> • Can give examples of how you have used IT in their previous school or at home • Understand what E-Safety is • Can understand what cyberbullying is. • Can use computers safely by following rules • Understand that there can be dangers when using devices (computer, phone) |