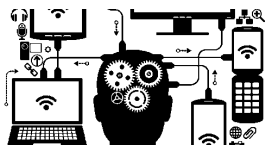
KS3 ICT/Computing - LEARNING JOURNEY

Where to next??? BTEC ICT or Computer Science……

Start of KS3 Roadmap



Introduction
Basic skills needed for KS3. Topics to cover are email, google classroom, all drives, folder setup, saving etc. Student/Teacher expectations.

7.1 Input, Output and Storage Devices (CS)
Basic Input, output and storage devices. Ensuring pupils can select the most appropriate for different scenarios. Ext: Disability devices
Assessment: Peer

7.2 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc

7.3 Basic Binary (CS)
Understanding how the computer works using binary, be able to convert from Binary to denary and back.Introduce binary addition and overflow error
Assessment: Self

7.0 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc

7.4 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc

7.5 Data Flow Diagrams/Flowcharts (CS)
Basic data flow diagram shapes and what they represent, the different boolean criteria to help data flow and be able to apply this to simple scenarios
Assessment: Teacher

7.6 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc

7.7 (CS/BTEC)
Computer legislation, ensuring the CMA, DPA, copyright and RIP act are all covered.
Assessment: Peer

8.1 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc)

8.2 Binary Development (CS)
Binary Revisit: Recapping binary basics and progressed through logic gates, image and sound representation. Introduce logic gates
Assessment: Teacher

8.3 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc)

8. 4 App Designs (BTEC)
Review current apps and what makes them popular, then design, create and review their own apps.
Assessment: Peer

8.5 E-Safety Topic
Understanding the implicatio… being online. (This topic will vary according to society trends etc)

8.6 Spreadsheets and Data Manipulation (BTEC)
Understand the key terms related to SS, including formulas, functions
Assessment: Peer,

8.7 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trenc etc)

8.8 Python Programming
Understand python terminology and implement this in their codes. Including variables, boolean criteria and loops.
Assessment: Teacher

8.9 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc)

8. 10 Networks (CS/BTEC)
Understand the types of networks including P2P and Server based. List the components of a network and a range of topologies
Assessment: Self

9.1 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc)

9.2 Image Editing
Investigate how images can be edited through adobe firework.
Assessment: Parental

9.3 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc)

9.4 Cyber Security (CS/BTEC)
Pupils will investigate the different types of malware, how phishing occurs, security measures that can be put in place.
Assessment: Teacher

9.5 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc)

9.6 System Architecture (CS)
Understand the structure of the CPU, list the different components, understand the concept of IDE, translators, compilers etc
Assessment: Self

9.7 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc)

9.8 Artificial Intelligence/Ethics (CS)
Discuss the impact of AI and the future developments and the ethical implications of AI
Assessment: Peer

9.9 E-Safety Topic
Understanding the implications of being online. (This topic will vary according to society trends etc)

9.10 Moral scenarios/Podcast creation (CS)
Review moral scenarios, present findings in a Podcast, with keyword documentation.
Assessment: Peer

YEAR 7 KS3

YEAR 8 KS3

YEAR 9 KS3

OPTIONS

KS3 Overview

Yr 7:

Unit of Work	Topic	Areas to Cover	Link to Curriculum
1 Assessment Method:	Basic Skills	Pupils must be able to: ● Set up folders ● Save files into the correct place ● Access Google Classroom ● Access Google Docs ● Understand how to organise google docs ● Be able to share and access share documents with others ● Be able to access their school email ● Be able to create subfolders within their school email *Esafety lesson - Topical Issue.*	Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns
2 Assessment Method: Peer	Input/Output/Storage Devices	Pupils must be able to: ● Understand the difference between Hardware and software ● Identify a range of input, output and storage media ● Identify how certain hardware and software can support those with a disability *Esafety lesson - Topical Issue.*	Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems (CS Link)
3 Assessment Method: Self	Basic Binary	Pupils must be able to: ● Understand what machine code is ● Be able to define binary ● Be able to convert binary to denary and back ● To convert binary to hex and back ● Be able to add in binary ● Explain overflow errors and why they occur *Esafety lesson - Topical Issue.*	understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] (CS Link)
4 Assessment Method: Teacher	Data flow Diagrams	Pupils must be able to: ● List data flow symbols ● Breakdown problems into their basic forms ● Create data flow diagrams for a range of programming scenarios *Esafety lesson - Topical Issue.*	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems (CS and BTEC Link)
5	Computer Legislation	Pupils must be able to: ● Explain the 4 main legislations including Computer Misuse Act, Data Protection Act, Copyright and Regulation of Investigatory Powers Act. ● Understand how it impacts on them and society ● Understand the implications of breaking these acts.	Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns (CS/BTEC Link)

KS3 Overview

Yr 8:

Unit of Work	Topic	Areas to Cover	Link to Curriculum
1 Assessment Method: Parental	Advanced Binary	Pupils must be able to: ● Recap previous learning ● Introduce binary shift - left and right ● Identify how images are stored as binary and the impact of colour depth ● Identify how sound is stored as binary ● Introduce logic gates - AND, OR and NOT *Esafety lesson - Topical Issue.*	Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits (CS Link)
2 Assessment Method: Peer	App Design	Pupils must be able to: ● Review current apps and be able to identify what is good/bad about them ● Create a moodboard, site plan and designs for a new app idea ● Create their app and test it, it must contain images and text ● Present their app idea to a team of peers *Esafety lesson - Topical Issue.*	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability (BTEC Link)
3 Assessment Method: Teacher	Spreadsheets and Data Manipulation	Pupils must be able to: ● Understand the key terms of cell, cell reference, formula, function, worksheet etc ● Apply basic calculations including +, -, * etc ● Use basic functions including SUM, COUNT, MAX, MIN etc ● Format a spreadheet and implement macros for easy navigation ● Understand the types of graphs and when they are most suitable ● Create a range of graphs *Esafety lesson - Topical Issue.*	Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems (BTEC Link)
4 Assessment Method: Teacher	Python Programming	Pupils must be able to: ● Recap turtle programming. ● Introduce key terms including variable, input, print functions etc ● Create basic programming to output a user input ● Do basic calculations using boolean operators like +,- etc ● Introduce loops - for and while, pupils need to understand the difference between the two. *Esafety lesson - Topical Issue.*	Use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem (CS Link)
5 Assessment Method: Self	Networks	Pupils must be able to: ● Explain the key terms of LAN, WAN, WWW and Intranet ● Understand the difference between P2P and Server based ● Investigate a range of topologies - Star, bus etc ● Investigate the different network components needs to make a network *Esafety lesson - Topical Issue.* *Future Week*	Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems (CS Link)

KS3 Overview

Yr 9:

Unit of Work	Topic	Areas to Cover	Link to Curriculum
1 Assessment Method: Parental	Image Manipulation	Pupils must be able to: ● Understand the main tools used in image manipulation including brush, text etc ● Understand how layers are used when developing images ● Investigate the different file types and how they are used ● Take an image and reinvent it using their new skills *Esafety lesson - Topical Issue.*	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability (BTEC Link)
2 Assessment Method: Teacher	Cyber Security	Pupils must be able to: ● Understand the differences between physical and software security ● Understand the term malware and list the types ● Explain what a DOS attack is and why they might occur ● Understand the term phishing and ways people might get caught ● List the 3 types of hackers and the differences between them ● The user access restrictions that can be used and why - access rights, physical methods and authentication. ● Firewalls, anti-virus software and interface design and the impact these can have *Esafety lesson - Topical Issue.*	Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns (CS/BTEC Link)
3 Assessment Method: Self	System Architect	Pupils must be able to: ● Label a CPU and define what each section does ● Understand the impact clock speed and the number of cores can have on a computer system ● Understand the role of a translator, compiler etc ● Define what an IDE is and how it can help the user. *Esafety lesson - Topical Issue.* Options Lesson	Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits (CS Link)
4 Assessment Method: Teacher: Peer	AI and Ethics	Pupils must be able to: ● Define the term Artificial Intelligence ● Understand the 7 min criteria that define AI ● Understand the development of AI over the last decade ● Identify the impact it has had on people's lives and jobs. ● Identify the future impact it may have ● Explore a topical development in AI- Driverless cars for example. *Esafety lesson - Topical Issue.*	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users (CS/BTEC Link)
5 Assessment Method: Parental	Moral scenarios and Podcasts	Pupils must be able to: ● Understand the moral implications of using technology- from a range of different views. ● Understand how to ● Investigate the different file types and how they are used ● Take an image and reinvent it using their new skills *Esafety lesson - Topical Issue.*	Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability (BTEC Link)

KS3 Mapped to the National Curriculum

CHS KS3 SOL mapped to the National Curriculum	Input/Output/ Storage	Basic Binary	Flowcharts	Computer Legislation	App Design	Spreadsheets	Advanced Binary	Python Programming	Networks	Image Manipulation	Cyber Security	System Architecture	AI and Ethics
Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems			■			■			■				
Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem			■					■					
Use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions					■			■					
Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]		■					■						
Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems	■								■			■	
Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits							■					■	
Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users					■					■			■
Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability					■					■			
Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct, and know how to report concerns				■							■		