

Year Six: Autumn 2

Topic title: E-safety - Life online

Computer systems and networks -Bletchley Park and the history of computers AND Exploring AI

Skills used: Computer science (CS) Information Technology (IT) Digital Literacy (DL)

Big questions: Bletchley park and the history of computers, How have computers evolved? Exploring AI, What is AI?

<p>Prior learning:</p> <ul style="list-style-type: none"> • Computer systems and networks. - Bletchley park. • Year 5 E-safety- E-safety 	<p>E-safety Skills:</p> <p>Learning about the positive and negative impacts of sharing online. (DL) Learning strategies to create a positive online reputation. (DL) Understanding the importance of secure passwords and how to create them. (DL) Learning strategies to capture evidence of online bullying in order to seek help. (DL) Using search engines safely and effectively. (DL) Recognising that updated software can help to prevent data corruption and hacking. (DL)</p> <p>E-safety Knowledge:</p> <p>To know that a digital footprint means the information that exists on the internet as a result of a person's online activity. To know what steps are required to capture bullying content as evidence. To understand that it is important to manage personal passwords effectively. To understand what it means to have a positive online reputation. To know some common online scams.</p>	<p>Exploring AI</p> <p>Skills:</p> <p>Identify different types of AI and their applications in everyday life (CS) Applying coding skills like decomposition and pattern recognition to interact with AI applications. Analysing the effectiveness of prompts and refine them for improved AI outputs (CS) Using text-based and image-based AI tools to generate content. (IT) Exploring ethical considerations around AI use and its impact on society. (DL)</p> <p>Exploring AI Knowledge:</p> <p>To know that AI is artificial intelligence and is used in everyday life. To know that AI is trained on data to recognise patterns and generate outputs. To know that AI can be used to generate written content. To know that AI can be used to create visual content like pictures. To know that AI can help generate basic HTML code to create the structure and layout of a website. To know that there are ethical issues surrounding AI, including data privacy, bias and responsible use.</p>	<p>Bletchley park and the history of computers</p> <p>Skills:</p> <p>Learning about the history of computers and how they have evolved over time. (CS) Using the understanding of historic computers to design a computer of the future. (CS) Using past experiences to help solve new problems. (CS) Writing increasingly complex algorithms for a purpose. (CS) Remixing existing code to explore a problem. (CS) Debugging quickly and effectively to make a program more efficient. (CS) Changing a program to personalise it. (CS) Evaluating code to understand its purpose. (CS) Predicting code and adapting it to a chosen purpose. (CS) Using search and word processing skills to create a presentation. (IT) Planning, recording and editing an audio recording. (IT) Creating and editing sound recordings for a specific purpose. (IT) Understanding how search engines work. (IT) Understanding the importance of secure passwords and how to create them. (DL) Using search engines safely and effectively (DL)</p> <p>Knowledge:</p> <p>To know the importance of having a secure password and what "brute force hacking" is. To know the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2. To know about some of the historical figures that contributed to technological advances in computing. To know what techniques are required to create a presentation using appropriate software. To know that sound clips can be recorded using sound recording software and that sound clips can be edited and trimmed.</p>
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Critical Content Statements:

<p>E-safety</p> <p>Digital footprint - The content someone shares about themselves online. Digital personality- The person that companies, organisations and other people see based on their digital footprint. Online reputation-The judgement of a person from information shared by themselves and others online. Personality - The qualities and characteristics that make you who you are. Selfie - A self-portrait that a person takes of themselves using a camera on a digital device or smartphone. Sharing online -The way people communicate (share and receive information) with each other over a computer network, such as the internet.</p>	<p>Exploring AI</p> <p>AI - Exploring ethical considerations around AI use and its impact on society. AI Generated Text – Written content produced by artificial intelligence. AI Generated Image – Images produced by artificial intelligence. Applications -The ways in which technology or software is used to perform tasks. Authenticity- Being genuine or real Ethical- Related to what is right or wrong Implications – the possible effects or results of an action Modify-To change or alter something Prompt- An instruction that gives an action or response Trained – Conditioned or taught to perform a task or to behave in a certain way through practice or instructions</p>	<p>Bletchley park and the History of computers</p> <p>Acrostic Code-Exploring ethical considerations around AI use and its impact on society. Audio advert – An advert for a product using only sound recordings that might be heard on radio and podcasts. Background Noise – A (secondary) sound that is not the focus because there is another primary sound. Brute force hacking – When a hacker uses different methods, such as trial and error, to break into secured information. The Colossus – The worlds first electronic, programable computer. CPU (central processing unit) -The brain of the computer that processes all the data from input and output devices and runs the programs on the computer Trial and error – trying different methods to solve a problem until one works. Cipher – A way of writing information in a secret code</p>
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Year Six : Spring 2

Topic title: E-safety- Sharing online **And** capturing evidence
Big Data 1-

Skills used: Computer science (CS) Information Technology (IT) Digital Literacy (DL)

Big question: How do barcodes, QR codes, RFID technologies help us?

Prior learning:

- Mars Rover
- Year 5 E-Safety

E-safety Skills:

Learning about the positive and negative impacts of sharing online. (DL)
Learning strategies to create a positive online reputation. (DL)
Understanding the importance of secure passwords and how to create them. (DL)
Learning strategies to capture evidence of online bullying in order to seek help. (DL)
Using search engines safely and effectively. (DL)
Recognising that updated software can help to prevent data corruption and hacking. (DL)

E-safety Knowledge:

To know that a digital footprint means the information that exists on the internet as a result of a person's online activity.
To know what steps are required to capture bullying content as evidence.
To understand that it is important to manage personal passwords effectively.
To understand what it means to have a positive online reputation.
To know some common online scams.

Knowledge:

To know that data contained within barcodes and QR codes can be used by computers.
To know that infrared waves are a way of transmitting data.
To know that Radio Frequency Identification (RFID) is a more private way of transmitting data.
To know that data is often encrypted so that even if it is stolen it is not useful to the thief.

Skills:

Understanding and identifying barcodes, QR codes and RFID. (CS)
Identifying devices and applications that can scan or read barcodes, QR codes and RFID. (CS)
Understanding how barcodes, QR codes and RFID work.(IT)
Gathering and analysing data in real time. (IT)
Creating formulas and sorting data within spreadsheets. (IT)
Learning how 'big data' can be used to solve a problem or improve efficiency. (IT)

Critical Content Statements:

E-safety

Digital footprint - The content someone shares about themselves online.
Digital personality- The person that companies, organisations and other people see based on their digital footprint.
Online reputation-The judgement of a person from information shared by themselves and others online.
Personality - The qualities and characteristics that make you who you are.
Selfie - A self-portrait that a person takes of themselves using a camera on a digital device or smartphone.
Sharing online -The way people communicate (share and receive information) with each other over a computer network, such as the internet.

Big Data

Big data-Massive deposits of information that continue to be collected through the internet, used by data analysts to investigate, analyse and determine ways to improve businesses.
Bluetooth- Device to device connectivity, for example sharing images between two smart phones.
Corrupt data -When data becomes unstable, unusable, unreadable from either transfer or storage.
Digital revolution- An era beginning in the 1980s, when technology began to develop from using analog to digital technologies. It is sometimes known as the Third Industrial Revolution.
GPS Global Positioning System, designed to monitor satellite data to determine your position on Earth, for example in a car sat nav system.
Infrared waves- The red section of the electromagnetic spectrum, which is invisible to the eye but can transmit small amounts of data.
Internet of Things (IoT)- A network of smart devices around a building that collect, monitor and distribute data to work harmoniously together.
QR code Quick Response code. Is presented in a similar way to a bar code and when scanned, can take you to a specific website or provide information.
RFID Radio Frequency Identification- is a device that uses radio signals to check where something or someone is.
SIM- Subscriber Identity Module. A SIM card includes a chip that stores a unique IMSI (International mobile subscriber identity) to enable you to register your mobile phone number.
Computer simulation-Computer generated imitation of something such as a program test or product prototype.
Smart school/city -A school or city, which uses IoT technology to monitor and react to events, so that they can operate in a more interactive way, in real time.

Year Six: Summer 2

Topic title: E-safety- Think before you click
programming - Intro into Python

Skills used: Computer science (CS) Information Technology (IT) Digital Literacy (DL)

Big question: What is Python?

Prior learning:

- Programming 2 micro:bit

E-safety Skills:

Learning about the positive and negative impacts of sharing online. (DL)
 Learning strategies to create a positive online reputation. (DL)
 Understanding the importance of secure passwords and how to create them. (DL)
 Learning strategies to capture evidence of online bullying in order to seek help. (DL)
 Using search engines safely and effectively. (DL)
 Recognising that updated software can help to prevent data corruption and hacking. (DL)

E-safety Knowledge:

To know that a digital footprint means the information that exists on the internet as a result of a person's online activity.
 To know what steps are required to capture bullying content as evidence.
 To understand that it is important to manage personal passwords effectively.
 To understand what it means to have a positive online reputation.
 To know some common online scams.

Knowledge:

To know that there are text-based programming languages such as Logo and Python.
 To know that nested loops are loops inside of loops.
 To understand the use of random numbers and remix Python code.

Skills:

Decomposing a program into an algorithm. (CS)
 Writing increasingly complex algorithms for a purpose. (CS)
 Debugging quickly and effectively to make a program more efficient. (CS)
 Remixing existing code to explore a problem. (CS)
 Using and adapting nested loops. (CS)
 Programming using the language Python. (CS)
 Changing a program to personalise it. (CS)
 Evaluating code to understand its purpose. (CS)
 Using logical thinking to explore software independently, iterating ideas and testing continuously (IT)

Critical Content Statements:

E-safety

Digital footprint - The content someone shares about themselves online.
Digital personality- The person that companies, organisations and other people see based on their digital footprint.
Online reputation-The judgement of a person from information shared by themselves and others online.
Personality - The qualities and characteristics that make you who you are.
Selfie - A self-portrait that a person takes of themselves using a camera on a digital device or smartphone.
Sharing online -The way people communicate (share and receive information) with each other over a computer network, such as the internet.

Intro to Python

Algorithm - A sequence of instructions which, when followed, solve a problem.
Code (computer) A set of instructions written in programming language, to tell a computer what to do.
Computer command-To give an order or instruction to a computer, to complete a particular task.
Decompose - To break something down into smaller chunks.
Import (software)- To pull another file into software, to place, edit and manipulate.
Indentation (programming)-In programming (for example Python), indentation is used to define a block of code.
Loop- A repeated sequence of instructions.
Nested loop - A loop, within a loop.
Random numbers- An unpredictable sequence or reveal of numbers.
Remix - Something that has been reworked to produce a varying version of the original.
Script libraries -A series of pre-written, functional codes that can be accessed and imported into a program to save time.
Variable- This could be a number or text, that can change each time the program is run and often in combination with selection to change the end result of the program